Kaarlo Katiskoski

The cemetery and the dwelling site Vaateranta in Taipalsaari, southeastern Finland

Abstract

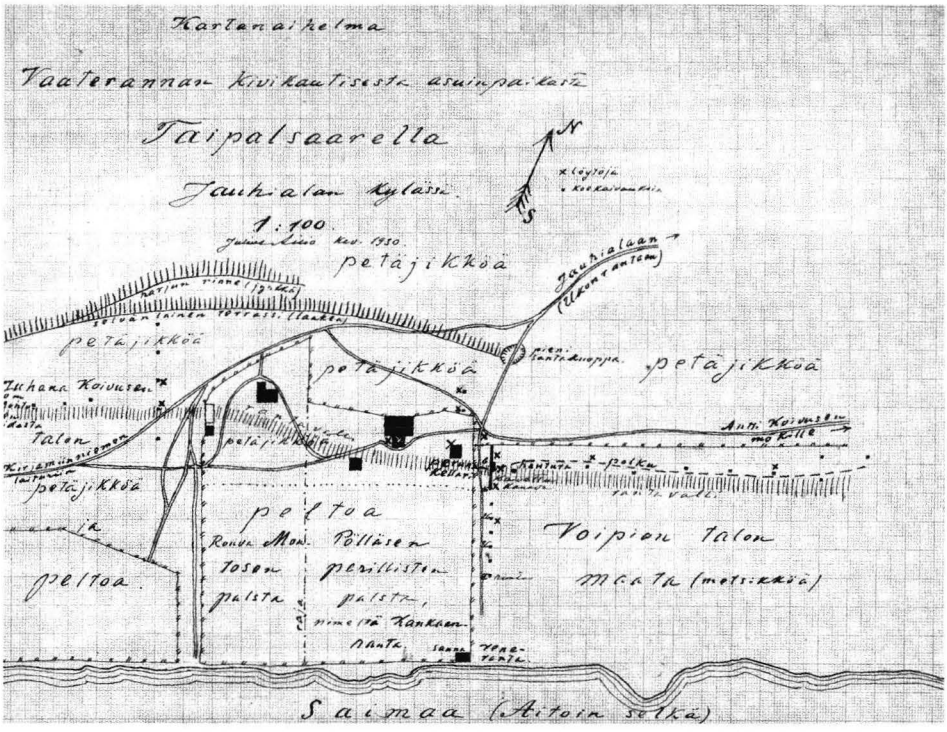
This paper is based on the results of the latest excavation project (1997–99) carried out at the predominantly Typical Comb Ware dwelling site of Vaateranta in Taipalsaari. The site has yielded a Neolithic cemetery among the largest of its kind in Finland with more than 20 inhumations and a cremation as well. This presentation focuses on the cemetery, which has a variable and even remarkable find assemblage. The adjoining dwelling site in addition to subsistence and dating problems will be discussed as well. On grounds of the material available at present some conclusions differing from earlier ones will be put forward. In the concluding chapter some aspects of a Neolithic society are being sketched as reflections through the cemetery. This paper was written already in 2000-2001 and completed only in 2003 in connection with a new AMS-dating and an osteological analysis by ms. Eeva-Kristiina Lahti appended to this article.

Introduction: the site and the history of research

The Stone Age dwelling site and burial ground of Vaateranta is located c. 4 kilometres SSE of the parish church of Taipalsaari in Southern Karelia (*Map 1*). The site complex is situated on the uppermost transgression terrace of the ancient lake Saimaa water complex (c. 80–81 m a.s.l.) between 70 to 100 metres from the present shoreline.

Potsherds and flint flakes from the site were firstly reported to the National Museum of Finland in 1929 and the following summer J. Ailio carried out a test excavation (*Map 2*). A test trench and pits revealed a large Stone Age dwelling site, at least some 200 meters along the terrace. The site was dated mainly to the Typical Comb Ware (Ka II) period but to the Early Comb Ware as well. As no signs of transgression were observed, Ailio came to the conclusion that all prehistoric settlement at Vaateranta was to be dated only after the

Map 1. Location of Vaateranta.



Map 2. General map of Vaateranta by Ailio in 1930.

breakthrough of the Vuoksi River. Based on the dating of the Early Comb Ware (Ka I) in the late 1920's to the late third *millennium* BC was concluded, in consequence leading to an antedate of the breakthrough of the Vuoksi River by 850 years to around 2500 BC.

Once again the site became topical in 1970 as an amateur archaeologist detected signs of red ochre in connection with recently removed ground surface. During the following excavations (J. Räty 1970–71) five graves were revealed and settlement remains observed at a length of some 400 meters as well. Since then a number of excavations has been carried out at Vaateranta (J.-P. Taavitsainen 1978, T. Jussila 1989–90) yielding settlement finds. In an article by Räty (1995) the earlier research has already been referred to. The emphasis of that paper lay on the presentation of the graves, particularly grave D interpreted as an Early Comb Ware cremation, and as such among the most ancient of its kind in Europe. Due to an analysis (1980)[1] of the refuse fauna from the site a Neolithic dating was proposed for the introduction of agriculture and animal husbandry. In addition to the archaeological fieldwork already referred to, rescue excavations were carried out at the site by S. Vanhatalo in 1994.

The present paper is based upon the results of the last excavation project at Vaateranta in 1997–99 conducted by the author under the auspices of the National Board of Antiquities. The emphasis lies on the presentation and discussion of the burial ground

[1]M. Fortelius in Räty:1995:*Appendix 1*. The finds of the site until 1990 are listed in *Table 1* excluding the early ones.

Fig. 1. Unearthing the cemetery topsoil in 1997, towards SW and main areas of earlier excavations.

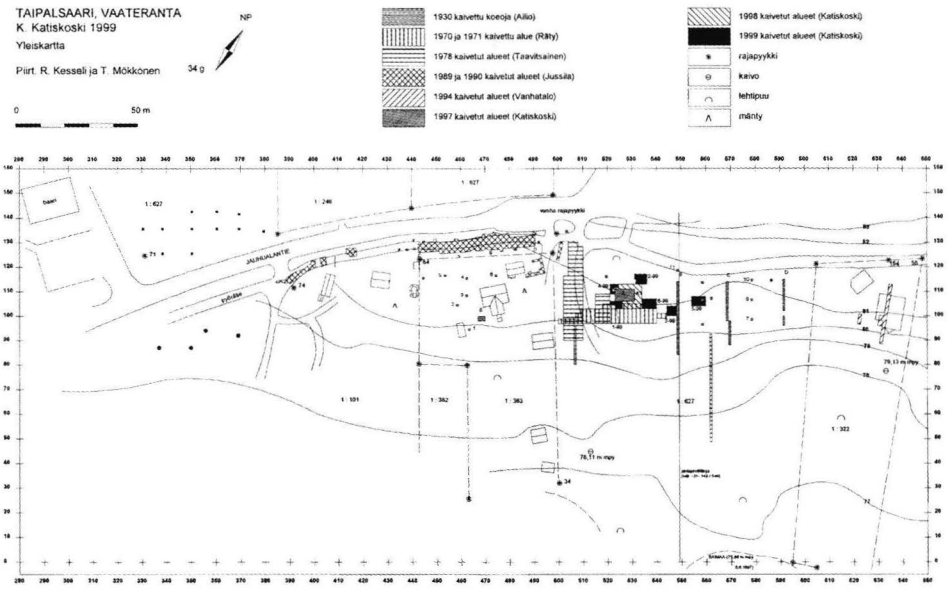
with more than 20 graves including the ones published earlier as well. The cemetery at Vaateranta builds up an important addition to the Stone Age burial grounds in Finland (*e.g.* Luho 1961; Edgren 1966; Torvinen 1979; Miettinen 1992; Räty 1995; Halinen 1997 & 1999). The adjoining and even partly overlying dwelling site is being briefly discussed as well, mainly in connection with dating and subsistence problems of the site. In a concluding chapter the relationship of Stone Age cemeteries with dwelling sites will be discussed among others.

The excavations in 1997–99

An area totalling at least some 1250 sq. meters has been excavated at Vaateranta, of which c. 335 m^2 in 1997–99. The excavated areas are scattered over an area covering c. 450 meters from WSW to ENE in direction of the terrace edge and consist of larger excavation areas with test trenches and pits as well. Only the easternmost area of the 1994 test excavation has yielded no traces of prehistoric settlement. However, the length of the settlement still covers around 400 meters. It seems that the cemetery makes up an area of transition at the site. The remains of settlement west of it is made up of largely thick cultural layers abundant in finds and practically dated to the Typical Comb Ware with additions of Early Comb Ware phase only. In contrast comparatively thin cultural layers and a relative scarcity of finds in general, dated to both the Typical Comb Ware and Early Metal Period, characterize the area from around the cemetery towards the east.

The 1997 excavation area A was located immediately to the north of the area of the cemetery already excavated in the early 1970's (*Fig. 1*). This area yielded an extension of the cemetery and it was further enlarged during the second and third years of fieldwork. The excavations in 1997 covered three test trenches (B-D) east of the cemetery and a smaller excavation area (E) in the main part of the dwelling-site west of the cemetery. Test pits were opened both in the main and the eastern part as well. In 1998 in addition to an enlargement of the cemetery area (A1) test pits were excavated both in the western and eastern part of the dwelling-site (*Map 3*).

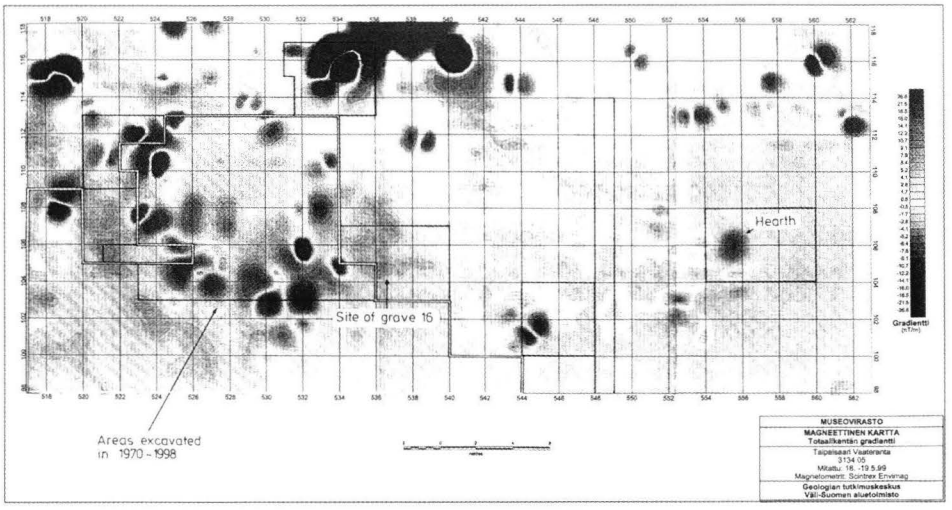
Preliminary to the last year's fieldwork only (1999), a magnetic prospecting was carried out by the Geological Survey of Finland (GTK) around the cemetery, within an area of 900 sq. meters pointed out by the archaeologists. The purpose of this was to locate eventual burials containing red ochre and to define the borders of the cemetery



Map 3. General map of Vaateranta with excavation areas.

a priori as a means of guidance in selecting the areas for excavation. The method is based on the properties of minerals in the red ochre like hematite among others known to be magnetic and measurable in graves in contrast with the surrounding low magnetic soil. It has been in use at a number of sites (Ruonavaara 1992; Kukkonen *et al.* 1997; Lavento 1992). Prospecting was preceded by magnetic susceptibility measurements of samples of red ochre collected from the graves excavated in 1997-98 and proved to be magnetic, however with a wide spectrum of magnetic susceptibility values. As modern metallic objects had been previously found in the ploughed topsoil, disturbances were expected in the signature of possible graves. A total number of 3401 magnetic readings were measured and processed into maps of total magnetic field intensity and gradient. A large number of strong anomalies were registered and partly on these grounds, partly on archaeological concluding, some of these anomalies were chosen for further excavations. The strong magnetic anomalies in the excavation areas 1–2 and 4 proved to be only reflections of recent metal objects. Nevertheless, the large hearth discovered in excavated area 5 pointed out as a rounded strong anomaly in the magnetic measurements. Since on one hand the strong anomalies were not to be related to graves, and on the other hand the graves discovered during the excavation were not registered as anomalies in the gradient map, an area (6) with lower SW-NE oriented anomaly was chosen for excavation. In this area grave 16 was found. A correlation between this elongated anomaly of lower magnetism and the red ochre grave may be suggested at least (*Map 4*). All in all the magnetic prospecting method turned out to be less successful at a site like Vaateranta with disturbance of activities during the historic period and a number of excavations preceding the measurement. However, the observed correlation of the measured strong magnetic anomaly with the stone hearth and the low anomaly with grave 16 refer to a method useful at sites with no extensive later occupation activities.

A total number of 18 to 19 burials were discovered in the excavations of 1997–99 including the uncertain ones. Apart from the graves only a few structural remains were



Map 4. Total magnetic field gradient map by the Geological Survey of Finland preceding the 1999 excavation. The area excavated in 1970–71 and 1997–98 shown as lined.

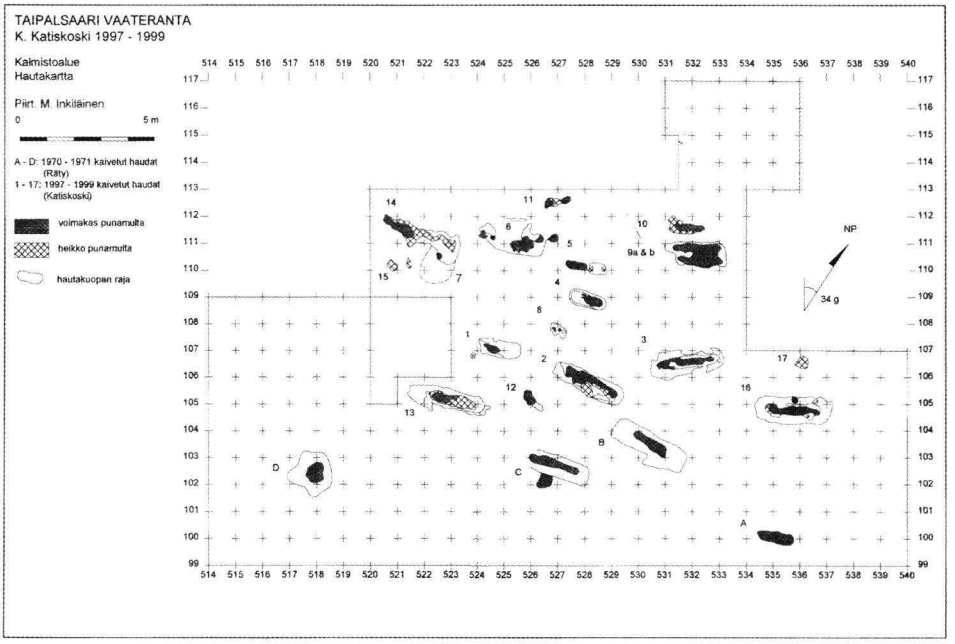
Fig. 2. Maps of grave 4 (left) and 1, layer 7 being drawn by Teemu Mökkönen and Risto Kesseli in 1997, towards ESE.

unearthed consisting of the large stone hearth referred to above and a possible hearth as well, pits of various size containing burnt bones and soot, all these excavated in 1999. The latter bone-pits may be interpreted as cooking pits, garbage-pits and even as a couple of post-holes close to the large hearth. A ploughed topsoil layer was observed practically all over the site as well.

The cemetery and remains of the dead

The Stone Age cemetery of Vaateranta is located on the edge of the uppermost terrace east of the main part of the dwelling site. The discovered inhumations are scattered at an area c. 20x12 meters covering c. 160 sq. meters (*Fig.2, Map 5*)[2]. Grave D, interpreted

[2]The map being more or less a compilation of grave and burial contours observed at various depths.



Map 5. Cemetery with graves excavated in 1970–71 and 1997–99.

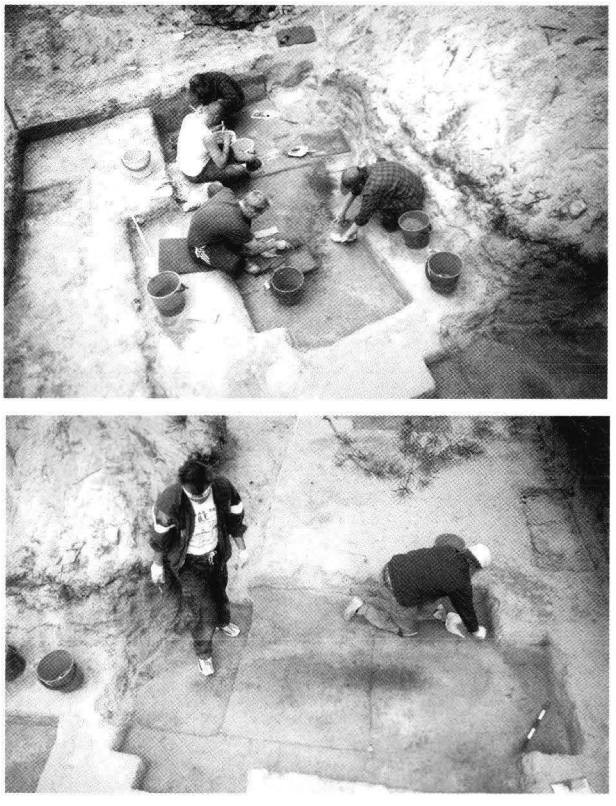


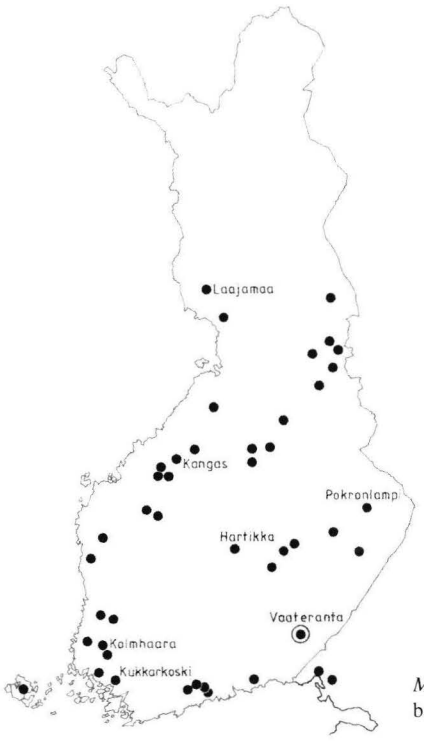
Fig. 3. Graves 2 (above, towards W) and 3 (below, towards NW) under excavation in 1998.

Fig. 4. Partly visible contours of the south-north oriented grave pit 7 in the foreground with the transversal grave 14 cut by a water pipe ditch in the background, towards NW.

as a cremation, lies some 5 meters further SW of grave 13. There may be some minor inaccuracy in combining the location of the graves excavated in the early 1970s with those unearthed in the late 1990s.

The graves may be divided into a number of categories according to their orientation, burial density, the presence, absence or magnitude of red ochre and the size of graves among others. The main grave orientation at Vaateranta may be classified as W-E with a variation of c. 32° towards an orientation SW-NE. Graves B, 2 and 14 are in the exact W-E direction according to the magnetic north as measured in 1997. Graves A, C, 4 and 13 present a bias of around 10° towards a WSW-ENE direction whereas graves 1, 5–6 and 10 are laid in an orientation around 20° towards the SW-NE. Graves 9 (a&b) and 16 have an orientation close or around 30° and grave 3 still more (c. 32°), i.e. close to a SW-NE orientation (*Fig.3*). The northeasternmost graves (3, 9–10 and 16) present a more SW-NE orientation in general, which in turn may refer to a close simultaneity of these graves. The estimated orientations according to measurements taken from either the grave-pits or contours of red ochre are partly obscured by the variations observed in various layers of each grave. However, the impression of the layout is rather uniform (cf. Österholm 1997:479).

The grave orientation is parallel to the height contours of the terrace and slope. This seems to hold true to the majority of Stone Age graves as well (*e.g.* Torvinen 1979: 38; Halinen 1999:174). At Vaateranta only one distinctive diversion was observed to the rather harmonious layout of the cemetery given above. This was grave 7 unearthed step by step during the three years of excavations in the northwestern corner of the area (*Fig.4*). After some difficulties in the observations an almost exact S-N orientation was proposed for this grave-pit. Moreover, this grave may represent another kind of anomaly within the cemetery reflected in the contours of the adjoining grave 14. It seems probable that the eastern end of the latter one has been cut in connection with digging the northwestern part of grave-pit 7. This cutting may even reflect a substantial anachronism of these two graves and, as judged by some observations during the excavation in addition to the anomalous direction of grave 7, it seems probable that the burial order has been the proposed one. All the other graves of the cemetery have been laid without observed disturbance of each other and as such reflect an organic growth pattern of the cemetery. As a result a prerequisite of a marking superstructure like a mound on each grave, a constant living burial tradition and a relatively short chronology of the period of use may be taken for granted (cf. Miettinen 1992:16). A diversion



Map 6. Vaateranta cemetery and other sites with red ochre burials in Finland.

from an overall regularity pattern of this kind may be considered as a reflection of the lack of some of these prerequisites.

Even though the cemetery may be characterized as having a uniform orientation layout, the graves are mainly laid with irregular intervals ranging between c. 0,3 to 3 meters. At the Typical Comb Ware cemetery of Hartikka (*Map 6*) in Laukaa with 14 to 16 recognized graves the space left between each grave has varied from 60 to 140 cm. At Hartikka there is an impression of a still more coherent burial layout with short and regular intervals between the graves all in the E-W orientation, however possibly due to less excavations as well (Miettinen 1992:15, 18; Kukkonen *et al.* 1992:9).

Distinct variations in the grave depths were observed at Vaateranta. Grave 5 and the double grave 9 were shallow ones with the bottoms lying at only c. 50 cm, whereas graves 1–3, 6, 14 and 16 may be characterized as deep ones with the depth ranging from 70 (graves 14 & 16) to 100–110 cm (grave 3). The depth of the rest of the burials was around 60 cm. Grave A seems to belong to the group of shallow ones with an estimated depth of only 40 cm. This may even hold true to the rest of the graves discovered in 1970–71 although topsoil had been removed prior to the excavation (Räty 1995:164–5). The bottom layers partly turned pit shaped especially in the graves 9 and 10, possibly due to natural causes only.

There were essential variations in the observed grave dimensions and even between each layer within a single grave. The last phenomenon may partly depend on the destructive effect of the top cultivation layer and the variations observed in the total burial depth, since the uppermost layers in shallow graves in such circumstances are

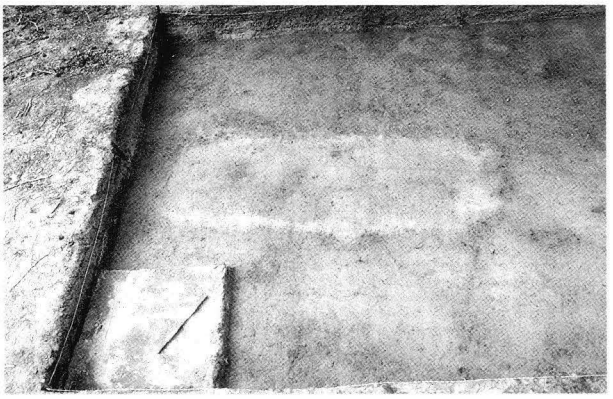


Fig. 5. Grave 16 with distinct contours in layer 4 (or 5), ½ m scale stick in S-N orientation.

proportionally more vulnerable to destruction than the deep ones. This may be concluded from the clearly visible pit contours in a number of deep graves, especially in the upper layers, turning practically invisible towards the bottom. A contrary if self-evident development was observed in the burial remains as reflected in the increasing amount of red ochre towards the bottom layers. The grave pit seems to have been at its largest in the top layers. Moreover, the top layer observations may even indicate the size of the grave-pit that has partly collapsed after the burial. Such an occurrence may be read in the observed variation of the largest grave 3 pit estimated to as much as 320x200 cm in top layer 2 as compared with the c. 270x115 cm measured in the sixth to ninth layers (*Table 1*). The maximum dimensions of the proper burial in dark red ochre discolouring were c. 200 x 50 cm. In its eastern end there was a discolouring with red ochre in form of an arc. This was interpreted as remains of some grave end construction detail, possibly a site of a hollowed coffin or hide wrappings sprinkled with ochre. Towards the bottom this turned into a rectangular streak of red ochre bordering the sides of the burial. Observations of close resemblance have been registered at Hartikka (Miettinen 1992b: 29–30).

Graves 2 and 16 were among the larger ones with the size of the grave-pit around 280 x 125 and 300 x 100 cm in the top layers and diminishing into some 280 x 85 cm in layer 7 in the former and to 285 x 100 in the burial layer of the latter grave (*Fig.5*). The strong red ochre discolouring in the burial layers in these graves was measured to only c. 160 x 30–40 and 185–205 x 20–30 cm respectively. In these graves both the grave-pit and the patch of red-ochre, apparently representing the size of the deceased, were clearly visible. In contrast, there were difficulties in defining the width especially of grave 6, as the contours of both the pit and red ochre were obscure and highly dependant on the layer of observation. According to some measurements this may have been as wide as 110–120 cm with a length around 220–240 cm. Graves 4 and 5 with their moderate if obscure size between 140–170 cm may be considered as burials representing small-sized individuals or juveniles. In all the other graves the contours of pits were obscure and not definable with certainty. In contrast to this in a number of graves only the red ochre discolouring was well definable.

A number of graves – the second burial in grave B and possibly C and graves 8, 11–12, 15 and 17 – are to be considered only as probable infant burials, as judged by the presence of discoloured patches of red ochre less than c. 70–80 cm in size. Of these grave 8 was mainly distinguished from its surroundings as a small W-E oriented

Table 1. Grave dimensions and features

nr. of grave	size of grave-pit in cm	maximum size of red ochre in cm	maximum depth in cm	head-end in estimation of sex: M(ale), F(emale) or I(nfant)	description of main finds	skeletal remains	orientation, special remarks
1	200x75	155x30-35	60-85	W?	potsherds, flint, burnt bones charcoal	decayed remains of bone? in midpart	70°/77^{gon} tilted to E
2	280x95	200 (235) x 40 (50)	80	W M or F	slate and amber ring & pendant, flint, potsherds, burnt bones, charcoal	teeth & jaw and skull in W part	85°/94^{gon} distinct contours of pit
3	275x125	200 (245) x 55 (70)	100–110	ENE prominent M	amber pendants, intact vessel & broken vessels, flint and quartz, polished & grinding stones, unworked stones, resin, burnt bones	teeth in E part	60°/66^{gon} distinct contours of pit
4	(170) 140x60	120x50	70	W? F	amber pendants, potsherds, polished stone object, flint, resin, charcoal		obscure pit burnt sand & soot on top
5		150x30	50		only red ochre		obscure
6	240x120?	220x110, patches only in places	80	W? F?	potsherds, flint, quartz		70°/77gon? contours obscure, possibility of a double grave?
7	?			N? M?	potsherds, flint objects and flakes		N end obscure, overlying burials?
8	80x50		60–65	I?	large unworked flat & rounded stone		
9 (a-b)		215x100			unburnt clay	teeth and small skeletal? remains in both burials	60°/66^{gon} double grave, pit undefinable
9a		180x40	40 (–55)	ENE M	potsherds, flint objects eg. arrowhead quartzes, resin		northern burial visible in red ochre
9b		150x45	40 (–55)	ENE F	amber button, potsherds, resin		southern burial visible in red ochre

Table 1. Grave dimensions and features (cont.)

nr. of grave	size of grave-pit in cm	maximum size of red ochre in cm	maximum depth in cm	head-end in estimation of sex: M(ale), F(emale) or I(nfant)	description of main finds	skeletal remains	orientation, special remarks
10	175x40?	90 (130) x 25 (40)	65 (–100)	WSW? M	amber buttons, potsherds, chisel, flint knife?		65°/72^{gon}, obscure definition, red ochre in a W end pit
11?		70x20	–60?	I?	potsherds, flint object, quartz flakes		n. 60°/66gon? uncertain, soot on top
12?		60–70x40	60?	I?	potsherds, flint & quartz, burnt bones		W-E, vague red ochre contours
13	270-300 x 80-100	260(120)x50(30)	–65?	W Young pers.	amber ring, potsherds, flint & quartz, burnt bones, charcoal	most of teeth in W part	topsoil removed in 1970
14	?	180(120–130)x80 (40)	–70	E Adult + I	potsherds, even large, flint & quartz, resin?, burnt bones, charcoal	teeth in E part	W end demolished, pit obscure
15	60x40?	40x30		I?	potsherds, flint, few burnt bones		uncertain & obscure
16	300x100	225(200) x 40(30)	70–75	E M	flint knife & flakes, potsherds, quartz, burnt bones, charcoal	teeth in E part and decayed skeletal parts	60°/66^{gon} distinct pit contours
17		? 50x60	shallow	I?	? potsherds, flint & quartz		obscure, possibly E end of a grave only
A		155x50	40		amber & slate ornaments, potsherds, flint & quartz, burnt bones		topsoil removed, remains of fire to the E
B		220(200) x 160(60–80)	shallow	ESE?	potsherds, flint & quartz, organic remains of birch bark?, burnt bones		double grave of adult & infant?
C	260x100	?	shallow		polished tool, flint, organic remains of birch bark?		double grave?
D	160x140?	60x70	42	3 pers. (2 M)	amber ring, flint objects and flakes, potsherds, quartz flakes	burnt skeletal remains	cremation

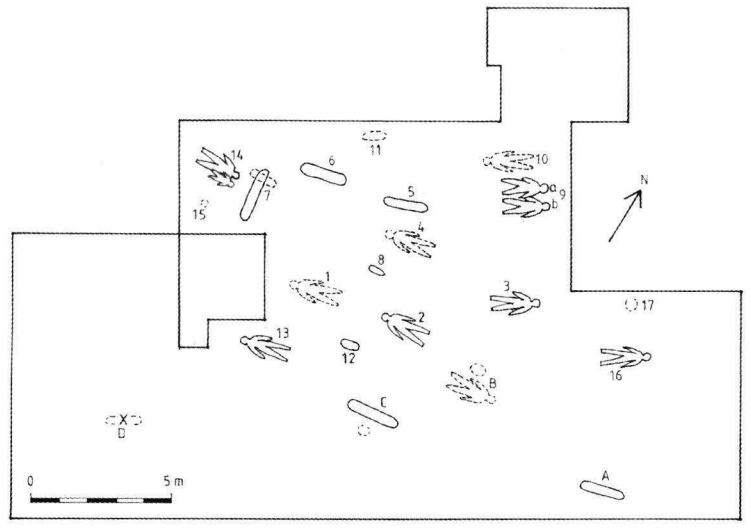
Fig. 6. Double grave 9 with adjacent burials b and a (from left) and the close parallel grave 10to the right in layer 3,5, towards SW.

discolouring with only slight hues of red ochre[3]. The find-assemblages in these present a variation of such quantities that these must be discarded as grave definitions (*Table 3*). Graves 11, 15 and 17 may be considered as the most obscure ones and only highly hypothetically as graves. However, according to an elongated anomaly in the magnetic gradient map (*Map 4*), the last one may even represent the southeastern end of a full-sized burial, even though no signs of continuance were observed towards the profile wall in the NW. The lack of observations referring to a "proper grave" during the excavation applies to the anomaly gradients towards the WSW of this patch as well. Grave B with a separate patch of red ochre has been interpreted as a burial of an adult and a child together (Räty 1995:165). Even a thin patch of red ochre by grave C may be regarded as remains of an infant burial. In this connection even the possibility of a child being buried with an adult, a custom well documented in Scandinavian cemeteries among others with well-preserved skeletal parts, must be kept in mind (eg. Larsson 1988:111, 131). Grave 14 at least at Vaateranta indicates such a funerary practice, as discussed later in connection with dental remains.

It is only the two parallel inhumations in grave 9 (a & b) that on archaeological grounds are to be considered as a double grave of adults. A variation in depth of only a few cm in these two burials was observed (*Fig. 6*). It was not possible to observe the contours of either a common or two separate grave-pits in this connection. However, the diverging AMS dating results from samples obtained from both these burial contexts, proved to be in conflict with this interpretation (see chapter "The site chronology and dating problems"). Moreover, yet a third burial belonging to the same grave unit with grave 9 may be suggested with the adjoining grave 10. This assumption is based on the parallelism and relative proximity of these two close-lying graves as compared to the mean distance between the burials in the cemetery and the lack of traces of any separate grave pits in between. However, when compared to grave 3 at Kangas in Kaustinen, undoubtedly containing a proper triple burial (Halinen 1997:23, 25;1999:174), such a close connection between graves 9 and 10 seems more unlikely.

In addition to the graves referred to above a number of disturbances parallel to these were observed in the subsoil during the 1997 excavation, which may indicate the existence of graves without either red ochre or artefacts. Even though these could not be

[3]The presence of a larger unworked rounded stone in this context is being referred to as a potential proof for burial, see footnote 12 as well.



Map 7. Burial orientation

verified as graves, a positive proof would give an explanation to areas empty of graves in between graves 1, 4, 6 and 7 among others, and a more coherent impression of the cemetery layout would be achieved.

Apart from the burnt refuse fauna remains of the deceased were found in a number of graves. These may be classified mainly as well preserved remains of teeth enamel and only a few vague observations of decayed skeletal remains. A varying quantity of teeth was found in seven graves[4]. As judged by the location of teeth in the graves it was possible to draw a number of conclusions of the graves, above all simply to define the direction of the corpse in the burial. In five of these burials (graves 3, 9a and b, 14 and 16) the head of the deceased lay in the eastern part of the grave and in two graves (2 and 13) towards the opposite western end. The layout of the cemetery with the orientation of each burial is presented in *Map 7*. The orientations of corpses identified by dental remains and considered as certain are depicted in solid figures. Those with the direction defined according to find assemblages like the location of amber ornaments only (graves 4 and 10) or the observed tilting of the grave 1 towards the east are shown as broken figures[5]. Graves without any clue to the orientation are shown as solid ovals

[4]The discovered teeth material (1998) was ex-rayed at the University of Helsinki Department of Forensic Medicine but no further results of the material are available at present and its potential has not been exploited yet (c.f. Larsson 1988:94-96). In fact, the location of this material is unknown to the author at present. An osteological analysis of the teeth unearthed in the 1999 excavation only has been made by Eeva-Kristiina Lahti (see. appendix Osteological Analysis by ms. Lahti).

[5]A gradual tilting of red ochre horizon towards the east was even observed in grave 2 with dental remains in the western end, slightly higher up.

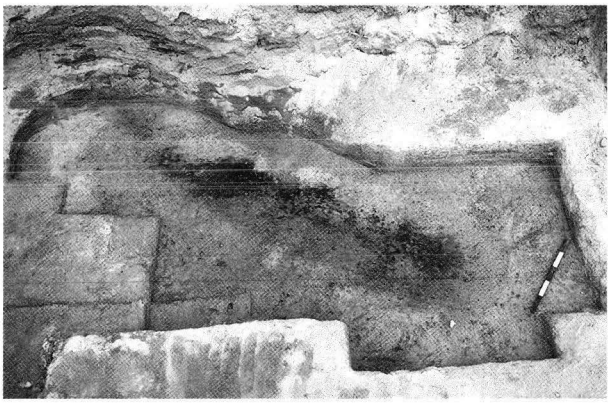


Fig. 7. Grave 2, layer 9,5 with dental remains in the dark discoloured patch of red ochre to the left. The ½ m scale stick to the right in a south-north orientation.

and the minor uncertain infant graves as dotted circles in the map. The cremation D is depicted as x with a W-E oriented oval referring to the presence of the red ochre patch in that direction observed in 1978. On these grounds there seems to have been no exclusive head orientation in the burying practice even though a more frequent position in the east may be perceived.

Dental remains were well preserved and practically *in situ* with decayed remains of probably the skull and the jaw in grave 2 and the jaw in grave 13 as well, that is in graves with head lying in the W (*Fig. 7*). In the other graves the dental remains were more decayed, loose or scattered. It was the eastern part of the double grave (9) that contained teeth in both these burials. The teeth in the southern burial (b) were horizontally scattered over an area close to ¼ sq. meter around the head end and vertically as well, whereas those in the northern one (a) were found as a small concentration (8x12cm) and a depth variation of only 4 cm reflecting the exact location of the head. The scattering in the former burial may refer to a later destruction in this shallow grave, possibly through a central root of a pine tree grown on the eastern end of the burial "b".

The presence of clearly faunal remains in graves has partly obscured the interpretation of human remains, however. Most of the large number of unidentified small fragments of burnt bones dyed red or yellowish brown in the double grave was identified only as mammals, and the same applies to grave 14 as well. These observations clearly contrast with the fish bone majority in graves 2 and 3. In the double grave these mammal fragments may consist of human remains other than teeth as well, since two identified fragments of finger bones (*phal. ½ dist. fr. and phal. carpi prox fr.)* and one of vertebra (*corpus vert*) may have been human[6]. However, interpretative problems arose if these mammal bones were human, since they seem to be burnt.

In the double grave 9 both deceased were laid side by side with their heads lying in the east[7]. According to Miettinen (1992:18–19), an opposite practice may have been the case with the double grave 3 at Hartikka in Laukaa. Apart from the width of that grave the interpretation is based upon the location of amber ornaments in both ends of it. In the large Latvian cemetery of Zvejnieki the orientation of the burials varied greatly and even in collective grave pits the deceased were laid in opposite directions (Zagorskis 1987:16).

---

[6]Osteologist Pirkko Ukkonen, PhD, pers. com. 2003.

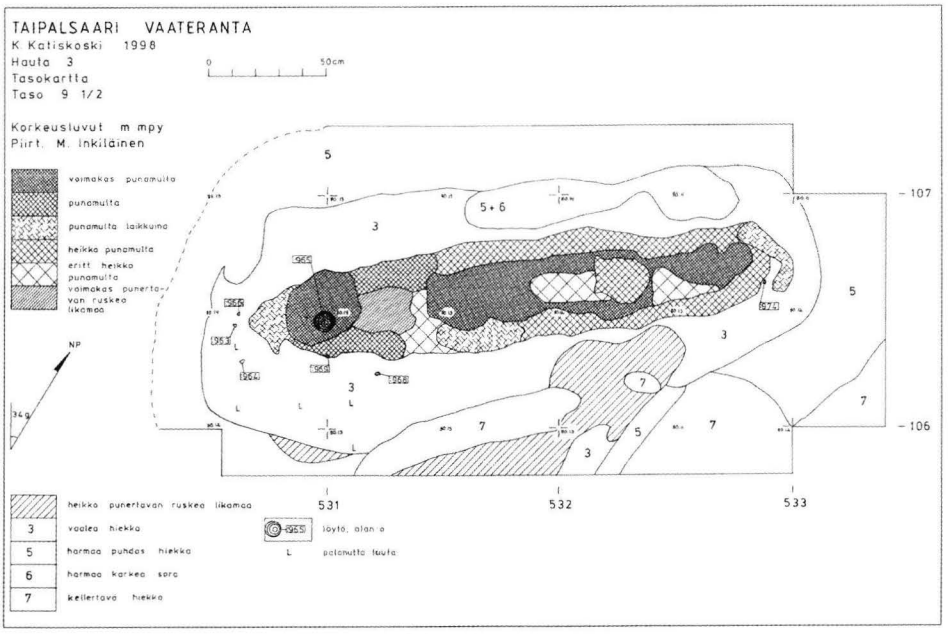
[7]Due to a pers. com. misinterpretation the grave 9 (a&b) has been referred to as a double burial with opposite head orientation (Halinen 1999:174).

Fig. 8. Grave 3 in layer 6,5 with distinct pit contours and strongly discoloured eastern head end on the right in 1998. The western foot end on the left excavated deeper in already in 1997.

The large width of the pit, the observation of separate patches of red ochre in the western end of the grave and the dual location of amber pendants towards both ends taken into consideration, this alternative may in turn be speculated with the Vaateranta grave 3 as well. However, teeth remains were only found in the eastern part, concentrated along the longitudinal mid axle of the grave, even though in two layers (5 and 7½) with a vertical distance of 13 to 15 cm in between. On these grounds the head of the deceased lay towards the east, around 180 cm from the foot end, still some 80 cm from the eastern end pit wall as well (*Fig. 8*). Eventually, as large parts of a vessel were found beside the deceased in the bottom layers, in addition to the two vessels at both ends of the grave, it was concluded that an exceptionally large grave pit was required for a single deceased only with such a provision. The great depth of the grave in connection with the teeth in relatively upper levels in the grave pit, yet another alternative must be kept in mind: a potential seated or half-seated position of the deceased, a burying posture well documented in the Scanian graveyard of Skateholm (Larsson 1988:107).

Far decayed skeletal remains were observed in grave 2, some 70 cm east of the dental fragments, possibly remains of the hip. In grave 1 apparently decomposed skeletal remains were observed in the midpart of the red ochre discolouring. In grave 16 a longitudinal decayed bone was found in a mid burial location with an identified feature referring to the thigh of the deceased. Concentrations of teeth were discovered in the eastern part of this grave and grave 14 as well. In the latter grave interesting results were obtained in the recent osteological analysis (see *Appendix*: Osteological analysis by E-K. Lahti). Apart from teeth belonging apparently to an elderly *adultus*, a deciduous molar of an infant no more than c. 3 years old was identified in the material. The location of this largely coincides with the identified adult teeth, meaning a close cheek-to-cheek posture of these two deceased. According to the analysis of the exceptionally well-preserved teeth discovered in grave 13 this deceased has been a young individual. Moreover, remains of the decomposed skull of the deceased were observed in the ESE end of grave B during the 1970's excavation (Räty 1995:165).

However, no reliable conclusions of the size or sex of the deceased could be drawn from these remains. In most cases the estimated height of the Stone Age population as judged by the measurements of red ochre discolouring in the graves may be considered as a means of definition as reliable as any referral to a group of human beings. This is due to large variations of red ochre from grave to grave, sometimes representing the size of the whole grave pit, possibly the wrapping or clothing of the deceased or, as it seems, the body itself possibly with high accuracy, and even a part of the body only



Map 8. Grave 3, layer 9½ with the intact vessel (NM 30887:965) in the southwestern end, numbers in boxes refer to National Museum find numbers.

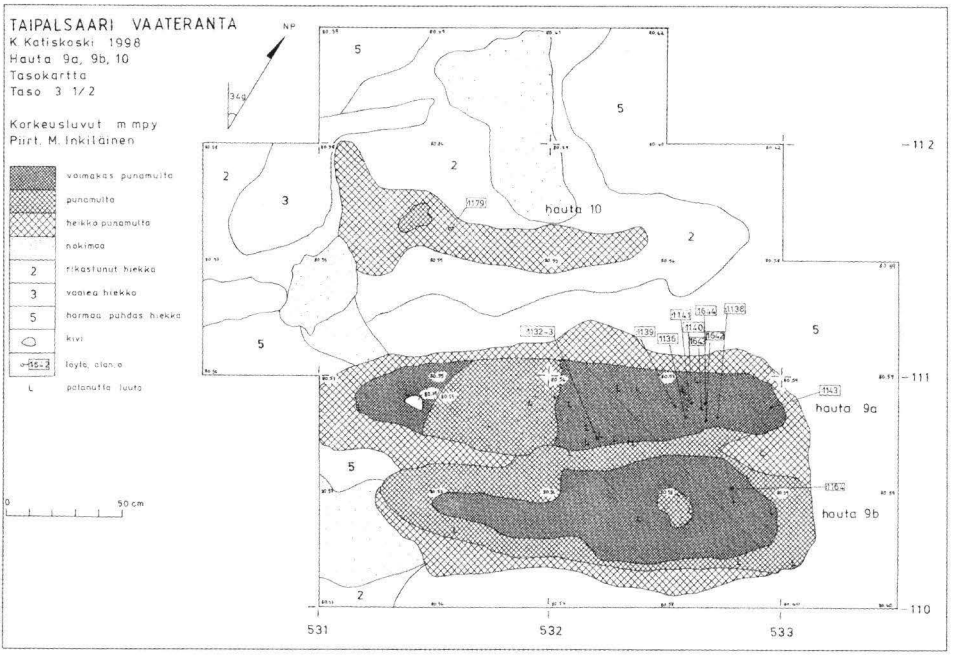
(*e.g.* Luho 1961: 26–27). However, the location of the teeth in the burials in respect to the utmost foot end of the red ochre may in some cases refer to an approximate height of the deceased[8]. On these grounds the heights of the corpses in a number of graves may be estimated as follows: Around 150 cm in grave 2, 9a and 13, 160 cm in grave 3 and even 170–180 cm in grave 16. Against the usefulness of such estimations was the crooked shape observed in the red ochre patch in the lower levels of grave 16, potentially illustrating a similar posture of the deceased? The highly hypothetic definition of the sex presented in Table 1 is based on estimations presented above on the size of the deceased as a correlation of the area of red ochre, the size of the grave pit or on artefact assemblages[9]. On these grounds graves 4, 9b and 13 were interpreted more probably as female burials and graves 3, 9a, 10 and 16 as male ones. Arguments towards either alternative could be postulated concerning grave 2.

The grave D discovered in 1971 with cremated bones identified as human in 1980[10] represents a stratum of its own by the burial practice. However, observations during a

[8]Presupposing a supine position for the deceased. In case of a side sleeping, *hocker* or seated position among others such a measurement were invalidated, of course (c.f. Larsson 1988:107-). The lack of well-preserved domestic skeletal material inevitably may lead to an oversimplification of burial rituals (cf. Österholm 1997:481-482 and *op. cit.*)

[9]Using only the highly hypothetic and possibly misleading division of working and hunting artefacts being associated with male and ornaments and household utensils with female burials. On good grounds we may even question the issue of defining sex in this connection, except for the search for potential signs of unequal socio-cultural treatment of either sex in connection with the status of the deceased in a community.

[10]The identification of the bone material (NM 19239) was made by Mikael Fortelius in 1980 (Räty 1995: appendix 1). Eeva-Kristiina Lahti has re-examined the cremated material in 2003. The cremated bones seem to derive from three *adultus* individuals. The detailed results of the analysis are presented in an osteological appendix by ms. Lahti.



Map 9. Double grave 9 (a&b) with adjoining grave 10 with finds in layer 3½.

later excavation (1978) referred to a still unearthed bottom layer of a red ochre burial in a SW-NE orientation beneath these cremated bones[11]. The cremated bones were re-examined again in 2003 and the 1,35 kg material turned out to contain a minimum number of three individuals on grounds of as many left hand bones in the context. Moreover, a fragment of calvarium bone and the orbital brow ridge identified in another one presented masculine features (see *Appendix*).

Grave finds and find analysis

The finds of the graves at Vaateranta are presented in two tables. In Table 2 only the distinct graves or those interpreted as adult burials are presented. The grave assemblages show a large variation of finds on one hand and find frequency on the other hand. It is the graves 2 and 3 that may be classified as rich ones. In these almost every find category discovered at Vaateranta is present and in most cases represented in plenty. Even graves 13 and 14 and grave 9 treated as a single unit, and the cremation D as well with a wide range of furnishing, may be considered as fairly rich burials. A group of graves with a number of finds in several categories is made up of graves 7 and 16 whereas only a few categories are represented in graves 1, 4, 6, 10 and A–C. Of the last, however, graves 4, 10 and A, on grounds of the one to three amber ornaments

[11]The 1978 excavation report with maps by J.-P. Taavitsainen 1994. Even in 1998 a single burnt fragment probably of a human *cranium* was found in addition to unburnt animal bones in a secondary context, probably to be connected with the cremation bone material unearthed earlier

Table 2. Finds of distinct graves (1997–99 and 1970–71) (number of fragments) x = present

GRAVE	**1**	**2**	**3**	**4**	**5**	**6**	**7**
AMBER							
pendants		1	6	3			
buttons							
rings		1					
SLATE RINGS		1					
POTTERY							
vessels/majority of			3				
potsherds	14	209	201	4		7	54
BURNT CLAY		**x**	**x**				**x**
UNBURNT CLAY							
STONE							
chisels							
grinding stones			2				
objects in fragments		1	2				
flakes		13	1				
FLINT							
objects	**1**	**10**	**8**			**2**	**5**
arrowheads, fragm.		2	2				2
scrapers		1	3				
borers		1					1
knives	1?		2?			1	
other retouched		6	1			1	2
cores		1					
flakes	**6**	**279**	**19**	**1**		**2**	**20**
blades		**1**					
QUARTZ							
objects		**1**	**4**				
arrowheads			1				
scrapers			1				
burins?							
other retouched			2				
cores		1	1				2
flakes		22	14			1	4
crystals			1				
QUARTZITE							
objects (knives)			2				
BURNT RESINS			**x**	**x**			
BIRCH BARK (?)							
ROUNDED STONES			**2**				
CHARCOAL	**x**						
HUMAN TEETH		**x**	**x**				
BURNT BONES fr./ grams	**17**	**> 872 />18,5g**	**> 537 />10 g**			**>10**	**1**

9a	9b	10	13	14	16	A	B	C	D
	1	2							
			1			1			1
						1+1			
90	10	14	122	71	84	3-	1		104
X	**x**								
x	**x**								
		1							
								1	
2		**1**	**8**	**5**	**3**			**1**	**1+1**
1			2	1					
1			1						
			1						
		1?	2		1				
			2	4	2				
4			**62**	**49**	**5**	**1**	**1**		**66**
1			**1**	**2**	**1**				
1									
				1					
			1	1	1				
3		1	11	16	8	1	2		32
2									
x	**x**			**x**					
					x		**x**	**x**	
			x	**x**					**x**
x	**x**		**x**	**x**	**x**				**x**
>1260 /28 g	**>175 /? g**	**1**	**/6,5 g**	**/32 g**	**/4,4 g**	**x**	**x**		**7067/1356 g**

Table 3. Finds of infant/uncertain graves

GRAVE	**8**	**11**	**12**	**15**	**17**
POTTERY					
potsherds		3	19	123	11
FLINT					
objects		**1**	**1**	**4**	**2**
scrapers		1			
knives?				2	1
other retouched			1	2	1
cores				1	
flakes			1	72	1
QUARTZ					
flakes		2		3	2
crystals			1		
ROUNDED STONES	**1**				
CHARCOAL			**X**		
BURNT BONES		**0,7 g**	**1,7 g**		

Table 4. Comparison of certain finds in graves versus occupation layers (Areas A & A1 in 1997–98 only)

	grave finds		**settlement finds**	
	nr.	**grams**	**nr.**	**grams**
Amber objects and fragments	14 +	21	–	–
Pottery[41] wall sherds	543	1632	**1212**	**2901**
rim sherds	21	**600**	**25**	280
Stone objects and fragments of	7	**54,8**	1	0,8
flakes & fragments	**31**	**44**	2	1,4
Flint objects	30	**138,4**	**43**	135,5
Cores	1	10	**3**	**45**
Blades	1	0,1	**2**	**1**
Flakes	**332**	148,5	293	**224,7**
Quartz objects	3	39,2	**8**	**39,4**
Cores	4	83,4	**5**	**186**
Flakes	46	113	**92**	**363,7**
Crystals	**2**	**2,6**	–	–
Burnt bones	**3125**	**64,7**	170	15,5

[41] The intact vessel and main parts of two vessel in grave 3 not included

in each of them, may be considered as relatively richly furnished. Only grave 5 of a possible *juvenile* was without a single find. Among the graves defined as infant graves or as uncertain ones there was a variety in both the find category and frequency as well (*Table 3*). The exceptionally large artefact assemblage discovered in the hypothetic infant grave 15 may even be referred to as a special kind of offering in connection with a small patch of red ochre.

The finds presented in these tables consist of those discovered after the definition of each grave according to grave pit contours or the observed burial in red ochre. Finds detected already overlying each defined grave are not included, as these probably belong to the topsoil layer of the dwelling-site only and as such may have been transferred in the cultivation activities afterwards. However, a further problem is caused by the treatment of these finds as grave goods, artefacts laid in graves during the funerary practice. As Stone Age graves are frequently found at or on the outskirts of dwelling-sites (*e.g.* Edgren 1966:98, 158; Vikkula 1988; Räihälä 1996:96, 116) finds like potsherds, flakes of various kinds and burnt bones among others may be considered as finds deriving from the cultural layers only and not included in the grave inventories (Miettinen 1992b: 30; Räty 1995:164–5). In contrast with these, ornaments of amber and slate and distinctly definable objects of various kinds are self evidently treated as proper grave goods, especially in a suitable find context like the layer of the deceased. A comparison is made at Vaateranta between the finds discovered on one hand in grave contexts and those in settlement layers within the cemetery limits (*Table 4* with 1997–98 finds included only). In a number of categories, stone material and burnt bones especially, finds were more frequent in graves as compared to those outside and in the topsoil occupation layer. It may be noted that flint flakes and the large rim sherds among pottery were more numerous in the grave inventories.

A number of finds discovered around the deceased in red ochre, in the grave pit or against the pit wall were interpreted as artefacts or finds deliberately lain in the grave during the funerary practices, even though these may not necessarily be considered as proper grave goods. Such an interpretation may be proposed for a number of larger potsherds at least, especially rim sherds in graves 1 to 4, a large rim sherd apparently from the grave pit between grave 9a and 10, 14, an amber pendant in pieces discovered in grave pit 2, large amounts or concentrations of flint flakes in the foot end of grave 2, and even the observed concentrations of burnt bones in the foot ends of grave pit 2 and 3. As large proportions of finds, flint objects and the amber ornament in grave 2 among others, were discovered above the layer of the deceased or in the grave pit, these were interpreted as artefacts laid in the grave in the final stage of funerary practices (cf. Larsson 1988:115). Large potsherds have been referred to as possible grave goods in Estonia during the Typical Comb Ware Period (eg. Kriiska 1996:364).

As a conclusion the large amounts of potsherds in the graves may be considered partly as deriving from the settlement cultural layer but also partly as purposely laid grave goods or offerings (cf. Zagorskis 1987:130). At least the large potsherds in the graves may be interpreted as symbolizing real vessels or their contents. This interpretation in turn may be confessed through the discovering of the true vessels found in grave 3. At the foot end there was a shallow small pot, 9 cm in diameter, intact in a still standing position as if lain as a container of provisions for the deceased (*Figs. 9 & 10*). The content of this vessel, decorated throughout with comb stamps, was sand strongly dyed with red ochre like its surroundings. As there were no traces of charred macro subfossils identified in the macro fossil analysis it remains yet possible that the vessel has contained unheated provisions like fresh berries or other rapidly decaying flora for the deceased. This unordinary pot may well have been specially made for the occasion only to serve as a funerary container (cf. Parker Pearson 1999:18–19). Apart from the small pot there were remains of a collapsed vessel *in situ* at the head end of the grave with an estimated diameter of c. 22 cm, apparently intact during the furnishing of the grave and later on reconstructed in the National Museum laboratory (*Figs. 11 & 12*). Large parts of a third still larger vessel were located in the southern middle part of the

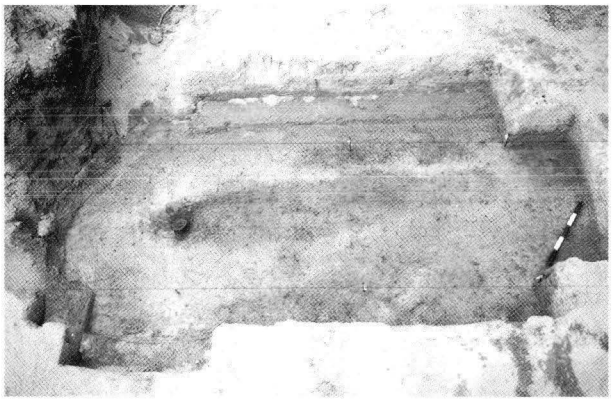


Fig. 9. Grave 3 in layer 9,5 with the intact vessel *in situ* at foot end (left).

Fig. 10. Grave 3: Intact Typical Comb Ceramic vessel located at foot of the burial (NM 30887:965).

grave beside the deceased. This vessel, decorated like the former one with comb and pit stamps, was found with a large bottom and wall part still intact. However, it seems that all the sherds belonging to this pot were not present in the find context. These two vessels were located in the grave bottom beneath the deceased[12].

A close counterpart in Finland to grave 3 at Vaateranta containing vessels was discovered at the cemetery of Kukkarkoski in Lieto in the burial 1a, remarkably rich of amber ornaments, apparently a grave with two burials of slightly different age. A shallow comb stamp decorated vessel 15,5 cm in diameter was found in the bottom layer of the lower burial 14C-dated to 4890 ± 150 BP (Hel-832, uncalib.), a result in accordance with the archaeological dating of the site mainly to the Ka II period. The pot was collapsed and possibly placed around the knees of the deceased (Torvinen 1978: 44, 71–2, 75). A vessel eroded into small fragments found in the centre of the grave IX at the site of Nästinristi in Laitila, SW Finland, must be mentioned. The vessel was assigned to the Late Comb Ware (Ka II:1) (Vikkula 1987:14). Moreover, the Typical Comb Ware site

[12]In this instance a reference is made to the site of Bosmalm in Espoo with an apparent deep inhumation grave with large potsherds in the bottom and a large rounded stone with a number of more modest ones above the burial, dated to the Typical - Late Comb Ware, excavation report 1986 by Päivi Kankkunen)

Fig. 11. Grave 3 bottom layer with remains of a vessel beside the burial, a second one at the extreme head end and two rounded stones.

Fig. 12. Grave 3: Reconstructed vessel located at head end of grave bottom (NM 30887:995).

of Laajamaa in Tervola has also yielded a minor undecorated vessel as a grave good discovered in an upright position. This was only 3 cm in height yet in the shape of a larger comb ceramic vessel, and in context with rich grave goods possibly belonging to more than one deceased (Engblom 1992:52–4).

In turn as a close counterpart to the Kukkarkoski vessel, a pit and comb stamped vessel discovered beside the breast part of a body in a double grave found in the second group of burials at Zvejnieki in Latvia, has been referred to (*e.g.* Zagorskis 1974: fig. 6; 1987 fig.32). This pot greatly resembles the vessel in grave 3 at Vaateranta in shape and decoration, however with a diameter more than twice than the former. It is to be noted that apart from the vessel there were no potsherds in this or any other of the 12 graves at Kukkarkoski. This seems to be the case with the burials at Hartikka as well, apart from the grave 5 with a few potsherds. An applicable explanation at Hartikka and Kukkarkoski may be, that these cemeteries are located in sterile soil in the outskirts of

the dwelling-sites, at a slightly higher level in the terrain. At Kukkarkoski even hearths were discovered within the burial ground. However, these seem to have a close connection with the graves and burial practices and the same applies to a number of sites like Nästinristi in Laitila and the Mesolithic site of Jönsas in Vantaa among others (Vikkula 1987; Purhonen 1998:29). At the Ka II dwelling-site of Kangas in Kaustinen, Central Ostrobothnia, three graves with five burials were discovered, apparently representing a cemetery, as judged by the graves of equal orientation (SSE-NNW), with more than 10 m of unexcavated area in-between a grave exceptionally rich in amber ornaments and four much less furnished burials side by side. These graves were located at the dwelling-site with cultural layers, in fact between rows of dwelling pits as well (Halinen 1997:22–6), with finds of "dwelling-site type" discovered in the cultural layer but lacking in the proper burial horizon.

The number of graves with amber ornaments was only eight at Vaateranta, meaning only one third of the detected burials the uncertain ones included. The number of ornaments per grave was only between one and six. As compared with a number of graves containing amber ornaments in cemeteries like Kukkarkoski, Hartikka and Kangas, these figures may be considered as moderate. In grave 2 an amber ring was found combined with a ring of slate around the feet of the deceased, c. 100–15 cm east of the head, another small pendant of amber being located in the foot end of the grave pit, some 30 cm higher up. The three tongue shaped amber pendants in grave 4 were located close to each other west of the middle part of the burial, possibly at the neck part of the deceased referring to the head end in this direction.

The sole amber button in burial "b" of the double grave 9 was found in connection with the scattered remains of teeth denoting a transfer probably caused by root action. This interpretation of similar disturbance of natural causes may apply to the neighbouring grave 10 as well with the western part perceived as a distinct pit of red ochre only in its lower layers, nevertheless with two amber buttons lying in the pit bottom.

It has already been proposed as most probable, that the four amber pendants found in the western part of grave 3 were placed at the foot end of the deceased, since no traces of dental remains were discovered in this part of the grave. The ornaments were scattered over a wider area than expected for a second body with the head in the west. The two tongue-shaped pendants were found around the head of the deceased as judged by the location in the lower teeth layer in the eastern part. These close to oval pendants were located in a horizontal position and transversely close to each other with the loops pointing symmetrically outwards from each other (*Fig.13*). These pendants were interpreted as a potential find context *in situ* pointing to pendants placed in the eye sockets of the deceased as a reminiscence of the large cemetery of Zvejnieki in Latvia, where this practice has been documented in five graves with well preserved skeletal remains (Zagorskis 1987: 47–8, 130; Zagorska 1997a; 1997b:45)[13]. In these Latvian burials unburnt clay has been found around the heads or covering the face of the deceased as face masks or head wrappings with amber disks placed at eye sockets as if retaining a lifelike impression of the deceased. These graves belong to the Neolithic Comb and Pit Ware Culture phase of the cemetery with a much longer period of use. The radio-

[13]Provided a supine posture for the deceased in grave 3 like those of its counterparts in Latvia. However, most of the discovered teeth were found 13 to 15 cm higher up disabling a positive uncompromising interpretation and even the seated posture must be kept in mind (see above chapter: The Cemetery and Remains of the Deceased).

Fig.13. Grave 3. Two amber pendants (at front), whetstone and quartz artefact around the head of the deceased.

carbon dates obtained from skeletal remains of these burials are settled between 5410 and 5110 BP (uncalib. Zagorska 1997b: 43, 45–6) corresponding with the dates of the early phase of the period in Finland (*e.g.* Pesonen 1999). However, even though unburnt clay was not observed in this particular grave 3 at Vaateranta, instead there were traces of fragmentary unburnt clay around the heads of both twin burials in grave 9. This was the case in grave 7 at Hartikka as well with preserved teeth in context with a larger quantity of unburnt clay (Miettinen 1992a: 18; 1992b: 38–9).

Plastic clay used in burial practices has been discovered at the cemetery of Pispa in Kokemäki with at least one of the two amber beads found in grave X encircled with fine clay (Luho1961: 30) and at Kolmhaara grave I unburnt clay was detected in connection with amber rings (Edgren 1966:30). Even in the Hartikka grave 3 referred to above as a double burial with the deceased laid side by side in opposite directions, there were fragments of fine clay in the western end of the grave in red ochre with two large lens shaped amber buttons and a retouched flint flake within an area of c. 10 sq. cm. M. Miettinen has interpreted these as artefacts lain inside a clay wrapping around the head of one deceased the head end of the second one being around the concentration of amber pendants in the eastern end of the grave (Miettinen 1992a:16, 18–19; 1992b:38–9). In this particular grave no traces of bone were observed. This is in close resemblance with the Vaateranta grave 3 with its four amber pendants in the western end and the two large pendants in the eastern part of the grave, the latter on grounds of the teeth verified as the head end at least, even though this was considered most probably as a single grave only. An interpretation of a clay mask with amber buttons as eyes may be proposed to the burial in grave 3 at Hartikka with a location of the head in the west[14]. Edgren (1998) and Halinen (1999:174), the latter in reference to the Vaateranta grave 3, have given this interpretation to a burial with amber ornaments in the head end at Kolmhaara in Honkilahti (Eura) and Kangas in Kaustinen as well. All these observations seem to refer to a wide burial practice confirmed in the Baltic region during roughly the same period.

[14]Later on Miettinen has come to the conclusion, that clay in this connection and in reference to that in grave 7 at the same cemetery as well probably indicates a clay wrapping of the head of the deceased (Miettinen, pers. com. 29.3.2001)

There were large variations in the find contexts among objects made of flint[15], quartz and stone. In grave 2 a flint scraper and a couple of fragmentary arrowheads among others were located in the eastern end of the grave or grave pit. In contrast with this a concentration of objects in grave 3 was discovered in intense red ochre around and below the head and midpart of the deceased: A knifelike object and a semi manufactured arrowhead of flint, two whetstones of sandstone, two knifes of quartzite and a scraper of rock crystal of good quality.

However, a number of objects in this grave were found scattered over large areas, like a flint arrowhead discovered in the foot part of the pit and a scraper of flint in the head part of the pit. Beside the head there was even a hexagonal quartz crystal with two close counterparts in burial 9a, beside the midpart of the deceased in this burial, however. These may have been used as magic objects refracting sunlight into the colours of a prism.

Apart from the amber button around the head and a number of potsherds no objects to be considered as proper grave goods were found in burial 9b. However, the northern one of this double grave (9a) contained a beautiful transparent scraper of rock crystal and an apparently burnt flint scraper in the middle part. Moreover, a flint arrowhead in the shape of a willow leaf was found longitudinally beside the head of the deceased.

Among the objects on good grounds found *in situ*, a flint knife with its tip pointing towards the foot end around the hip or thigh of the deceased in grave 16 must be mentioned. This may well refer to the long history of a custom used in carrying knives at the waist and well documented in connections of a much later date.

There were hundreds of burnt bone fragments discovered per grave in graves 2, 3, 9a and 9b, 13 and especially 14. These were either found scattered over larger areas or more concentrated, as in graves 2 and 3 where the far majority was discovered in the foot ends. In these two graves the fragments were mostly fish (*Teleostei*) without identified species, but pike (*Esox lucius*), perch (*Perca fluviatilis*) and Cyprinid fish (*Cyprinidea*) were identified as species. In contrast the mammalian bones unidentified as species were frequent in graves 9 and 14, possibly containing burnt and (?) unburnt human bone fragments as discussed above. In grave 2 there was a single fragment of Anatids (*Anas sp.*) and in grave 3 a single bird bone fragment (*Aves*) the other occasional bird bones in graves or grave-pits 1, 2 and 3 being only probable identifications. The single seal bone (*Phocidae*) originates only from the outside of grave 14 but a hare (*Lepus timidus*) claw in grave 9a, apparently deriving from a single rabbit's foot, was placed around the grave midpart (*Tables 5 & 6*).

The site chronology and dating problems

Since the observations of Ailio in the early 1930's the breakthrough of the Vuoksi River has been dated further backwards, with around 1500 years, to c. 4000 cal. BC (Jussila 1999:120–2). As a result to the rapid lowering of the water level the Typical Comb Ware settlement terrace formed by the transgression was exposed at Vaateranta. After this drop of water level the shoreline remained a longer period around 79 to 80 m above sea level and the bank was further developed, as observed and measured during the excavation. This height corresponds to the transgressive water level around

[15]Part of the flint material from the earlier excavations of the site may be classified (see Kinnunen *et. al.* 1985:15, 37, 50) as chert and of Carboniferous origin. The same applies to the latest excavations as well.

Table 5. Osteological analysis (Cemetery Area A, A1 & A4 1997–99), number of identified fragments

GRAVE	**1**	**2**	**3**	**9a**	**9b**	**9a/**	**9b**	**13**	**14**	**15**	**16**	**All graves**	**A1 (graves excl.)**	**A4 (graves excl.)**
Homo sapiens? (human?)				x	x	x					x	1		
Bos taurus (cattle, unburned)												1		
Phocidae (Seals)											1	1	1	
Castor fiber (Beaver)												1		
Lepus timidus (Hare)				1							1			
Rodentia (Rodents)								2			2			
Mammalia (Mammals)				1							1			
Mammalia/Aves	2										2			
Anas sp. (Anatids),		1	1								2			
Aves (Birds)			1								1			
Esox lucius (pike)		12	6				3		2	1	24	8		
Perca fluviatilis (Perch)		2					2				4			
Cyprinidae (Cyprinid fish)		3	3								6	1		
Teleostei (Fish)		103	40				22	4	5	4	178	17		
All species	2	121	51	2x	x	x	27	6	7	5	221x	30	1	

x = present

4500-4400 BC (op. cit.: 125 fig. 6) that was bound to flood on the earlier settlement. Beneath the cemetery four or five later shorelines were perceived as only vague low banks. During the late 1990's excavation project traces of cultural layer and finds were discovered in test pits only on and above the fourth shoreline, corresponding to a height of c. 79,5 m. No more prehistoric cultural activities were discovered in pits connected to the third shoreline bank around 78,7 m a.s.l. where the subsoil was already made up of silt and clay.

All in all 9 radiocarbon dates are available from the site at present (AD 2003). Seven of these derive from the graves, six of which are AMS dates from either resin or charcoal and burnt bone as well (*Table 7*). One date is from birch bark pitch in a Typical Comb Ware potsherd sealing (Hela-117, 5035 ± 70 BP, calib. to 3930–3750 BC, see Pesonen 1999:200). The two dates of the grave 9 referred above, and on archaeological grounds interpreted as a double burial of two adults, were in discrepancy with the interpretation of the grave simultaneity. These dates were obtained from lumps of resin or birch bark pitch in both these burials. There is a hiatus of 520 years (360–680) in radiocarbon age between these two dates, the one from the southern burial "a" (Hela-318: 4835 ± 80 BP, uncalib.) being the older one (from burial "b": Hela-319: 4315 ± 80 BP, uncalib.)[16]. As the dating of burial "b" was obviously in conflict with

[16]Calibrated with a 68,2 % probability rate a minimum hiatus of 420 years is obtained, however with a 95,4 % rate the hiatus between these two datings may be as little as only 20 years.

Table 6. Osteological analysis (Other areas excavated in 1997–99), number of identified fragments

AREA	A3	A4	A5	A6	B ditch	C ditch	D ditch	E	Test pits		Total
Phoca hispida (Ringed seal)								1			**1**
Castor fiber (Beaver)	1										**1**
Lepus timidus (Hare)	1		1								**2**
Mesomammalia cf. Lepus timidus			1								**1**
Ondatha zibethica (muskrat, unburned)	1										**1**
Ruminantia (ruminants)	1										**1**
Mammalia (Mammals)				1							**1**
Esox lucius (pike)	4		4		10	8	25		13		**64**
Perca fluviatilis (Perch)	2					1	2		3		**8**
Cyprinidae (Cyprinid fish)			1		1		3		4		**9**
Teleostei (Fish)	15		215	1	105	63	134	1	97		**631**
All species	25	1	222	2	116	72	164	2	117		**720**

Table 7. Calibrated radiocarbon dates of Vaateranta in chronological order

lab. n:r	context	material	uncalib. date (BP)	error margin in years	calibrated (BC) 68,2 % / 95,4 %
Ua-3326	grave D (cremation)	charcoal	5775	100	4780–4530 4900-4350
Hela-739	grave D cremation	human skull	5045	45	3950-3840; 3820-3780/ 3980-3770; 3740– 3710
Hela-117	potsherd	birch bark pitch	5035	70	3960-3780;3730-3720 3990-3700
Hela-317	grave 3	resin (birch bark pitch)	5010	75	3950-3850;3820-3770;3750-3700 3990-3690
Hela-315	grave 4	resin (birch bark pitch)	4895	70	3780-3630 3940-3870;3820-3510
Hela-318	grave 9a	resin (birch bark pitch)	4835	80	3780-3750;3710-3510 3790-3370
Hela-319	grave 9b	resin (birch bark pitch)	4315	80	3090-3060;3040-2880;2800-2780 3350-2600
Hela-237	grave 1	charcoal in red ochre	3460	70	1890-1690 1980-1610
Hel-4129	cultural layer in mid area (E)	charcoal	1250	80	670-860 AD 650-960 AD

the archaeological observations and the interpretation of the double grave, a probable source of error in the sample or sampling ought to be sought. As such the possibility of contamination is proposed in the sample, a fragment of around one tenth of a gram, detected in connection with an amber button. In any case, apart from the unconfirmed

simultaneity of these burials, the later date seems to be in conflict with the chronology of amber ornaments as well.

The picture is blurred even further with the date of a very small piece of charcoal from grave 1 (Hela-237: 3460 ± 70 BP, uncalib.), the age being at least 1500 years younger than expected. Archaeologically there was nothing to refer to such a late dating of this grave with a distinctively discoloured patch of red ochre at its strongest around a depth of 50 cm, the context of the sample as well. Apart from a knife-like retouched flake of flint considered as a proper grave good there were a number of potsherds, including a larger rim sherd, all connected with Typical Comb Ware, flint flakes and fragments of burnt bones. The date seems to refer to a period of later site exploitation during the Epineolithic or Early Metal Period. Only a single sherd of asbestos ware[17] was found in the first layer beneath the ploughed top horizon, 2 m north of the grave, another asbestos tempered sherd with vague comb stamps in a disturbed context deriving from the already (1971) excavated area. The dating of the piece of charcoal required the AMS method and in this connection contamination on archaeological grounds is proposed as a kind of solution to the problem at hand[18].

The dating results of resins from graves 3 and 4 (Hela-317: 5010 ± 75 BP and Hela-315: 4895 ± 70 BP, uncalib.), and in fact that of the burial 9a in the double grave as well were in accordance with the dating to the Typical Comb Ware. The earliest date as obtained from resin roughly coincides the Vuoksi River breakthrough, c. 5000 BP in radiocarbon years (see eg. Pesonen 1996a:98 with cited reference, Pesonen 1996b: 27 and cf. Pesonen 1999).

Ailio had already connected some potsherds to the Early Comb Ware but was not able to detect signs of transgression at the site. However, during the 1978 excavation, layers with a plenty of finds with traces of weathering were observed beneath layers scarce of finds[19]. The same holds true to the observations of the late 1990s in the test pit 1 below the terrace edge in the midpart of the site. Here the lowermost layers and mostly weathered potsherds were interpreted as representing an earlier occupation preceding a probable transgression whereas the upper layers may be connected with a settlement layer after the regressive water level. However, there are difficulties in connecting the lower horizon and worn ware exclusively to the Early Comb Ware. A rim sherd apparently belonging to the Early Comb Ware phase 1[20] derived from the pit but without a layer context. A number of sherds[21] may be classified as Ka I:1 as well in the lower layers of the excavation area E in the same area. The worn appearance of pottery applies to a number of rounded potsherds among others in a couple of test pits below the cemetery, the lower parts of the test trench B (approx. 79,5–80 m a.s.l.) and, in fact, to a plentiful of pottery found in 1930, 1971 and 1978. However, these observations are to be connected to both the Early Comb Ware and the Typical Comb Ware as well, the latter already connected with the regressive shoreline stage of the Lake Saimaa. It seems that a less extensive Early Comb Ware period of settlement

[17]NM 30322:72, only probably of the Early Metal Period, cf. a potsherd assigned to the Neolithic Pöljä Ware from the early excavations of the site referred to by Taavitsainen (in Kinnunen et al. 1985:15).

[18]The recent dating of the Kolmhaara graves with red ochre in connection with stone cists but no artefacts to the Early Iron Age, must be kept in mind (Edgren 1999:319-). The dating of red ochre graves without cist to the Neolithic still holds at Kolmhaara, however.

[19]The 1978 excavation report by J.-P. Taavitsainen 1994

[20]NM 30322:1396

[21]eg. NM 30322:1265,:1306 and :1308

has preceded the maximum transgression of the Lake Saimaa, whereas the main settlement postdates the regression caused by the breakthrough of the Vuoksi River. The weathered pottery of Ka II may reflect the fluctuations of the water level at the bank of the terrace, which in turn may have affected the layers of the earlier occupation since these phases are only in places stratigraphically traceable beneath the intense Typical Comb Ware settlement horizon.

The dating result (Ua-3326: 5775 ± 100 BP, uncalib.) obtained from charcoal in red ochre connected with the cremation in grave D (1971) and in harmony with the four rim potsherds[22] interpreted as Early Comb Ware (Ka I:1) has made up a horizon of its own within the burial ground. According to Räty (1995:165, 167) fragments belonging to the Early Comb Ware phase 2 (Ka I:2) were found among the pottery of the context evidently dominated by Typical Comb Ware. Flint objects and an amber ring must be connected with the latter phase as well. However, according to the present author, the classification of the rim sherds in the cremation context as Ka I seem less probable. This may hold true to part of the pottery from the site considered as Early Comb Ware.

The context of the grave D with charcoal and "small fire places" on top of it, and as it seems, apparently of a later date, must be considered as rather obscure. Räty has interpreted the fireplace and artefacts connected to the Typical Comb Ware as a ritual offering more than half a millennium later than the cremation according to charcoal age (op cit:167). It seems that the observations by Ailio of a depression with burnt stones, possibly a hearth, coincide with this fireplace above the layer of the cremation context (see "hautura" in the *map 2* by Ailio). As such it may be connected with the pit hearths visible as depressions on the ground surface and often dated to the Early Metal Period. As this superstructure may not be connected with the date of the charcoal representing Early Comb Ware and the majority of the artefacts in the context are to be dated to the Typical Comb Ware phase, even a later date was considered as probable for the cremated human bones by the present author from a source critical point of view[23].

This interpretation is based on the observed later topsoil cultural layer at the site and the potential connection of the burnt and unburnt refuse assemblage of domesticated species with the cremation, as discussed later in this paper in connection with the subsistence of the site. Moreover, according to the 1978 excavation, lower layers of what seems to have been a W-E oriented red ochre grave with Typical Comb Ware grave goods, was observed exactly beneath grave D. It seems that, apart from the few potential potsherds in the cremation context, there is no Early Comb Ware among the pottery within the limits of the cemetery. As the early radiocarbon date of the charcoal clearly precedes the Lake Saimaa transgression, in consequence the sample has been deposited beneath transgression stratifications leaving no visible superterranean traces of subsoil structures, and as such an unlikely site for a rite of much a later date. Another possibility is that wood of high age, probably around 600 to 800 years old, was used in this context during the Typical Comb Ware burial period (*e.g.* Pesonen 1999:195). Because the dating methods have essentially improved since the early 1980's and radiocarbon analysis of burned bones as well has become possible, a skull part was chosen in 2003 for an AMS-dating sample in order to obtain a dating of the proper cremation. The result was 5045 +- 45 BP in radiocarbon years (Hela-739) dating the cremation

[22]NM 19239:682

[23]The charcoal was chosen for an analysis because of a far too low a content of collagen in the skeletal parts (Räty 1995:167). In fact an essentially later date for the proper cremated bones was assumed.

to the Typical Comb Ware Period. In fact, the calendar age of the cremation coincides with the dates of grave 3 and the dated Ka II potsherd (Hela-117) at least. Even though this new dating result means that the cremation is to be connected with the Typical Comb Ware instead of the early phase (Ka I), the unique chronological horizon for the cremation is confirmed. On grounds of the new dating it may seem possible, that the fireplace on top of the cremation can be connected with the burying practice as well, even though a later dating is yet to be considered as possible. However, the discrepancy of the two diverging dates connected with the cremation remains. Moreover, the more ancient one coincides with the period of a still transgressive shoreline, whereas the later one must derive from the site terrace soon after this once again had become exposed in consequence of the breakthrough of the Vuoksi River.

A number of potsherds have been assigned to the Rhomboid Pit and Comb Ware of eastern origin and the rim grooved motif with pits may even refer to the Late Comb Ware (Ka III:1), both of a slightly later date, in addition to the conceivable sherd of Pöljä Ware (cf. Räty 1995:163; Kinnunen *et al.* 1985:15). However, the main period of later settlement remains seem to date to the Early Metal Period.

The around 50 sherds of asbestos ceramics or asbestos tempered ware found in the late 1990s make up a horizon of their own in the history of the settlement at Vaateranta. Of these a few, above all a piece of an even bottomed vessel with parts of the wall with possible textile impressions[24] and eventually a couple of rim sherds as well[25], seem to belong to the group of textile ceramics. In turn some true asbestos ware sherds, a rim sherd[26] with inwards inclined rim among others, may be connected to the Early Metal Period Sär-2 group of ceramics. These derive, apart from single sherds of asbestos and asbestos tempered ware[27] discovered at the area A of the cemetery, from the eastern part of the dwelling site[28]. The test excavations still further to the east in 1994 had already yielded pottery mainly connected with the Early Metal Period with either textile impressions or pottery with asbestos or bone tempering[29]. Since only a minority of the finds there such as potsherds and flint may be connected with the Typical Comb ware, these eastern parts of the dwelling-site may be characterized as the area of the main settlement during the Early Metal Period, or around the two last *Millennia* BC.

In addition to these potsherds with only probable definitions in reference to a particular ceramic group, a rim sherd undoubtedly belonging to the Luukonsaari group of asbestos ware[30] was found around the eastern margins of the dwelling site. This presents an ornamentation frieze typical to this group with a thin outward tapering mouth of the vessel (Lavento 2001:*Appendix 5*). Discovered on the uppermost terrace some 81,5 m a.s.l. this is not to be connected with the contemporary shoreline phase around the last centuries BC and the early centuries AD (*e.g. op. cit*: 103)[31]. In this connection the

[24]NM 30322:478-9
[25]NM 30322:530-1
[26]NM 30322:580
[27]NM 30322:72 and NM 30887:421
[28]In the test trenches C and D in 1997 and the excavation areas 3 and 5 in 1999
[29]*e.g.* NM 28316:211, 214, 222, 232
[30]NM 19239:868
[31]In a levelling of the ancient shoreline in 1992 by Jussila a number of sherds were found in topsoil beside the road leading to the beach, ca. 2 m below the terrace and the cemetery (78,3-4 m a.s.l..) and interpreted as textile ware or Luukonsaari ceramics as well (Jussila 1999:130). However, the definition of these finds and even their find context is rather obscure.

cairns located only one kilometre southwest of the site on the promontory of Kirjamoinniemi must be referred to as graves conceivably contemporaneous with these Early Metal Period settlement finds.

Yet a further problem in the radiocarbon dating of the site was caused by the result of a sample obtained from the cultural layer in the central parts of the dwelling site (Excavation area E, Hel-4129: 1250 ± 80BP, uncalib.). The layer 4 of the sample, plentiful of finds interpreted as a Comb Ware cultural horizon, was overlaid by the present courtyard layer with a strong layer of soot and particles of charcoal. According to the context it seems that later cultural activities have affected the primarily Stone Age horizon and, again, a contamination process of the lower cultural horizon is put forward as possible in this connection. However, the dating to the Middle or Late Iron Age as such is an interesting one and represents a stratum apparently later than the Luukonsaari ware discovered in the far eastern margin of the site. Because of the lack of archaeological evidence this dating result may be connected with the cultivation horizon observed in the westernmost test pits with a horizon of soot and small particles of charcoal underneath a thin layer (2–4 cm) of podsoil A sand horizon. The dating may even apply to the topsoil horizon of cultivation east of the areas around the burial ground, in addition to the 20th century cultivation activities of the site.

On subsistence

The bone material analysed from the late 1990's excavations at Vaateranta differs essentially from the previous analyses (*Tables 5 & 6*, cf. Räty 1995:*Appendix I*). By far the majority of the faunal remains were identified as fish (Teleostei), 827 of the total number of 990 fragments. Of the various species pike (Esox lucius, 96 fr.), perch (*Perca fluviatilis*, 12 fr.) and cyprinid fish (*Cyprinidae*, 16 fr.) were identified, as is the case at most Stone Age sites. The terrestrial mammalian bones were few with only beaver (*Castor fiber*, 2 fr.) and Arctic hare (*Lepus timidus*, 1–2 fr.) included. One of the three fragments of seal bones (*Phocidae*) was identified as a lower foot-part of the ringed seal (*Phoca hispida*). A small number of unburnt bones of ruminants (*Ruminantia*, 2 fr. of which one belongs to cattle, *Bos taurus*) and rodents (*Rodentia, 3 fr.*), including muskrat (*Ondatha zibethica, 1 fr.*) must be considered as recent. Only a few fragments of bird bones were found in graves, in grave 2 Anatids (*Anas sp.*) and in grave 3 (*Aves*). Furthermore, single fragments of probable bird species were found in both of these graves as well.

Except for a few undefined fragments of mammal and bird bones all the defined bones were fish in the eastern areas as well, the areas yielding the majority of the later artefacts[32]. Asbestos fibres among others were found in context with some bone clusters there. This in turn may well reflect the continued main role of hunting and gathering, especially fishing, even during the Early Metal Period.

Räty (1995:167–70) has discussed the refuse fauna analysed earlier at Vaateranta (1970–71, 1978). Among these only a single bone fragment was identified as pike. The majority of this mostly burnt bone material was identified as domesticated species, including big ruminants (*Bos taurus*), pig (*Sus scrofa*) and bones of goat or sheep (*Ovis/Capra*), in addition to elk (*Alces alces*). However, these were mostly derived from

[32]236 fragments in trenches C & D in 1997

the upper layers or even topsoil. A fragment of horse (*Equus caballus*) *magnum sin* was among the faunal remains as well, even though Räty has left this uncommented. He puts forward, that animal husbandry was probably practised already during the Typical Comb Ware in addition to active seal hunting even though no seal bones were found by the time of his observations. According to him the settlement was fairly sedentary and it was possible in favourable climatic conditions to take the first steps towards animal husbandry and even cultivation at this site.

Ukkonen (1996:76) has commented the analysed domesticated species among the refuse fauna from Vaateranta (1971 and 1978) referring to the presence of horse indicating at a more recent dating than the Neolithic for at least part of the bones. Bones of domesticated species from Vaateranta have been frequently cited in connection with the introduction of animal husbandry and agriculture, however mainly with source critical aspects (Salo 1997:35–6, 38, 41–3; Huurre 1998:191; Storå 2000:75). It seems that the refuse fauna analysed earlier make up an inventory of species of its own and may be considered as alien to the rest of the site. Moreover, the late historic cultivation layer was not observed during the early excavations as the topsoil had been removed prior to the fieldwork.

The conclusions drawn from the total faunal remains at Vaateranta inevitably refer to both Neolithic and Early Metal Period hunting and gathering societies with a subsistence predominantly based on fishing. Both terrestrial mammal and seal hunting seem to have played only a minor role. The location of the site at a strait between large open lake systems and in pronounced archipelagic environment must be considered as ideal for extensive fishing activities of various kinds. Subsidiary terrestrial resources have been exploitable from the site as well. Even though the faunal picture is rather biased towards fish bones the thick cultural layers and size of the settlement and the cemetery refer to a rather sedentary dwelling site (cf. Pesonen 1996a: 112). From a source critical point of view the bones of domesticated species may not be connected with Stone Age animal husbandry. Instead, the observed cultivation layers, the now available if problematic late radiocarbon date and even the Early Metal Period ware taken into consideration, these are to be connected with a much later period. These may possibly date to a late prehistoric period, but more probably they belong to a late historical period only. Nevertheless, a weak occurrence of early Cerealia pollen dated to 3140 BP (± 50, 1490-1370 cal BC) has been observed in a peat sample taken from a mire close to the Comb Ware sites of Syrjälä and Kujansuu some 9 km north of Vaaterenta (Vuorela 1995:213–14), referring to an attempt towards cultivation during the Early Metal Period in the close vicinity. However, signs of more intensive slash-and-burn activity were registered in the sample only in connection with the Middle Ages.

In an analysis of 18 macro subfossil samples obtained from a number of graves in 1998[33] only one from around the head of the deceased in grave 2 yielded a single seed of crowberry (*Empetrum nigrum*) and in another sample from grave 9b a piece of pine cone (*Picea alba*) was identified. Both these were heavily charred. Moreover, pieces of starch were found beside the head of the deceased in grave 2 referring to food cinder, possibly porridge of some kind and laid as provisions in the grave. These identified if extremely weak remains of flora refer to gathering and exploitation of the floral environment as a supplement to the Neolithic subsistence apart from their reminiscence of socio-cultural meaning in the treatment of the deceased and in furnishing the graves as well.

[33]The analysis was made by ms. Tanja Tenhunen in co-operation with Terttu Lempiäinen, PhD.

Concluding remarks

The Neolithic cemetery of Vaateranta with more than 20 graves unearthed is without a doubt among the most important of its kind in Finland. In spite of some ambiguities caused by the results of part of the AMS dates from the graves all archaeological evidence refer to a cemetery dated to the main phase of occupation during the Typical Comb Ware Period, around 5100–4800 BP (3900–3500 cal. BC). The burial ground is located immediately east of the main area of settlement during this period, but a marginal cultural layer of the same period overlay the cemetery as well. Judged by the uppermost observations in some of the graves right beneath the tilled topsoil horizon of much later date this settlement phase may slightly antedate or be synchronous with the burial ground.

The main dwelling-site has been the area of activities, if far less extensive, already during the Early Comb Ware Period, preceding the transgression climax of the Lake Saimaa basin and the breakthrough of the Vuoksi River at around 4000 BC (5000 BP, uncalib.) in calendar years. Observations connected with transgression were detected in cultural layers as weathered pottery. However, it seems that in addition to the early period at least part or even the majority of the pottery with worn appearance may be assigned to the Typical Comb Ware. This was explained with the effect of the fluctuations of the already regressive water level or the partial contemporaneity of Ka II (1) period with the maximum transgression of the basin.

It seems that another phase in dwelling activities began during the Early Metal Period or the second *Millennium* BC, after a Late Neolithic period practically without archaeological evidence, possibly reflecting a true abandonment of the site. This time the activities were concentrated to the marginal eastern areas of the previous settlement phase, according to the distribution of asbestos ware and textile ceramics. The dwelling site was now occupied until around the first centuries AD and in turn the main areas of the ancient Comb Ceramic settlement remained unsettled.

The large hearth discovered in the eastern area of the site, regrettably without a physical dating result, possibly belongs to the Typical Comb Ware Period, as judged by a number of potsherds and a flint flake discovered in its context. However, since this was located in the marginal area of the Neolithic dwelling site with some potsherds connected to the Early Metal Period in its close vicinity, it may well be of a later date. Practically all over the site a cultivation layer in topsoil was detected as well, dated to late historic phase, but even a later Iron Age horizon of exploitation was considered as possible on grounds of a dating result. This was interpreted as a potential period of cultivation at the site only as there are no archaeological finds to be connected to this horizon. The refuse fauna of domesticated species was connected with this late cultivation phase only, whereas the subsistence during the Stone Age as well as the Early Metal Period at the site must have based on fishing especially and hunting.

According to the conclusions drawn from the grave-pit or burial size and the find assemblages, both adult and infant burials have been laid in the cemetery. One grave at least must be considered as a double burial of two adults and possibly 1–2 adult graves have contained a smaller accessory in red ochre possibly indicating a child burial. In addition to these observations referring to corpses laid side by side in adjoining graves, the preserved teeth in grave 14 revealed an adult buried with an infant in a close context.

The layout or organization of the cemetery must be considered as a harmonious one with graves laid in E-W or SW-NE orientation. In five graves the head of the deceased has been laid in the east and two in the west as judged by the remains of teeth in re-

spective ends of the burials. In a number of graves the contours were indefinable. An exception among the uniform pattern was grave-pit 7 with its S-N orientation, apparently overlying one grave at least, and as such being relatively more recent as well. No exclusive burying posture was observed, but a supine one was considered as the most frequent one. Even a seated and a crooked sleeping side posture were potential. Five potential graves must be considered as uncertain. On archaeological grounds the length of the burial period encompasses the period of Typical Comb Ware only. Even though most of the obtained radiocarbon dates support this view the data is far too inadequate to reveal any internal chronology or growth pattern of the graveyard. However, two of the AMS-dating results deviate to such a degree from the rest that they are in fact in conflict with the Ka II chronology. The most problematic of these is from grave 1 and as such referring to an Early Metal period date. One of the two dating results from the twin burials in grave 9 proved to be in conflict with each other and the double grave interpretation as well, at least.

There were variations in the furnishing of the distinct graves with all except for one containing finds. As judged by the number of amber ornaments up to six per grave this cemetery may not be considered among the wealthiest in Finland. However, there were flint, quartz or stone objects in most of the graves. The finds generally considered as belonging to an original settlement cultural layer and ending up in the filling of grave-pits were especially numerous as potsherds, flint and quartz flakes and burnt bones, frequently observed as concentrations in the graves. These finds were mainly considered as artefacts laid on purpose in the burials, possibly as offerings or symbols lain in the graves during the funerary practices. The find assemblage of three vessels discovered in grave 3, one still intact and a second one in its entity, makes this grave unique among the red ochre graves in Finland with only three close but more modest counterparts at Kukkarkoski, Nästinristi and Laajamaa. The burials with vessels at both Vaateranta and Kukkarkoski were considered as the wealthiest in their respective burial grounds with their largest amount of amber ornaments.

However, it may not be reasonable to use the number of amber ornaments as such in various cemeteries for direct correlation with the wealth of the communities in question. The same applies to various graves within a cemetery as well. The large and distinctly distinguishable grave 16 without any amber but a flint knife as a sole proper grave good may well be considered as a grave of a prominent member of the society as compared with the individual in grave 4, shallow and rather vague in layout, nevertheless equipped with three amber pendants[34]. Especially in grave 3 both the rich or even unique grave goods and impressive dimensions are represented in the grave furnishing.

Variations in the wealth and the way of furnishing each burial may reflect the various social and hierarchical statuses, or even the personal interests and desires of the deceased (*e.g.* Parker-Pearson 1999:72). These variations are inevitably filtered through the treatment of each member passed away from the society. In a longer chronological or "periodical" perspective they certainly reflect the changes in religious beliefs through time. The original furnishing of the graves with perishable material or objects, like plants, wood, bone and antler, must be kept in mind and only in favourable conditions remains of these are traceable.

Most graves at Vaateranta contained distinct discoloured patches in red ochre apparently covering the entire body of the deceased laid in the larger pit. However, the

[34]The shallow and modest dimensions of a grave may even reflect the cold season of burial among other explanations.

definition of the infant graves was mostly based on small patches of red ochre only, sometimes connected with finds as well. The possibility of a small patch of ochre with a larger number of finds being a manifest of an offering or a cenotaph was discussed in connection with the potential grave 15. Yet as a rule, in connection with these smaller patches no definable contours of larger pits were discovered. In some Mesolithic (6000-5000 BC) graves discovered in the lower Danube the sprinkling of burials with red ochre seems to have varied according to the sex of the deceased (Handsman 1991:340–1). The practice of burying with red ochre and numerous grave goods seem to have flourished especially during the Typical Comb Ware (*e.g.* Torvinen 1978:75 and ref: Edgren 1966:100; Luho 1961:24), even though an earlier (Purhonen 1998: 29–30) as well as an Early Iron Age use in graves has been documented (Edgren 1999: 319–24)[35].

The ritual use of red ochre has frequently been referred to as a phenomenon worldwide and mainly independent on chronological factors. The early use of ochre has been dated to already Palaeolithic grave practises. In Finland the use of red ochre can be traced back to the earliest burial traditions during the Late Mesolithic (Luho 1961: 30–1; Purhonen 1998:28; Halinen 1999:173). In fact graves from the Mesolithic were not recognized until the first discoveries of red ochre in proper contexts. However, during the Mesolithic the deceased seem to have been equipped with practically no grave goods[36]. The variations in the amount of red ochre and especially the potential absence of it taken into consideration, burials at dwelling sites or adjacent burial grounds may well remain undetected to archaeologists. There was an almost complete lack of red ochre in the already Early Comb Ware cemetery at Tainiaro in Simo with more than 30 inhumations even though there were other criteria pointing out the location of burials (Purhonen 1998:29)[37]. The occurrence of burials without red ochre side by side with red ochre graves may hold true at a number of cemeteries of later date as well, Vaateranta included.

The presence of red ochre in burials has been referred to as a symbol of life connected with the colour and even the properties of blood. In belief of an afterlife world beyond death it may be seen as a means of intermediary of life (*e.g.* Purhonen 1998:29). Further explanations of the use of red ochre may be suggested in the pieces of charcoal and soot found in a number of graves at Vaateranta or close to these as concentrations of charcoal east of grave A. These may refer to fires kept at burial rituals (c.f. Räty 1995: 164, 167). The Mesolithic graves at Jönsas in Vantaa and the Early Comb Ware graves at Tainiaro frequently contained traces of fire kept at grave ends or beside the burials (Purhonen 1998:28–9; Purhonen & Ruonavaara 1994:89). Even at Kukkarkoski there were hearths located within the burial ground above the proper dwelling-site (Torvinen 1979:38). However, these may derive from the heating and enrichment process of the available iron oxide with fat, blood or other collagen through fire in order to obtain a suitable hue or mixture of red ochre. In this connection a referring is made to the Neo-

---

[35]Only recently one of the two features considered as red ochre graves was AMS-dated to 2195 ± 75 BP (Hela-539) at the multiperiod Neolithic site of Marketanhiekka in Pieksämäki. A dating to the Comb Ware Period was expected. Only a couple of minor quartz flakes were found in the context.

[36]Of the 23 graves dated to the Mesolithic at Jönsas in Vantaa, apart from quartz flakes in a number of graves, only a single one contained an adze and another two points of quartz. Instead, various amounts of rounded water-worn stones, often in a row, and soot were observed (Purhonen & Ruonavaara 1994:89). The phenomenom connected mainly to Mesolithic contexts is represented in grave 3 and 8 at Vaateranta.

[37]An excavation project in 1989 - 1991 conducted by Tuija Wallenius-Saksanen.

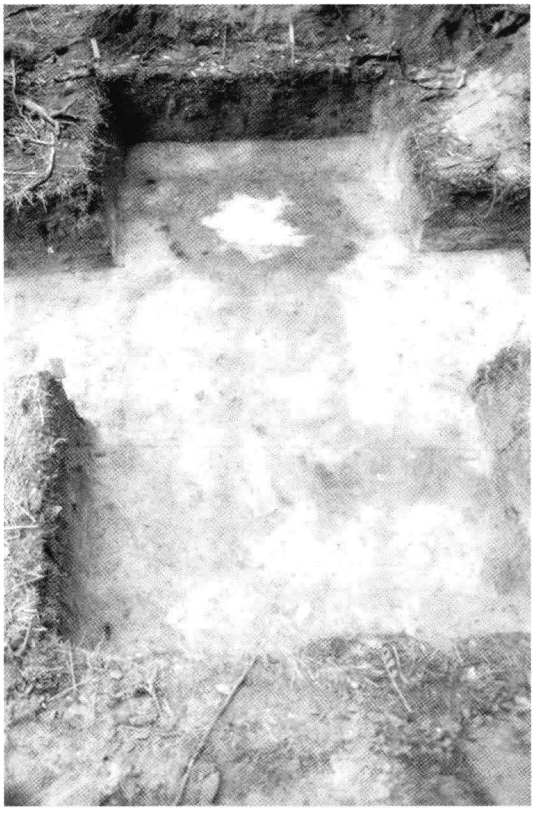


Fig. 14. Lieksa Pokronlampi: Red ochre grave with hearth.

lithic upper terrace of the dwelling site of Pokronlampi in Lieksa, Northern Karelia. A NW-SE oriented oblong 2-meter patch of red ochre interpreted as a grave was found in a test excavation in 1991 (Katiskoski 1996:23–6). The interpretation was based on the size and form in addition to a number of quartz finds, but no traces referring to a corpse were discovered. In the southeastern end of the grave a neatly laid round stone hearth was found with its upper layers strongly discoloured with red ochre (*Fig.14*). A sample of charcoal from the hearth was dated to the Neolithic (Hel-3184: 4640 ± 120 BP uncalib.) and may be considered as slightly younger than the few potsherds of the Typical Comb Ware and possibly in better accordance with a single potsherd of Eastern Rhomboid Pit and Comb Ware from the site. Both these ceramics were tempered with asbestos fibres. The find context gave reason to an interpretation of the hearth used in manufacturing red ochre. Close counterparts to this grave with an adjoining hearth were discovered at the Typical and Late Comb Ware site of Nästinristi. In connection with a number of graves mainly with stone setting there were round pit-hearths interpreted as parts of grave constructions (Vikkula 1987:8–12). Only one of these graves contained small quantities of red ochre as well.

Traces of red ochre sometimes observed on potsherds may refer to their use as containers in practical dyeing processes, even though vessels seem to have been purposely painted like clay figurines have sometimes been dyed with red ochre during the Comb Ware Period (*e.g.* Luho 1961:30). In consequence, a more symbolic meaning may be suggested connecting the transformation process of iron oxide obtained from its natural

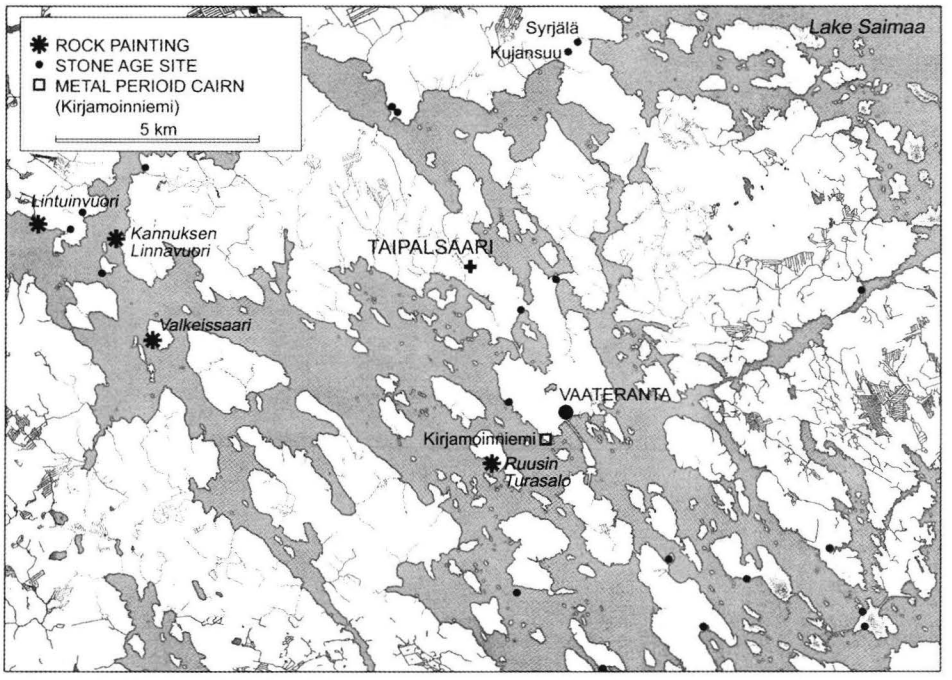
subsoil occurrences into red ochre through firing with the covering of the deceased with red ochre in a burial practise as a transformation process leading into decaying of the human body and returning red ochre to its subsoil origin. In other words, red ochre may be seen as a conveyor in a transforming process between life and an afterlife superseded later by the sole use of fire in cremation burial practises. The preserving qualities of red ochre may be seen among the reasons for its use in burial practices as remains of decayed but detectable skeletal remains, apart from the teeth, are often partly preserved in red ochre contexts. In this connection the preserving qualities of natural iron oxides must be kept in mind as well, as sometimes verified at dwelling sites by unburnt bones preserved in layers of iron oxides.

The Vaateranta grave D containing cremated human skeletal parts of at least three individuals in connection with red ochre and charcoal has now been re-dated to the Typical Comb Ware Period coinciding with the inhumations in the cemetery. It seems that wood of high age has been used in connection with the burning process, since there is a discrepancy of 765 radiocarbon years in between the dates of the bone and the wood in the context. Even taking a high probability into consideration there is still a gap of 500 to 600 years in between (*Table 7*). The cremation as such is still unique in Finland[38]. However, it is put forward that the cremation in this red ochre context may not necessarily reflect such an entirely alien way to treat the deceased, as it may initially appear[39]. It is to be connected with the occurrence of hearths in connection with red ochre inhumations referred to above and in this even the top layer fireplace and the potential contemporaneity of these is worth a reference. On the other hand, since the cremated bones seem to have been exposed to a rather low and uneven temperature of around 300 °C, the death of these individuals may be speculated as having been caused by accidental fire, and the burning has not necessarily been a proper cremation pyre. The patch of red ochre in form of an inhumation burial observed beneath the cremated bones may be considered as a "normally" furnished red ochre burial treatment with abnormal state and number of corpses. In other words we may consider this grave, if treated as a single grave without a proper inhumation, as a semi-cremation seen through the eyes of a community with a strongly established burial practise in inhumations. A vague reference in this direction may be in the potential burnt human bones in connection with the inhumations of the double grave 9, as referred to above.

It seems that Stone Age burial grounds are located at or close to dwelling-sites. Most of these sites must be considered as large ones or base camps and village type settlements with a multi-period chronology. However, this consideration may partly be due to the fact that only at large sites there has been population enough to establish real cemeteries with numerous graves to be discovered in the excavation processes. At or close to small dwelling or camp sites the probable few burials may easily remain unnoticed. The more sedentary way of life during the Neolithic taken into consideration only the central dwelling sites with a practically permanent settlement may have acted as the site for burial practices with more extensive cohesive socio-cultural links. This may be reflected in the mostly harmonious layout of these burial grounds with specially selected areas for burial activities. Artefacts like potsherds and stone flakes

[38]The already Mesolithic site of Skateholm in Scania a cemetery with as many as 87 excavated graves has yielded three cremation pits as well (Larsson 1988:117-119).

[39]At present, these cremated bones in contrast to a number of potsherds from the context, show no discolouration of red ochre, except for a few ones. As a rule grave goods collected from strong red ochre contexts retain their discolouration, however.



Map 10. Vaateranta with other archaeological sites and rock paintings in Taipalsaari

and soil discovered in the filling of the graves may refer to the abode of the deceased and as a link to the habitation of the deceased apparently considered as important (cf. Zagorskis 1987:130; Miettinen 1992b: 30).

However, the number of graves is modest at sites like Vaateranta with the presumable period of some centuries of burying taken into consideration. Applicable explanations to this problem familiar to most prehistoric cemeteries may be that only part of the burial ground has been unearthed and that all the burials have not been equipped with red ochre and as such remained undetected by the archaeologists. There were a number of vague indications to the latter possibility even at Vaateranta and undoubtedly the total cemetery area has not been excavated yet. Small pieces of amber from the test trench (B) and a small ring of slate from the excavation area 3 may refer to yet undetected graves and cemetery extension towards the east. Even a selective burial custom must be taken into account in a way that only a minor part of the population may have been eligible for burying in the cemetery proper. As judged by the observations at Vaateranta and other Stone Age cemeteries the conceivable *criteria* have not been solely gender or age at least. The same applies to the wealth of the deceased if the wide variation observed in grave furnishing is considered as a reflection of relative economic statuses in the community.

A close connection may be suggested between the site of a special central role and other sites close by of apparently minor seasonal significance (*Map 10*). The relation and role between these is restricted by the superficial knowledge and the shortage of dating. Among the phenomena conceivably connected to the site of Vaateranta with an exceptional rank in the area it is tempting to refer to the as many as four rock paintings made in red ochre of the southwestern Lake Saimaa area. However, when relating the

height of these paintings to the history of the lake basin, it seems that only the upper parts of these may have been painted during the heyday of Vaateranta at the earliest, and that they must mostly derive from a later Neolithic phase[40].

UNPUBLISHED SOURCES

Excavation reports in the archive of the National Board of Antiquities, Department of Archaeology, Helsinki

Edgren, Torsten 1998. *Kolmhaara revisited.* A lecture held at the annual general meeting of the Finnish antiquarian society on 7 May 1998.

LITERATURE

Edgren, Torsten 1966. *Jäkärlä-gruppen.* En västfinsk kulturgrupp under yngre stenålder. SMYA 64.

Edgren, Torsten 1999. Alkavan rautakauden kulttuurikuva Länsi-Suomessa. Pohjan poluilla. *Suomalaisten juuret nykytutkimuksen mukaan.* Bidrag till kännedom av Finlands natur och folk 153: 311–33

Engblom, Leena 1992. Tervolan punamultahaudat. *Kentältä poimittua.* Kirjoitelmia arkeologian alalta. *Museovirasto.* Esihistorian toimisto julkaisu N:o 2:50–57.

Halinen, Petri 1997. Kaustisen Kankaan asuinpaikka ja punamultahaudat. *Muinaistutkija* 2/1997: 18–27.

Halinen, Petri 1999. Burial Practices and the Structure of Societies during the Stone Age. Dig it all. *Papers dedicated to Ari Siiriäinen*:173–9. Helsinki.

Handsman, Russell G. 1991. Whose Art Was Found at Lepenski Vir? *Gendeer Relations and Power in Archaeology. Engendering Archaeology. Women and Prehistory.* Ed. by Joan M. Gero and Margaret W. Conkey. Oxford.

Huurre, Matti 1998. *Kivikauden Suomi.* Sakari Pälsin, Aarne Äyräpään ja Ville Luhon muistolle. Helsinki.

Jussila, Timo 1999. Saimaan kalliomaalausten ajoitus rannansiirtymiskronologian perusteella. Saimaan ja Päijänteen alueen kalliomaalausten sijainti ja syntyaika. *Kalliomaalausraportteja* 1/1999:113–33. Jyväskylä.

Katiskoski, Kaarlo 1996. Lisiä Pielisen alueen esihistoriaan. Kaivaustutkimuksia Lieksassa 1991–1993. *Kentältä poimittua 3.* Kirjoitelmia arkeologian alalta. Museoviraston arkeologian osaston julkaisuja N:o 6:23–36.

Kinnunen, Kari, Tynni, Risto, Hokkanen, Kalevi and Taavitsainen, Jussi-Pekka 1985. *Flint raw materials of prehistoric Finland: rock types, surface textures and microfossils.* Geological Survey of Finland. Bulletin 334. Espoo.

Kivikäs, Pekka 1999. Suursaimaan, Puulan ja muinais-Päijänteen alueen kalliomaalausten sijaintipaikat ja korkeudet. Saimaan ja Päijänteen alueen kalliomaalausten sijainti ja syntyaika. *Kalliomaalausraportteja* 1/1999. Jyväskylä.

Kriiska, Aivar 1996. Stone Age Settlements in the Lower Reaches of the Narva River, Nort-Eastern Estonia. Coastal Estonia. Recent Advances in Environmental and Cultural History. *Pact 51.* Rixensart 1996: 359–69.

Kukkonen, Ilmo T, Miettinen, Mirja, Julkunen Arto & Mattsson, Annina 1997. Magnetic prospecting of Stone Age red ochre graves with a case study from Laukaa, Central Finland. *Fennoscandia archaeologica* XIV:3–12.

[40]The paintings of Kannuksen linnavuori (Kannus hill fortsress) and Lintuinvuori were first detected and measured in connection with the Vaateranta excavation project in 1997-1998. Otherwise a reference is made to Kivikäs 1999:4, 82-88 and Jussila 1999:121-129. The height figures of ancient water levels seem rather high, at least according to those of Ruusin Turasalo as compared to the ones measured at close-lying Vaateranta.

Larsson, Lars 1988. Ett fångstsamhälle för 7000 år sedan. Boplatser och gravar i Skateholm. Kristianstad.
Lavento, Mika 1992. Arkeologiassa käytettyjen sovellettujen geofysiikan menetelmien alkuvaiheista Suomessa. *Kentältä poimittua*. Kirjoitelmia arkeologian alalta. Museovirasto. Esihistorian toimisto julkaisu N:o 2:10–20.
Lavento, Mika 2001. Textile Ceramics in Finland and on the Karelian Isthmus. *SMYA 109*.
Luho, Ville 1961. Kokemäen Pispan kivikautinen asuinpaikka. *Suomen Museo*. 1961:5–34.
Miettinen, Mirja 1990. A red-ochre grave of the Comb-Ware Period from Hartikka in Laukaa. *Iskos 9*.
Miettinen, Mirja 1992a. Laukaan Hartikan kivikautinen kalmisto. Keski-Suomen museon julkaisuja. *Keski-Suomi* 19:8–23.
Miettinen, Mirja 1992b. The Stone Age Cemetery of Hartikka in Laukaa, Central Finland. Cultural Heritage of the Finno-Ugrians and Slavs. Papers presented by the articipants in the Soviet-Finnish archaeological symposium 10–16 May 1990 in Tallinn. (Ed. V. Lang and J. Selirand):24–40. Tallinn 1992.
Parker-Pearson, Mike 1999. Death and Burial. Sutton Publishing.
Pesonen, Petro 1996a. Archaeology of the Jaamankangas Area – with special reference to the Rääkkylä Pörrinmökki Stone Age settlement site. Environmental Studies in Eastern Finland. Reports of the Ancient Lake Saimaa Project. *Helsinki Papers in Archaeology* No 8 1996: 93–117.
Pesonen, Petro 1996b. Early Asbestos Ware. Pithouses and Potmakers in Eastern Finland. Reports of the Ancient Saimaa Project. *Helsinki Papers in Archaeology* No 9 1996: 89–117
Pesonen, Petro 1999. Radiocarbon Dating of Birch Bark Pitces in Typical Comb Ware in Finland. *Papers dedicated to Ari Siiriäinen*:191–200. Helsinki
Purhonen, Paula & Ruonavaara, Leena 1994. On Subsistence Economy at the Prehistoric Dwelling-Site of Jönsas in Vantaa, Southern Finland. *Fenno-Ugri et Slavi* 1992. Museovirasto. Arkeologian osaston julkaisu N:o 5. Ed. Paula Purhonen:88-97.
Purhonen, Paula 1998. *Kristinuskon saapumisesta Suomeen*. Uskontoarkeologinen tutkimus. SMYA 106.
Ruonavaara, Leena 1992. Koekaivaus, fosforikartoitus ja geofysikaaliset tutkimukset Kokemäen Pispassa 1989. Kentältä poimittua . Kirjoitelmia arkeologian alalta. Museovirasto. Esihistorian toimisto julkaisu N:o 2:64–76.
Räihälä, Oili 1996. A Comb Ware House in Outokumpu Sätös – Some remarks on the application of ceramic typologies. Pithouses and Potmakers in Eastern Finland. Reports of the Ancient Saimaa Project. *Helsinki Papers in Archaeology* No 9 1996: 89–117
Räty, Jouko 1995. The Red Ochre Graves of Vaateranta in Taipalsaari. *Fennoscandia archaeologica* XII:161–72.
Salo, Unto 1997. *Ihmisen jäljet Satakunnan maisemassa*. Kulttuurimaiseman vuosituhannet. Helsinki.
Storå, Jan 2000. Sealing and animal husbandry in the Ålandic Middle and Late Neolithic. *Fennoscandia archaeologica* XVII:57–81.
Torvinen, Markku 1979. Liedon Kukkarkosken kivikautinen kalmisto. *SM 1978*:37–86.
Ukkonen, Pirkko 1996. Osteological Analysis of the Refuse Fauna in the Lake Saimaa Area. Environmental Studies in Eastern Finland. Reports of the Ancient Lake Saimaa Project. *Helsinki Papers in Arcchaeology* No.8 1996: 63–91.
Vikkula, Anne 1987. The Stone Age graves of the Nästinristi site in Laitila, SW Finland. *SM* 1986:5–17.
Vuorela, Irmeli 1995. Pollen evidence of Stone Age and Early Metal Age settlement in Taipalsaari, Southeastern Karelia, Eastern Finland. *Fennoscandia archaeologica* XII:207–14.
Zagorska, Ilga 1997a. Par kadu retu akmens laikmeta apbedisanas tradiciju. *Archeologija un etnografija* XIX:42–50. Riga.
Zagorska, Ilga 1997b. The first radiocarbon datings from Zvejnieki Stone Age burial ground, Latvia. Proceedings of the VII Nordic Conference on Application of Scientific Methods in Archaeology. *Iskos* 11: 42-47.
Zagorska, Ilga 1997c. Begravningsritual på Zvejnieki-gravfältet. Till Gunborg. Arkeologiska samtal. *SAR. Stockholm Archaeological Reports*. Nr 33, 1997: 435–40.
Zagorskis, F 1987. *Zvejnieku akmens laikmeta kapulauks*. Riga.
Österholm, Inger 1997. Begravningsritualer på Gotland under mellanneolitikum. Till Gunborg. Arkeologiska samtal. *SAR. Stockholm Archaeological Reports* Nr 33, 1997: 477–85.

APPENDIX

Eeva-Kristiina Lahti

Osteological analysis of cremated bones in grave D (1971) and teeth in graves 13, 14 and 16 (1999)

In Finnish archaeology, cremated human bones have been analysed to a limited extent. This is probably due to the fact that the material tends to be very fragmented and does not necessarily give optimal results. In this chapter the results of osteological analysis of the burned human bones of Taipalsaari Vaateranta excavated in 1971 (NM 19239:677) as well as the unburned dental material excavated in 1999 (NM 31494: 2349–71) are presented.

The cremations

The total weight of the material was 1355.5 g, of which 693.7 g could be identified. The size of the fragments varied from 0.2–6 cm., averaging 2–3 cm. (*Table 1.*). The colour of the bones was light brown, which indicates that the material was not thoroughly burned. The bones were twisted, probably due to the fact that the corpse was burned with the soft tissue included (Wahl 1982: 8-9). Considering the colour of the bones and the preservation of teeth, the pyre has reached the heat of 300 C grade (Herrman 1988: 578). The fact that the bones seem to be very clean can indicate that they have been removed from the pyre (Sigvallius 1994: 32).

The teeth

The material consisted of totally 178 fragments of unburned human material, mainly enamel since no root was preserved. Besides enamel, some fractions of unburned bone could be recognised, both in a very fragile condition. The preserved enamel and other unburned bone material were excavated from three different graves. The results can be seen in table 2.

The degree of attrition of the molars is considered reliable as an age determination method. Especially the molar region is useful because the cusp patterns allow occlusal wear on several stages that can be correlated with age. (Brothwell 1981: 72, Fig. 3.9). However the variability of dietary differences affects the amount of occlusal wear in the teeth. A sedentary population with a diet that relies on agricultural livelihood has accumulated attrition compared to a meat-eating hunter-gatherer population. It is also important to remember that the attrition differs in degree on the surfaces of the molars due to the differences of the eruption of teeth (Bass 1995: 300). An attempt was made to observe the degree of attrition.

Methods

The bones were weighed and sorted by their size to three different groups <1, 1–3, >3 in order to note the degree of the fragmentation. The colour of the bones was registered in order to determine the degree of the burn. The fragments were divided into the groups "identifiable" and "unidentifiable". A total of 452 fragments could only be determined to belong to a certain bone type, like calvarium or long bones. 267 fragments were identified more specifically as a specific bone, when possible also the side and exact part of the bone was registered. An attempt was made to sex the individuals in the material.

Following methods were used to determine minimum number of individuals, their sex and age.

The minimum number of individuals (MNI) is based on the fact that bones appear individually or in pairs in the human skeleton. Some bones, like the pars petrosa of the inner ear, the dens axis of the second cervical vertebra, hand and foot root bones often appear in burned burials (Gejvall 1969: 472).

The estimation of sex is most often based on the morphological observation of secondary sexual characters that develop after puberty. These characters can be observed in the area of the skull, like the area around the orbita, where the male, in general, is considered to have more pronounced characters. (Buikstra & Uberlaker 1994: 18). Secondary sexual characters are best observable in the pelvic region, like in the symfyseal area of the pubic-bone (Buikstra & Uberlaker 1994: 16). These bones are only seldom present in burned burials, and were not present in this material. In cremated material the cadaver is normally very fragmented and the certainty of the sex estimation depend on the amount of the bones carrying sexual characters. With burned material also metric methods can be used, for example the measurement of the calvarium (Gejvall 1948: 171; 1981: 19). However, one must bear in mind that several measurements as well as observations of morphological features should be made and observed per individual to make the result dependable. In this material the possibilities to make such measurements and observations was very limited, and could only be done with two bones.

In osteological material subadults can be aged based on the fusioning of the long bones and the emergence and development of the teeth (Buikstra & Uberlaker 1994: 39). In the case of adults the ageing is considerably

Table 1. Fragmentation and identification of burned human bones from Vaateranta in Taipalsaari (NM 19239:677).

Fragment size (cm)	Weight (g)	Amount (frag.)	Identified (g)	Identified (frag.)
0,2–1	490,9	6000	16,5	48
1–5	739,7	1028	550,6	632
>5	124,9	39	124,9	39
Total	1355.5	7067	692	719

Table 2. The occlusal wear in the dental material from Vaateranta in Taipalsaari (NM 31494: 2349–71)

Element	Wear pattern	Amount	Grave
Substantia adamantina, M1 dex. maxillaris	No occlusal wear	1	13
Substantia adamantina, M1 sin. mandibularis	Slight enamel polishing buccal	1	
Substantia adamantina, M1 sin maxillaris	No wear	1	13
Substantia adamantina, M2 sin mandibularis	Slight enamel polishing buccal	1	13
Substantia adamantina, PM1 sin. maxillaris	No wear	1	13
Substantia adamantina, PM2 sin. maxillaris	No wear	1	13
Substantia adamantina, PM2 dex maxillaris	No wear	1	13
Substantia adamantina, PM1 sin mandibularis	No wear	1	13
Substantia adamantina, caninus fr.	Slight wear buccal	1	13
Substantia adamantina, molar fr.	Not possible to observe	2	13
Substantia adamantina, molar fr.	No wear	1	13
Substantia adamantina, premolar/molar fr.	Not possible to observe	2	13
Substantia adamantina fr.	Not possible to observe	134	13
Substantia adamantina, deciduos (milk) molar	Not erupted / infant	1	14
Substantia adamantina fr. premolar/molar fr.	Not possible to observe	2	14
Substantia adamantina, molar fr.	Not possible to observe	1	14
Substantia adamantina,M1 sin mandibularis	Strong attrition / Adult	1	14
Substantia adamantina, molar fr.	Slight enamel polishing	1	14
Substantia adamantina fr.	Not possible to observe	12	14
Substantia adamantina, molar fr.	Not possible to observe	9	16

more difficult. However attempts have been made by measuring the thickness of calvarium, observing the fusioning of the sutures of the skull and by observing the bluntness of the tip of the teeth root. The width of the root canal is also considered age-related. (Gejvall 1948: 162; 1969: 473). No attempt to age these individuals more exactly was made, due to the nature of the material.

Results

The Taipalsaari cremation consisted of at least three individuals. The minimum number of individuals was indicated by the presence of three Os trapezium (the first bone on the distal carpal row, next to the thumb) from the left side. Despite of the poor reliability due to the poor presentation of the fragments indicating sexual differences, an attempt was made to sex the individual by measuring a fragment of calvarium and by morfologically observing the upper brow ridge area of the orbita, margo supraorbitalis. Both fragments indicated a man. The result is however not to be considered reliable. It can only be said that these bones carry masculine characters.

The cremations consisted of three adult individuals. Because of the sparse cranial and fragmented tooth root material no attempt was made to estimate the precise age of the individuals. One vertebrate showed traces of Schmorl`s nodes, lesion in lower thoracic and lumbar vertebrate bodies due to physical stress (Kennedy 1989: table 1).

The Taipalsaari teeth seem to have very little occlusal wear in the teeth enamel that are possible to observe. Although the material from the grave 13 is quite large, only one individual could be positively identified,

the individual is young, since there is almost no attrition at the occlusal surface of the teeth. The material from grave 14 contains two individuals. One individual is under ca. 3 years since the deciduous molar is not erupted. The other individual is adult and has a very strong attrition on the occlusal surface of the second molar (Uberlaker 1989: figure 17). Some fragments of unburned human bone and enamel fragments could be identified in grave 16. The bone was so fragile that it could not be observed, nor the fragments counted. However a *linea aspera* was identified on the surface of the very eroded femur.

LITERATURE

Bass, W. M. 1995: *Human Osteology: a Laboratory and Field Manual.* Missouri Archaeological Society, Special Publication, University of Missouri.

Brothwell, D. R. 1981: *Digging up Bones. The excavation, treatment and study of human skeletal remains.* British Museum Natural History.

Buikstra, J. E.& Uberlaker, D. H.(ed.) 1994: *Standards for data collection from human skeletal remains.* Arkansas Archaeological Survey Research Studies No 44.

Gejvall, N.-G. & Sahlström, K. E. 1948: Gravfältet på Kyrkbacken i Horns socken, Västergötland. *Kungliga Vitterhets Historie och Antikvitets Akademiens Handlingar.* Del 60:2. Stockholm 1948.

Gejvall, N.-G. 1969: Cremations. In Brothwell &Sandison (ed.): *Science in Archaeology.* Thames and Hudson: 468–79.

Gejvall, N.-G. 1981: Determination of Burned Bones From Prehistoric Graves Observations on the Cremated Bones From the Graves at Horn. *Ossa Letters No 2.* Communications from the Osteological Recearch Laboratory at the University of Stockholm.

Herrman, B. 1988: Behandlung von Leichenbrand. In Knussman (ed.): *Anthropologie. Handbuch der vergleichenden Biologie des Menschen. Band I.* Wesen und Methoden der Anthropologie. 1 Teil. Wissenschaftstheorie, Geschichte, morphologische Methoden. Gustav Fischer Verlag, Stuttgart, New York.

Kennedy, K. A. R. 1989: Skeletal Markers of Occupational Stress. In Iscan, M. Y. & Kennedy, K. A. R. (ed.): *Reconstruction of life from the skeleton.* Alan R. Liss, New York. 129–60.

Sigvallius, B. 1994: *Funeral Pyres. Iron Age cremations in North Spånga.* Theses and Papers in Osteology 1.

Uberlaker, D. H. 1989: *Human Skeletal Remains.* 2nd ed. Taraxacum Press, Washington DC.

Wahl, von J. 1982. *Leichenbranduntersuchungen. Ein Uberblick uber die Bearbeitungs- und*

TIIVISTELMÄ

Vaaterannan kalmisto ja asuinpaikka Taipalsaarella

Artikkelissa esitellään Taipalsaaren Vaaterannan kivi- ja varhaismetallikautisella asuinpaikalla vuosina 1997–99 suoritettujen arkeologisten kaivausten tutkimustuloksia painopisteen ollessa asuinpaikka-alueella sijaitsevissa punamultahaudoissa. Asuinpaikka on tunnettu ensimmäisistä tutkimuksistaan lähtien (1930), minkä jälkeen Vaaterantaan ja siinä v:sta 1970 tunnettuun kivikautiseen kalmistoon on usein viitattu arkeologisissa tutkimuksissa ja yleisesityksissä. Suoritetut uudet kaivaukset paljastivat kalmistosta 18-19 hautausta. Kalmistossa paikallistettujen vainajien lukumäärä on nyt vähintään 22, joista kolmen vainajan jäännökset sisältyvät aiemmin tutkittuun yhteen polttohautaan (hauta D, v. 1971).

Hautojen koko, syvyys sekä varustelu vaihtelivat kalmistossa suuresti. Suurimmissa haudoissa (hauta 2, 3 ja 16) hautakuoppa erottui selvästi ollen yleensä kooltaan 3x1 m luokkaa. Epäselvästi erottuvien hautojen määrittäminen perustui pelkkään punamultaläikkään ja löytöihin. Pienimmät haudoiksi tulkitut olivat alle metrin mittaisia läikkiä sisältäen mahdollisesti lapsen hautauksen. Hautojen syvyys vaihteli n. 40–100 cm:n välillä. Hautojen sijoittumisen perusteella kalmisto vaikutti varsin yhtenäiseltä kokonaisuudelta. Pääasiallinen hautaussuunta oli likimain länsi-itä. Seitsemässä haudassa oli punamullan vaikutuksesta säilynyttä hammaskiillettä, jonka perusteella vainajan pääpuoli oli useimmissa haudoissa idässä ja kahdessa haudassa lännen suunnassa. Hammasmääritykseen perustuen on ainakin yhdessä haudassa (14) ollut aikuisen vierellä pieni

lapsivainaja. Kahden vierekkäisen ja samansuuntaisen punamultaläikän sijainti viittaisi kaksoishautaukseen (9 a ja b). Muut jäänteet vainajista olivat vähäiset tai olemattomat.

Hauta 3 oli aivan poikkeuksellinen: siitä löytyi kolme saviastiaa. Näistä pienin oli jalkopäässä, löydettäessä ehjä ja pystyasennossa. Sen voikin olettaa olleen hauta-aterian säilytysastia. Myös vainajan päänkohdasta enemmän haudan itäpäätyä kohti oli haudan pohjalla isomman paikalleen hajonneen astian jäännökset. Astia voitiin rekonstruoida. Kolmas ja suurin astioista oli vainajan vasemmalla puolella, niin ikään haudan pohjalle asetettuna. Se oli säilynyt vain osittain. Tässä kuten kalmiston seitsemässä muussakin haudassa oli meripihkakoruja. Haudassa 3 ne olivat sekä pään kohdassa että jalkopäässä, ja mm. haudassa 2 meripihkarengas löytyi yhdessä liuskeesta valmistetun renkaan kanssa jalkopäästä. Osa meripihkalöydöistä oli hautakuopissa. Muina säilyneinä hauta-antimina oli piiesineitä, kuten nuolenkärkiä ja mm. veitsi vainajan reiden vaiheilla haudassa 16, kvartsista tai läpikuultavasta vuorikristallista tehtyjä esineitä sekä hioimia. Saviastianpaloja sekä erilaisia iskoksia oli lisäksi useimmissa haudoissa runsaasti. Ainakin osa näistä kuten löytyneistä palaneista riistanluista näyttää tarkoituksellisesti asetetun hautoihin tai hautakuoppiin, eikä olevan peräisin asuinpaikan kulttuurikerroksesta.

Löytöaineiston perusteella haudat ajoittuvat tyypillisen kampakeramiikan (Ka II) aikaan, mitä myös osa tehdyistä radiohiiliajoituksista tukee. Osa näistä ajoituksista on kuitenkin ristiriidassa typologisen ajoituksen tai löytöyhteytensä tulkinnan kanssa. Uuden tekniikan mahdollistama AMS-ajoitustulos haudan D heikosti palaneesta luusta osoitti myös sen kuuluvan asuinpaikan tyypillisen kampakeramiikan aikaiseen pääasutusvaiheeseen.

Artikkelissa käsitellään lisäksi paikan kronologisia kysymyksiä ja ajoituksiin liittyviä ongelmia sekä toimeentuloa, minkä sekä kampakeraamisessa että varhaismetallikautisessa asutusvaiheessa esitetään perustuneen korostuneesti kalastukseen. Edelleen yhteenvedossa arvioidaan joitakin enemmän yhteisöllisiä piirteitä, joita haudat ja hautausten piirteet osaltaan voivat kuvastaa. Artikkelin lopussa on liitteenä Eeva-Kristiina Lahden osteologinen analyysi v:n 1999 kaivauksessa löytyneistä hammaskiilteistä sekä haudan D aiemmin julkaistujen (Räty 1995) palaneiden ihmisluiden uudelleenanalyysi.