

Jouko Rätty

THE RED OCHRE GRAVES OF VAATERANTA IN TAIPALSAARI

Abstract

This article describes the red ochre graves of Vaateranta in Taipalsaari, Southern Karelia (Finland). Everyone of the four Vaatesaari red ochre graves (A-D) had plenty of red ochre. Fourth of the graves, grave D, was situated further apart from the other graves. It was under a horizon which consisted of small stones and burned soil. This mystic grave included, in addition to red ochre, an almost round cremation with approx. 1.4 kg of burned human bones.

A number of bone splinters were found from the first two excavation layers among pottery sherds and flint objects. This indicates that even as early as during the Comb Ware period the inhabitants had goats or sheep and possibly even pigs. Goats or sheep could have lived during this period, for splinters of their bones were also found near grave B.

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Introduction

There are 37 Stone Age red ochre graves known in Finland at present (1993), 26 of which date from the Comb Ware period (Fig. 1; comp. Miettinen 1990, 44–45; 1992, 20). The Vaateranta red ochre burial site in Taipalsaari is the first area of grave finds from the Comb Ware period in Finnish Southern Karelia. So far five red ochre graves have been discovered: four inhumations and one cremation. The latter is the oldest one in Finland and so far probably one of the oldest in Europe.

In the summer of 1970 the Archaeological Committee charged the writer of this article with the task of finishing the excavation of the grave find which was made on the Vaateranta site by the sculptor Keijo Koistinen; this find Pekka Sarvas, the Licenciate and archaeologist, recognized as a red ochre grave (NM 18188. Rätty 1970; 1991, 20). As a further measure the writer was to undertake an excavation in the area in the summer of 1971 in order to find other possible graves (NM 19239). As a technical assistant acted a student, Veikko Pakkanen. Later on the Vaateranta site was excavated in 1978 (NM 20659) under the leadership of the archaeologist Jussi-Pekka Taa-

vitsainen from the National Board of Antiquities and the road area on the shore in 1989–1990 (NM 25274; NM 26112) under the leadership of the archaeologist Timo Jussila. The finds, finished maps and reports of the excavations have been at my disposal by the kind consent of their makers.

The site of Vaateranta

Vaateranta belongs to the village of Jauhiala in Taipalsaari — formerly called Rättiranta — and is situated 3,9 kilometres south-east from the church of Taipalsaari. It lies at the base of Saimaanharju and slopes down terrace-formed to the south and the southeast. The Vaateranta site is situated on an ancient sandy beach which is covered with a thin layer of turf, and is today the public bathing beach of the village.

Vaateranta has been known as a prehistoric find place since 1929 (NM 9132). The following year Julius Ailio made measurements and experimental excavations in the area, on the basis of which he could prove that there was a very large Comb Ware site in this locality (NM 9317. Ailio 1931). The whole area of the site has got its name after the bathing beach — the former place for

**Red ochre graves
in Finland (1993)**

- ▲ pre-pottery
- comb ware (II)
- × late neolithic
- ⊙ *Taipalsaari, Vaateranta:*
early comb ware
cremation (I) and
comb ware (II)

Ref.: Miettinen 1990 & 1992

Add.:

- ▲ *Vantaa, Kaivoksela, Gröndal 2*
Excavation 1972 / Rätty

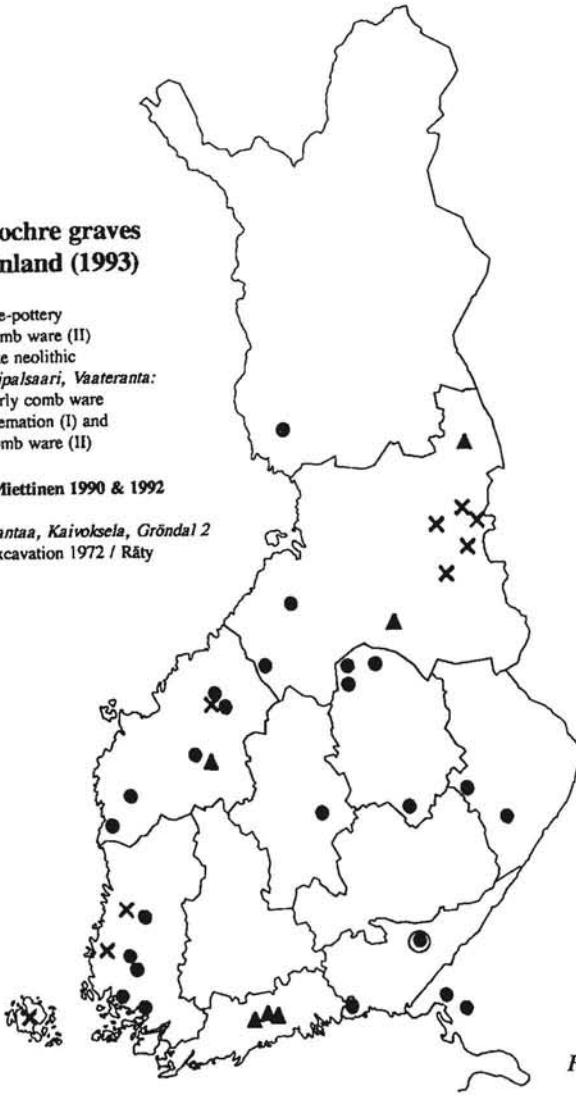


Fig. 1. The red ochre graves in Finland in 1993 (Jouko Rätty).

soaking flax.

Although the most remarkable finds so far were made on the Vaateranta beach, there were also a great number of objects found in the area of the adjacent houses west of it. In the eastern part of Vaateranta no actual excavations have taken place, but judging from the test pits made in the sand it seems to be poor in finds. Besides Comb Ware sherds and quartz, some pieces of Early Metal Period pottery (Luukonsaari style, NM 19239:868. Rätty 1973) were found in the eastern area of the settlement. On the lower terrace of the bathing beach below the 79–81 metre Comb Ware zone a fragment of pottery was found (Jussila

1990) which probably dates back to the Early Metal Period (Tomitsa ?).

The total length of the settlement at Vaateranta is at least 500 metres from the Taipalsaari-Lappeenranta crossroads. The dwelling site finds from the Comb Ware period are situated at 80–81 metres above sea level, and all the finds between 77–81 metres above sea level (Jussila 1989; 1990).

The Comb Ware dominates the finds of all the excavated areas:

- Early Comb Ware pottery (the style phase I:1) is also found (e.g. NM 19239:159, 312).
- The younger phase of the Early Comb Ware

Table 1. The nature of the excavation finds in 1970 (NM 18188:1-24), 1971 (NM 19239:1-870), 1978 (NM 20659:1-2086), 1989 (NM 25274:1-183) and 1990 (NM 26122:1-637). * Timo Jussila 1990.

Finds	1970	1971	1978	1989-1990*
Comb Ware sherds	17	3237	14403	3028
Comb Ware rim sherds	187	601	94	-
fragments of clay objects	-	8	1	-
fragments of idols	-	-	6	-
amber ornaments	1	1	-	-
ornaments of slate	2	-	-	-
fragments of round chisel	1	-	-	-
fragments of stone objects	-	22	1	-
unfinished stone objects	-	1	1	-
stone objects	-	5	1	-
stone flakes	-	22	10	-
quartz objects	-	15	7	8
quartz cores	-	16	9	-
quartz flakes	2	372	831	82
quartzite objects	-	15	-	-
quartzite flakes	-	11	-	-
quartzite cores	-	-	1	-
"flint sickle"	-	1	-	-
flint scrapers	-	-	59	8
flint arrowheads	-	-	16	-
flint objects	-	-	40	-
flint cores	-	-	2	-
flint flakes	1	827	4062	288
burnt bones of animals	x	x	x	3
burnt bones of Homo	-	x	x	-
red ochre graves	x	x	-	-

(I:2) is not represented to any great extent but — as far as I can see — there are some fragments of Early Comb Ware pottery (I:2) among the finds (e.g. NM 20659:153, 166. Comp. Miettinen 10.1.1994: NM 20659:153 I:1 or I:2).
 - The majority of the finds at Vaateranta consist of Typical Comb Ware pottery (II:1). Also the fragments of Pitted Ware pottery can be dated back to the same, or partly to a little later period of time (e.g. NM 20659:503) (comp. Kokkonen 1978; Äyräpää 1930; Miettinen 10.1.1994).

The fragments of idols are — besides pottery fragments — worth mentioning as interesting finds from the Vaateranta site (NM 20659:740, 744, 1090, 1654, 1669, 1953. Comp. Indreko 1957). Scrapers and arrowheads made of flint are quite numerous. Those made of quartz are much fewer. The ratio of flint to quartz finds is about 4,9:1 (Table 1).

On the grounds of the finds Vaateranta is a permanent dwelling site dating back to about 4000–2800 B.C. (Siiriäinen 1974, 18). The population seems to have been at its densest, however, during the Typical Comb Ware period about 3300–2800 B.C.

The red ochre burial ground

Before the ground in the upper part of the bathing beach (214 m²) at Vaateranta was cleared in 1969, there were no signs to be seen of the graves. Originally the graves may have been marked because their red ochre and nearest surroundings are preserved rather untouched. The only discovery which is pointing at a possible stone mark is a triangular (30 x 20 x 10 cm) stone which was found during the excavation in 1970 close to grave A

(Räty 1970).

The burial ground of Vaateranta is situated on the 80 m contour line, on the second terrace of the shore, a little separate from the cultural layers of the actual dwelling site. The soil of the area is loose, clear light drifting sand which changes its form to rough, tight and nearly white gravel at the bottom of the graves.

A total of five red ochre graves were unearthed in the excavations in 1970–1971. Four of the graves are inhumations and one is a cremation (Fig. 2).

The burials have some common features. The deceased were buried in low pits which contained no stone structures and were covered with loose sand. That the graves extended to the level of the drift sand was proved by the deposits of red ochre, and by the fact that deeper at the bottom of the gravel layer there was a division between softer and tighter ground. The graves were rounded at the corners; there was rather plenty of red ochre in all the graves, although the amount varied from grave to grave. The direction of the graves is also a general feature: they lay rather exactly in east-west direction.

The cremation grave was situated on the edge of the central area of the dwelling site, almost at the same level as the other graves. The cremation grave differed from the burial graves in structure, but in all of them the deceased was laid into a pit which was dug into the ground and covered with red ochre.

Grave A: "The Grave of Ornaments"

The grave was excavated in the summer of 1970. Compared with the ground surface today, the pit was dug rather close to the surface because the bottom was only about 40 cm deep or 80,21 metres above sea level. The red ochre layer was 1,55 m long and about 0,5 m wide at the eastern end and 0,3 m at the western end.

The finds:

- A button ornament of slate, 25 mm in diameter, thickness 5,5 mm. The diameter of the hole is 4 mm. It was found together with the next one (NM 18188:1).
- A button ornament of slate, 28 mm in diameter, thickness 4 mm. The diameter of the hole is 13 mm. It was found beside the former (NM 18188:2).
- A ring of amber, which is broken into four bigger and four smaller fragments, 23 mm in diameter, thickness 3,5 mm. The diameter of the hole is 12 mm (NM 18188:21).
- Burnt fragments of bones were found in two places near the red ochre area, altogether 11 gr. The bones can not be identified (NM 18188:8–9).
- There was also so-called dwelling site material in the red ochre area: four pottery fragments, a quartz flake and a flint chip.

In addition to this, a coal area was found outside the eastern end of the grave: possibly the remains of keeping fire in a burial rite.

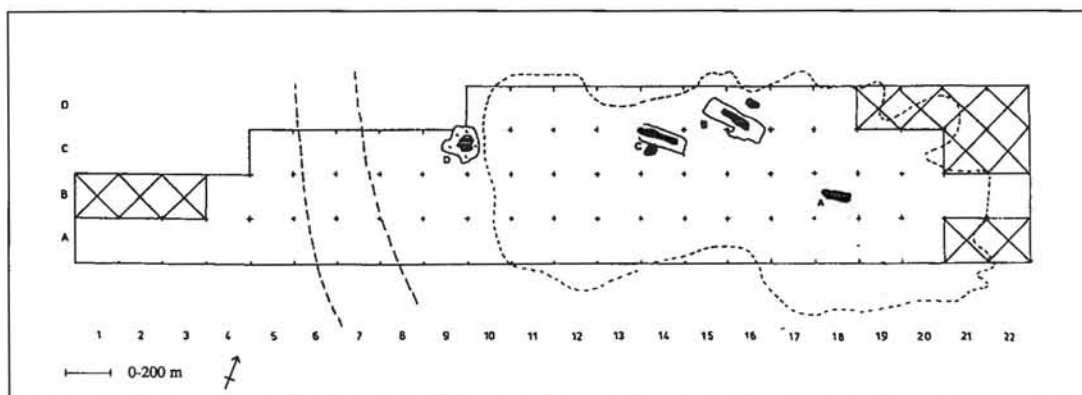


Fig. 2. The excavation map and the red ochre graves of 1970–1971 (Jouko Räty and Veikko Pakkanen).

Grave B: "The Double Burial"

The grave was unearthed in the 1971 excavation about four metres away from grave A to the west. The thickness of the red ochre layer was 24 cm and the bottom was on the 80,06 metre level above sea level. There were two separate red ochre areas under the topmost common, mixed red ochre cover: a red ochre area with a normal size adult burial, and to the north of it, a partly separate pit with red ochre which is interpreted as a child burial.

The red ochre area of the adult burial was in the first layer 2,2 x 1,6 metres and in the fifth layer about 2 x 0,6–0,8 metres wide, the broader end in the east southeast direction. At the southeastern end there was a separate, light, circular impression with some red ochre lightly on it and inside the impression a circle with additional red ochre. It is interpreted as the place of the head of the deceased, even though it was not possible any more to discern any firm organic material in it.

The northern spot of red ochre was in the east southeast - west northwest direction and extended from level two to level four. The child's burial was 0,8 metres long and 0,3 metres wide. The red ochre layer was thickest at the east southeast end of the small grave — probably above the head.

In both burials dark, organic material was found in different levels. It could originate from birch bark, with which the deceased was covered when buried (comp. Edgren 1959, 8; Miettinen 1992).

The finds:

- Burnt fragments of bones, 1250 mg, from the red ochre layer (NM 19239:832, 836).
- A pottery fragment, two quartz flakes and a flint flake were also found in the red ochre layer.

Grave C: "The Man Burial"

Grave C was situated two metres away from grave B and at the same level as the former. The thickness of the red ochre was 26 cm and the bottom was on the 80,04 metre level above sea level. The size of the pit was 2,6 x 1 metres on the excavation level 2. Besides red ochre the deceased in this burial was partly covered with birch bark.

In the southern middle part of the grave there appeared a wide, about 0,8 x 0,6 metres large area with red ochre. The layer of red ochre was, however, not as thick as in grave B, and therefore it cannot be construed as a separate burial.

The finds:

- The head fragment of a round chisel, measuring 3,8 x 1,3 x 0,9 cm. It was found in the middle of

the burial and is made of the green slate of Ääninen (NM 19239:740).

- A flint arrowhead, measuring 2,6 x 1,4 x 0,5 cm. It was found at the southern end of the burial, but on the same level as the former. It was made of grey flint (NM 19239:741).

Grave D: "The Cremation"

The finest, the most remarkable or the most exceptional finds of an archaeological excavation are often discovered when the work is almost finished. Already before the grave appeared it was obvious that there were small fire places immediately beneath the turf in the area of squares C:7–10. The fire places were simple but the ground was strongly burnt.

The exceptional activities in the fire place area are also reflected in the concentration of burnt fragments of bones, pottery sherds, flint objects, and both flint and quartz flakes in the before mentioned squares and in square D:10 (Fig. 2).

A cremation burial was unearthed in the fourth level of squares C:9–10. In addition to bones the burial included a large amount of red ochre. The depth of the cremation pit was 42 cm and the bottom was on the 79,97 metre level above sea level. The contents of the grave, or the upper levels of the pit full of clear red ochre and bones, were confined to an area of 0,6–0,7 metres in diameter, while the mixed ground layer of sand and bone splinters extended to an area of 1,6 x 1,4 metres.

The finds:

- Bones of man (Homo), about 1400 gr (NM 19239:677; Appendix 1).
- "A flint sickle", made of light flint, measuring 10,1 x 3,7 x 1,1 cm. It was found next to the upmost spot of red ochre and the bones (NM 19239:709).
- Fragments of a ring ornament of amber: 4 fragments, 110 mg, from red ochre. The exact location in the cremation is unknown (NM 19239:680).
- In addition to the objects dwelling site material was also found among the red ochre: a flint scraper (NM 19239:681), four rim sherds of Early Comb Ware pottery (style I:1; NM 19239:682 ?), 100 fragments of Typical Comb Ware (determined style II:1), 66 flint and 32 quartz flakes.

New finds from the graves?

In the excavation conducted by J.-P. Taavitsainen in 1978 "spots of red ochre" and at least 43 gr of

human bones were found near the 1971 excavation conducted by the writer (look Appendix 1). After having examined the maps and the lists of objects of the excavation I am sure that the finds from squares of 118/98 and 118/102 consist of the bottom of grave D, the area, which we did not notice when we were ending our excavation. The finds could partly also come from the side of square D:9 in the coordination of the 1971 excavation, which was not opened at all since the red ochre layers of the cremation grave D seemed to come to an end outside the square. So in my opinion none of the spots of red ochre in the 1978 excavation properly indicate the existence of a new grave.

Artifacts and the dating of the graves

The red ochre inhumation graves of Vaateranta are similar to the graves of the type A at Kolmhaara in Honkilahti excavated by Dr. Edgren (Edgren 1959; 1966). Several similar graves have been found during the last few decades (Luhio 1961; Torvinen 1978). The newest and perhaps the most interesting site is Hartikka in Laukaa with its many red ochre burials and rich grave finds (Miettinen 1990; 1992).

The most important element in each of the graves of Vaateranta is red ochre. Red ochre had been used since the Palaeolithic times, and it was widely employed in burials. Red ochre and grave goods may indicate people's religious beliefs in that the red ochre symbolized blood and life and the goods different ideas of the soul's life and needs after the physical death. Even in the Stone Age people hardly believed that a dead physically lived in the grave, but the rites at the grave during the burial and after that indicate the fact that people believed that a dead person wants to come back into her/his corpse occasionally, at least — as Anders Kaliff says, "in order to be present at the memorial festivals of her/his death or to receive offerings" (Kaliff 1992, 128).

The personal burial gifts in the red ochre graves of Vaateranta consist of ornaments and artifacts connected with livelihood. There are also some small, crushed and burnt fragments of bones intentionally dropped in the red ochre of the two burials. The bones, like all the artifacts found almost in each of the graves, may have their own symbolic function to be associated with the funeral rites, when a human corpse is surrounded with elements from the environment where she/he was working during her/his life (Kaliff 1992, 138–140). We can not ignore this material, either,

when studying the forms and development of funeral rites.

The earliest cremations in Central Europe are from the late Neolithic and the Bronze Age. There were — at least from time to time — cremations in Scandinavia in the Neolithic period, too, before the custom became common during the periods II–III in the Bronze Age (Kaliff 1992, 125–127).

No Stone Age cremation burial sites — not to even mention red ochre furnishings — had been found in Finland before the find on the Vaateranta site in Taipalsaari in 1971. In the Vaateranta cremation grave there was on an average as much pure red ochre as in the inhumation graves — if not a little more.

The inhumations

Three pieces of jewellery, two of which are buttons of slate and one a ring of amber, can be judged to be personal grave goods of grave A. The buried person was about 1,4–1,5 metres tall judging from the extent of red ochre. The corpse was laid down on its back with the head to the east and the face turned to the south as we can infer from the place and position of the amber ring. The ornament was round the neck or on the forehead fastened to a head-dress. The slate pendants in upright position on the chest indicate that they were worn as adornments of a cloth while the ones hanging down were worn as adornments of the dress in short ribbons, or in a longer one round the neck.

Amber was imported to Finland from the coastal areas of the Baltic Sea, from Poland and the southern Baltic countries, especially during the Typical Comb Ware period, though the import continued to some extent to the end of the Stone Age (Edgren 1959; Kivikoski 1961; Torvinen 1978; Äyräpää 1945). Because amber was expensive, artifacts made of it were imitated in the jewellery made of domestic rock types, particularly of slate. The oldest of the imitations date back to the Early Comb Ware and the youngest to the Late Comb Ware (Ailio 1909, 49; Kivikoski 1961, 45–46; Kopisto 1959, 9; Äyräpää 1945, 18).

The piece of pottery (II:1) found in the red ochre might prove the fact that grave A dates from an earlier period of the Typical Comb Ware or about 3300–2800 B.C. (Siiriäinen 1974, 18).

No personal grave gifts were found in grave B, but the pieces of pottery (II:1) and flint found in the red ochre are sufficient for dating the burial to the same period as grave A. There were no finds in the child's grave, but because of its position next

to the other grave and because both the graves had a common top layer of red ochre we can well believe that this double burial was for mother and child (comp. Miettinen 1992, 14).

I have characterized grave C as a burial of a man on the basis of the finds, namely the fragment of a grooved chisel blade and the flint arrowhead. Both finds were in such positions that they could be regarded as grave goods. The piece of the grooved chisel is made of the green slate from the Ääninen region which is found as raw material nowhere else on the Vaateranta site. As a type of artifact the grooved chisel is so far unique there. Artifacts made of the green slate of Ääninen were in use in Finland throughout the Stone Age (comp. Kivikoski 1961, 43; Äyräpää 1944, 65).

The arrowhead of flint is connected with the wide eastern flint commerce which originated at the beginning of the Typical Comb Ware period and was brought to an end in the Uskela period (Äyräpää 1930, 210). Grave C may also date from the Typical Comb Ware period.

Dating of the cremation

Most objects found in the red ochre of the cremation grave D — particularly the pieces of pottery and flint — indicate that the grave dates back to the earlier period of the Typical Comb Ware or to about 3300–2800 B.C. The dating also applies to the flint sickle and probably to the fragments of a small amber ornament.

How to date the burial ground still remains a question mark because of the four rim sherds which I have mentioned before. I regard them as Early Comb Ware pottery and think that they possibly formed a part of the original material of the cremation burial.

The dating of the bones with ¹⁴C-analysis was not successful because of far too low a content of collagen. A piece of charcoal which was found among red ochre (NM 19239:679) was also radio carbon dated. It is reasonable to presume that it had come into contact with red ochre when the bones had been collected from the pyre and laid into the grave.

The ¹⁴C-dating (Ua-3326) gave a result of 5775±100 BP and so grave D dates from the time between 3925–3725 B.C. or the Early Comb Ware period (The Svedberg-laboratory 1993). The concentration of the material on the dwelling site and the stones of the fire places which are later than grave D give concrete evidence on the rites performed at the grave. From this perspective we can understand the significance of the amber ring

and “the flint sickle” found in the grave, both of which are younger — if they really are — than the above mentioned dating of the grave. Above all the place where the flint sickle was found, on the surface of the grave, suggests that it was not a grave gift but an offering. This means that the cremation grave has in due course become a cult place where “the progenitrix” was worshipped and where fire was an importance part of the rite (comp. with Kaliff 1992, 132).

The introduction of agriculture

It has been thought that the Comb Ware pottery of the seaside dwelling sites would have been used, above all, for stocking seal meat. So it may also be with the dwelling site of Vaateranta, for the number of the pieces of pottery is quite high and the size of the vessels is often remarkable. As the seal population (*Phoca hispida saimensis*) in southern Great Saimaa was abundant at that time (Zvelebil & Rowley-Conwy 1984, 118, fig. 8), it is possible that the source of living of the population at Vaateranta was mainly based on hunting seals in the springtime. Identified seal bones or harpoons have not yet been found within the area.

People made use of a great number of flint or quartz arrowheads for catching birds or for fishing. Anyway, it has not been possible to analyze the smallest fragments of burnt bones, a bone of pike (*Esox lucius*) excluded.

The analysis of the remnant fauna of the Vaateranta excavations, made by the palaeontologist Mikael Fortelius (1980), gives us an interesting point of view as to the other fauna of the site (Appendix 1). In the material the bones of big ruminants point to the hunting of big game. It is problematic whether the few cattle bones analyzed belong to domesticated neat or whether they bear witness to the hunting of wild neat or “urus”. In any case “the urus” was living in the leafy woods of the warm Atlantic period during the Early and Typical Comb Ware in Europe. Its bones have been found on the eastern side of the Finnish frontier in Russian Karelia (Ukkonen 8.4.1993).

Because also at least three identified bones of pig and five of goat or sheep have been found beneath the fire places close to grave D, we cannot avoid thinking of the Comb Ware population of the Vaateranta dwelling site also to be beginners in dairy farming.

Bones of goat or sheep have not been found earlier on the Comb Ware sites in Finland, but we can seek references in philology to the early arriv-

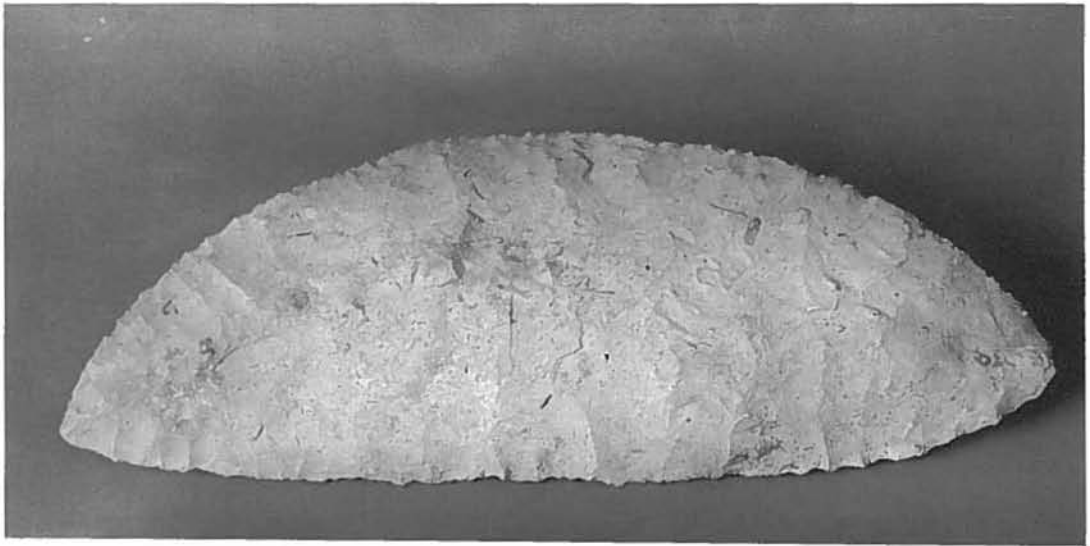


Fig. 3. The flint sickle of Vaateranta (NM 19239:709). (Foto: Pentti Pere 1993).

al of these two animal species. Among the numerous terms used on these animals, the name "uuhi", which means the "ewe", as well as the word "karitsa" (lamb), are original or Fenno-Ugric (Hakulinen 1968, 271). That is why the sheep is probably much older as a domestic animal in Finland than the goat, as the words "vuohi" (goat) and "oinas" (wether) are Baltic loanwords in Finnish (Kalima 1936, 181).

"Sika" (pig) is a Fenno-Ugric word, too. Pig bones have been found on Stone Age dwelling sites in Finland at least in Askola and Joutsa, but the exact dating is uncertain. It has not been possible to conclude, either, whether the bones concerned are from wild or domestic pigs (Ukkonen 8.4.1993). Obviously the same is true also of the pig bone finds on the Vaateranta site.

The finds that indicate early dairy farming again bring forth the question about the quality and use of the flint "sickle" which was found in the cremation grave D.

The flint sickle of the Vaateranta cremation grave

The sickle of Vaateranta is crescent-shaped and asymmetric. It is made of light "dolomite" flint and all its edges are sharply indented (Fig. 3). Besides Vaateranta three crescent-shaped "flint sickles" have been found in Southern Karelia, which however are in some extent different from the object of Vaateranta (Meinander 1954, 127 foot note 3; Pälsi 1920, pictures V:10, VI:5). There are also equivalents from Comb Ware sites on the shores of Finnmark and the White Sea (Gjessing 1942; 1945; Luoto 1992). Gjessing says that the type was connected with an expansive community in the cultural sense that extended from Northern and Eastern Europe to Asia, America and Northern Africa. The crescent-shaped artifacts probably came from Asia and were connected with early agriculture (Gjessing 1942, 187–188; 1945, 420–424).

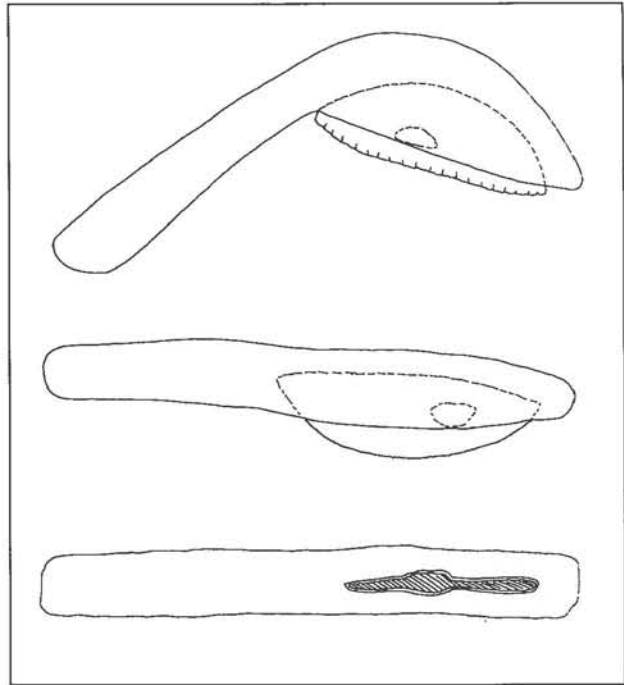


Fig. 4. The flint tool of Vaateranta as a sickle (above) and as a knife or billhook (below).

A great number of "flint sickles" are known from Western Finland. They are made of flint which was imported from Southern Scandinavia. These artifacts have counterparts both in Southern Scandinavia as well as in Northern Germany and the eastern part of Central Europe (Gjessing 1945; Meinander 1954; Oldeberg 1932; Salo 1972). The detailed characteristics of this type, however, are different from the ones of the "sickle" of Vaateranta which are listed as follows:

- as an object thin and skilfully retouched on both edges;
- there are no marks in the blades of furnishing the sickle with a handle;
- the sharp, short and fine-toothed edges differ from the teeth of the western objects, which are far apart and longer;
- the "silicate gloss", found in many western sickles, is missing;
- the dating of the dwelling site and the cremation grave at Vaateranta indicates that the sickle is much older than the material in comparison.

There is a little bulge in the same place on both sides of the flint object of Vaateranta, which has not been retouched. When held by this part, the object fits well in hand, but it is also easy to fur-

nish it with a handle like the other flint sickles, by setting the blade into a hollowed wooden handle. Because the object has got sharp teeth also at the convex side, it is also possible to furnish it with a straight handle which means that it could have acted as a sharp billhook or knife (Fig. 4).

The "flint sickle" of Vaateranta has in the final analysis been interpreted as an offering connected with the cremation burial. Already in the old times the sickle was thought to represent a symbol of death in the Babylonian and European tradition. The cremation burial had connections with ancient sun worship and the reincarnation belief, and the annual rites connected with them were a part of the fertility cult, which again belonged as an important part to early agriculture (Kaliff 1992, 130-132).

It is possible that this kind of development had been going on also on the Vaateranta site. The settlement was, judging from the cultural layers, fairly sedentary because of the favourable climate and active seal hunting, and so at least the possibilities of taking the first steps in animal husbandry were good. On the basis of bones found in the area people probably began to practise animal husbandry during the Typical Comb Ware period.

In those circumstances the forms of animal husbandry were probably different from those later on in the Corded Ware culture.

There is no evidence of actual cultivation on the Vaateranta site. However, with the help of such a tool as the flint sickle or knife found there, man was able to draw the bass of limetrees in order to make a cord or a net or to cut hay on the field or leaves from trees for domestic animals. Man's direct influence on nature has perhaps also begun in Southern Karelia much earlier than what we know today (comp. Luoto 1991).

Archives

NM = National Museum, Helsinki
SatM = Satakunta Museum, Pori

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Appendix. I. The osteological analysis of Taipalsaari Vaateranta. Mikael Fortelius, 1980. NM 18188 (1970), NM 19239 (1971) and NM 20659 (1978).

Layer	NM	g	Species	fr.
	18188:9	11		
A:1/II	19239:14	8	Pecora sp. magna; Bos? (big ruminant; cow?) - vertebra lumbalis fr.	1
A:2/III	19239:54	1		
A:2/III	19239:63	1		
A:4/V	19239:212	2	Pecora sp; Alces? (elk?) - phalanx prima fr. dist.	1
A:5/I	19239:223	15	Equus caballus (horse) - magnum sin	1
	19239:231	2	Ovis/Capra (lamb/goat) - - phalanx prima fr. dist.	1
A:6/I	19239:252	2	Ovis/Capra (lamb/goat) - tibia dex. epiph. prox. fr. XX	1
A:6/I	19239:252	2	Bos taurus (cow) - mt sin. s.e.	1
A:6/II	19239:261	2	Ovis/Capra (lamb/goat) - tibia dex. epiph. prox. fr. XX	1
A:8/I	19239:298	1		
A:8/II	19239:309	1		
A:8/II	19239:310	17	Pecora sp. (ruminant) - ischium dex. fr.	1
A:8/III	19239:320	26	Bos taurus (cow) - astragalus sin.	1
A:9/I	19239:328	3		
B:7/I	19239:470	37	Sus scrofa (pig) - M1 dex. (young) - phalanx sec. fr.	1 1
B:7/II	19239:471	21	Ovis/Capra (lamb/goat) - M2 sin.	1
B:7/III	19239:486	2		
B:8/II	19239:494	6		
B:8/II	19239:497	2		
B:9/III	19239:538	2		
C:7/II	19239:586	16		
C:7/II	19239:587	3		
C:8/II	19239:610	6		
C:8/III	19239:611	1		
C:9/I	19239:628	2		
C:9-10/IV-V	19239:677e		Cervidae sp; Rangifer? (deer; reindeer?) - molaris sup. dex. fr.	1
C:11/II	19239:718	1		
D:10/III	19239:790	1		
D:10/IV	19239:801	1		
D:15/IV	19239:832	1		
D:16/II	19239:836	1		
Rantatie	19239:843	36	Ovis/Capra (lamb/goat) - humerus dex. fr. diaph.	1
Rantatie	19239:843		Sus scrofa (pig) - M2 dex. - molaris fr.	1 1
R116/102K4	19239:1969		Esox lucius (pike) - dentale sin. fr.	1
19239:R118/102K5, -R118/102K3/11g, -R116/102K3/12g, -R116/104K2/1g, -R116/106K4/1g, 19239:R118/102K1/1g, -R116/102K1/1g, -R114/106K3/1g, -R108/106K3/2g, -R114/98K3/1g, 19239:R114/98K3/1g, -R114/104K3/1g, -R114/102K3/1g, -R114/108K2/1g, -R108/110K3/1g, 19239:R108/106K1/1g, -R108/108K2/1g, -R108/106K2/2g, -R116/102K5/7g, -R108/104K1/1g				

Layer	NM	The bone of Homo sapiens sapiens	fr.
C:9-10/IV-VI	19239:677	os zygomaticus dex. fr.	1
		maxillare sin. fr. (alv. II - M1)	2
		capitulum mandibulae dex. fr.	1
		vertebra thoracalis fr.	1
		vertebra lumbalis fr.	1
		humerus dex. caput fr.	1
		humerus dex. fr. dist.	1
		radius sin. fr. prox.	1
		radius sin. fr. dist.	1
		ulna dex. fr. prox.	1
		lunare dex. fr.	1
		lunare sin. fr.	1
		cuneiforme dex. fr.	1
		trapezium dex. fr.	1
		trapezium sin. fr.	1
		magnum dex. fr.	1
		unciforme dex. fr.	1
		unciforme sin. fr.	1
		mc II sin. fr. dist.	1
		mc IV dex. fr. dist.	1
		mc V dex. fr. dist.	1
		mc indet. fr.	1
		phalanx prima carpi fr. dist.	6
		phalanx ung. carpi fr.	1
		phalanx sec. fr.	1
		phalanx sec. carpi fr. dist.	4
		femur dex. fr. dist.	2
		patella dex. fr.	1
		astragalus dex. fr.	2
		calcaneum dex. fr.	1
		naviculare dex. fr.	1
		phalanx prima tarsi fr. prox. (I)	1
		phalanx prima tarsi fr. prox.	1
		phalanx ung. I tarsi fr. dist.	1
	19239:677a	maxillare dex.	1
		vertebra thoracalis fr.	1
		mc III sin. fr. dist.	1
		phalanx ung. carpi indet.	2
		caput femoris fr.	1
		phalanx prima tarsi fr. prox.	2
	19239:677b	vertebra thoracalis fr.	1
		lunare dex. fr.	1
		trapezium dex. fr.	1
		trapezoideum sin. fr.	1
		mc II dex. fr. diaph. dist.	1
		mc II sin. fr. diaph. prox.	1
		mc III sin. fr. prox.	1
		mc indet. fr.	5
		phalanx prima carpi	7
		phalanx prima carpi fr. prox.	2
		phalanx prima carpi fr. dist.	6
		phalanx sec. carpi	2
		phalanx sec. carpi fr. prox.	1
		phalanx ung. indet.	2
		phalanx ung. fr. prox.	2
		phalanx prima tarsi	3
	19239:677c-d	Mammalia sp. (Homo?); dens (radix) fr.	3
	20659:2066		
	-:R118/102K4	phalanx ung. carpi fr.	1 (43g)