

Kärräniemi in Rovaniemi A middle subneolithic site with a palisade in northern Finland

In a couple of articles (Siiriäinen 1967 and 1984) I have referred in passing to traces of a post construction at the subneolithic habitation site in Kärräniemi in Rovaniemi. In this paper I shall give a brief presentation of the site with a special attention paid to the post construction.

Excavations in Kärräniemi were carried out in 1960 and 1961 during the archaeological salvage research of northern Finland under the direction of Dr. Aarni Erä-Esko¹. Prior to the investigations Stone Age artefacts had been discovered from the courtyard and homestead field of a farmhouse by local inhabitants; these finds led Erä-Esko in 1954 to the area which resulted in locating the site on the field. The site is situated on the southwestern slope of a low sandy hill on the eastern bank of the Kemijoki river c. 6 km southwest of the town of Rovaniemi; its co-ordinates in the national grid system are $x = 7374\ 21$, $y = 439\ 25$ (basic map in 1 : 20 000 No. 3612 04). The hill is surrounded in the east by a low elevation marshy terrain (Fig. 1).

Three trial trenches were excavated in 1960, one to the central section of the sand formation to the west of the observed finds area and two to the eastern section where the settlement indicators were observed (Fig. 2). The first-mentioned trench was completely findless and no indications of prehistoric habitation were discovered. In the two other trenches quartz and a few slate artefacts and small sherds of asbestos tempered pottery were found in the topsoil and beneath it in a fine-grained sand deposit. To the intersection of the trial trenches a larger trench measuring 14×5 m was excavated in 1960 and extended northwards next year with two additional trenches measuring 12×6 and 6×4 m resp.; thus a total of 286 m² has been excavated in Kärräniemi. The excavation areas were divided into 2×2 m squares for the spatial control of the observations, and the vertical control was obtained by using 5 to 20 cm thick excavation spits measured during the work with a levelling instrument.

Beneath a 15 to 30 cm thick top (plough) soil there was a deposit of rather homogenous fine-grained greyish brown sand. From the depth of c. 50 cm downwards there were dark rusty flecks in the sand which in the sections were seen as thin horizontal stripes, and the sand became increasingly silty. In the western end of trench XXI at a depth of 75–85 cm there was an up to 10 cm thick layer of coarser sand. Just under the plough layer thin occurrences of charcoal and reddish sand were observed the connection of which to the prehistoric habitation remains dubious but the likewise rather thin lenses of charcoal and red (burnt) earth encountered deeper, down to c. 1 m below surface, certainly have resulted from prehistoric occupation.

¹ Excavation reports by Jaakko Sarkamo and Ari Siiriäinen in the topographical archives of the National Board of Antiquities Section of Prehistory. Finds catalogued under diarynumbers KM 14928 and 15222.



Fig. 1. Situation of the site at Kärnäniemi and the extent of the lake in the Kemijoki river valley at the time of the habitation in Kärnäniemi.

The vertical distribution of finds was investigated using three east–west traverses, square rows 17, 20 and 23, and counting all the items found in each excavation spit in each square (Fig. 5). The distributions show, as a general feature, a unimodal pattern in each square. The highest frequencies are 35 to 80 cm below surface so that in the eastern section of the excavation area, i.e. on the upper part of the slope, the mode is nearer the surface sinking gradually deeper towards the lower elevations. At the same time the find frequencies in the plough soil are markedly higher in the upper eastern squares than in the lower western ones. Also, if we follow the deepest find occurrences in each square, we observe that the occupation layer is thicker towards the lower section of the slope. Thus it seems that the slope during the prehistoric occupation has been slightly steeper than the present-day slope, and it is obvious that the deposition rate has been faster in the lower section of the slope, and that the upper occupation layers have been disturbed by ploughing so that finds have been mixed into the cultivation soil.

That the original surface has had a steeper slope gradient than the recent one is moreover clearly indicated by the stones in the cultural layer. They form a horizon in an otherwise stoneless sand, and there can be no doubts about their being brought to

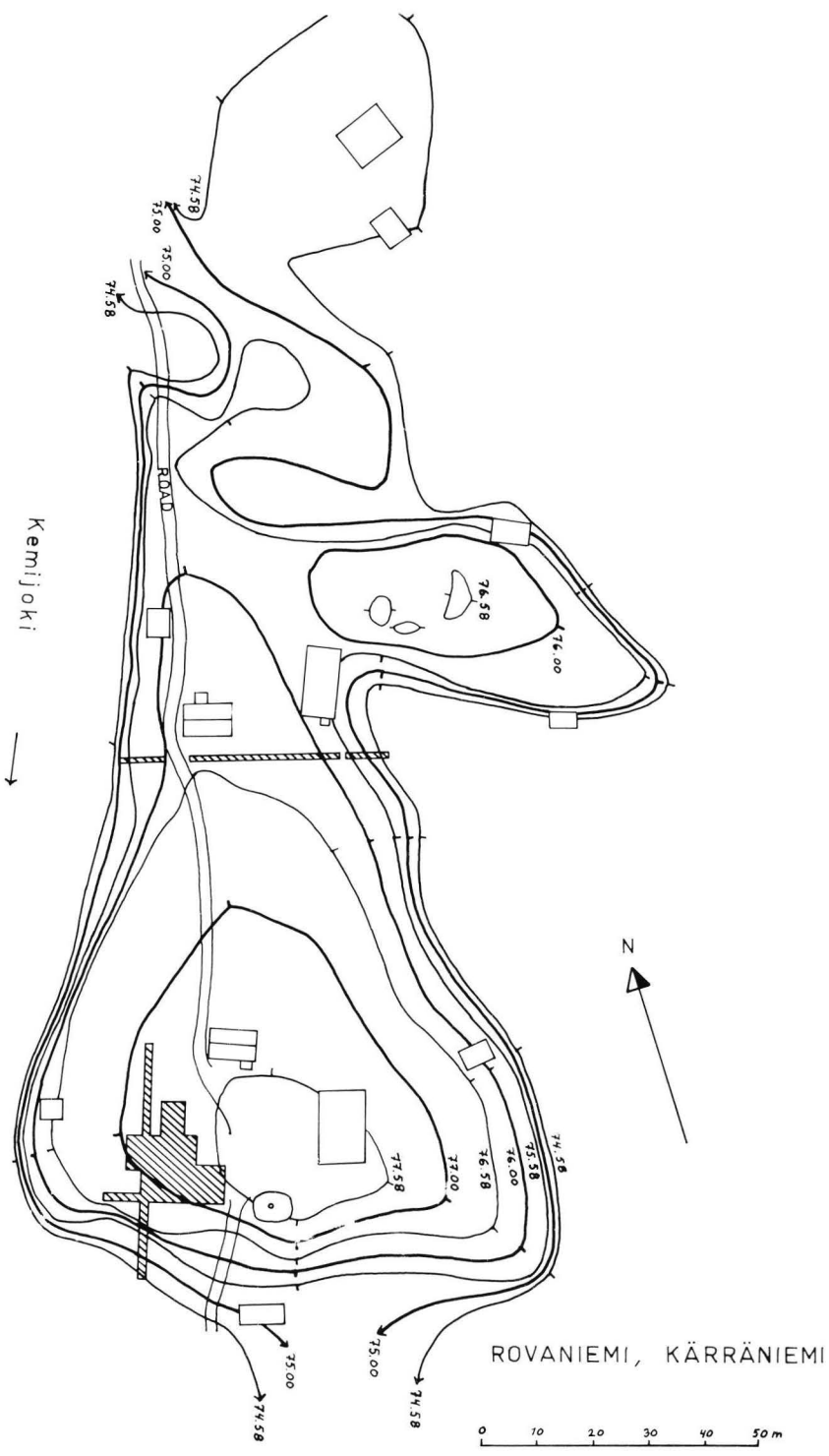


Fig. 2. General map of the Kärnäniemi hill with the excavation areas.



Fig. 3. Kärräniemi from the south. Photo Jaakko Sarkamo.

the site by man; in the same horizon the soil is also stained by fragments of charcoal and red sand flecks. This horizon, 20 to 30 cm thick, runs in section (Fig. 6) at a



Fig. 4. Excavations in 1960. Photo Jaakko Sarkamo.

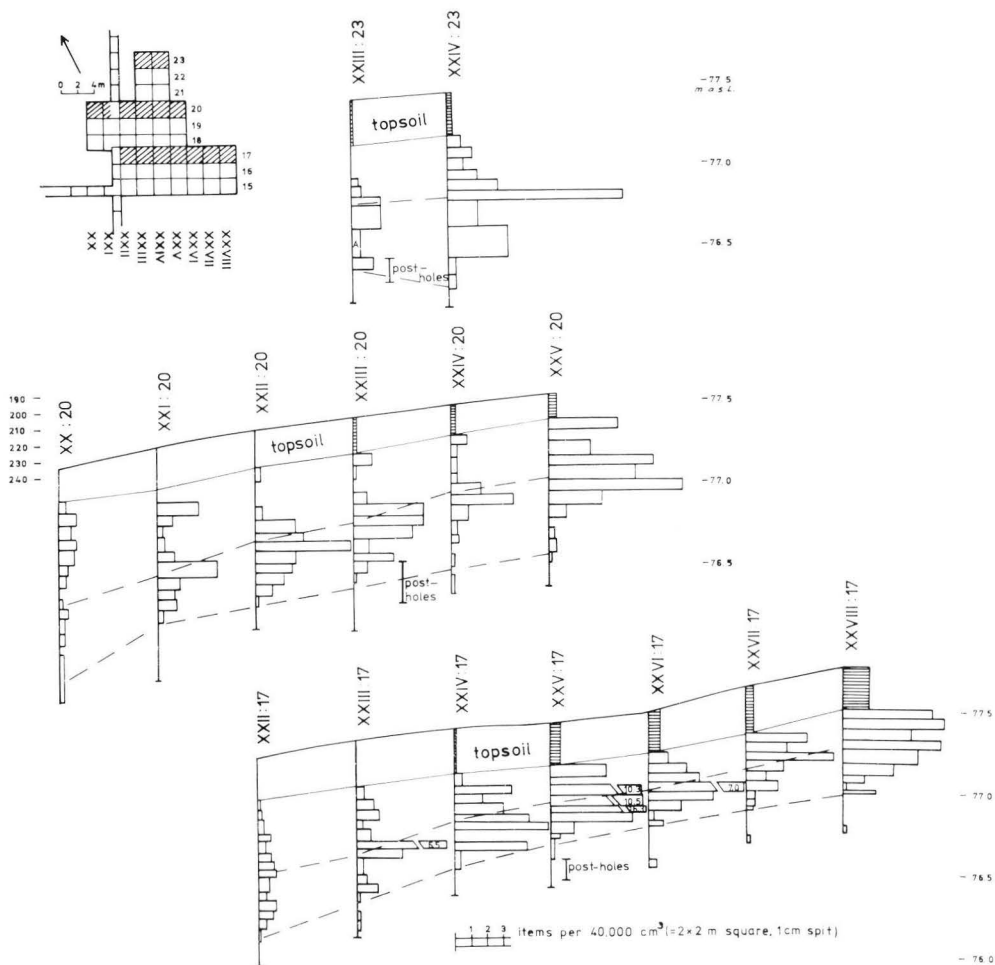


Fig. 5. The vertical distribution of finds in three square rows calculated as the number of all items (mostly quartz artefacts) per excavated soil unit. Thickness of each pillar shows the thickness of resp. excavation spit. The lower dashed line indicates the horizon of the deepest finds, and the upper dashed line that of the most frequent finds.

depth of c. 50 cm below surface being nearly horizontal in squares XXVI–XXVIII and sinks gradually deeper towards the west until it is in square XXII at a depth of one meter. The stones were rather evenly scattered over the area; two concentrations were noticed, one in squares XXIV: 16–17 spits 7 and 8 and one in square XXII: 20 spit 7, which looked like hearths but there was no charcoal associated with the stones.

As the vertical distribution of the finds shows the highest frequencies in the same excavation spits in which the stones were the densest or immediately above them, it is obvious that the stones belong to the main occupation period of the site. How long a time the occupation began before the main period and how long a time it continued after it remains unknown as we do not know the sedimentation rate of the sand. The depositional agency has obviously been wind or the annual flooding of the river, or

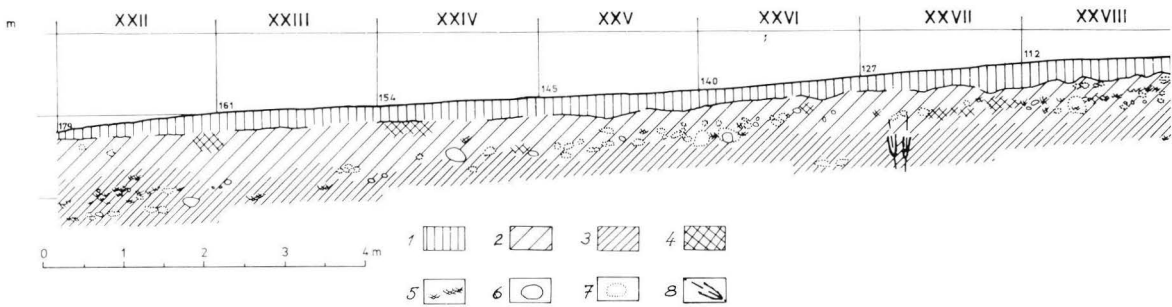


Fig. 6. Section through squares XXII–XXVIII: 16. 1. plough soil, 2. greyish brown sand, 3. greyish silty sand with rusty stripes, 4. reddish (burnt) earth, 5. charcoal fragments, 6. stone in the section plane, 7. stone near (± 30 cm) the section plane, 8. post-hole.

both combined, and in both cases the rate might have been rather rapid so that the total occupation period could be relatively short – at least the archaeological material does not indicate any lengthy habitation period at the site. However, there are some quartz artefacts as isolated occurrences below the main vertical scatter of material separated by a c. 20 cm thick deposit of findless sand in squares XXVI–XXVIII (cf. Fig. 5), which implies a short initial occupation in part of the site. Also, in squares XXII–XXV there is a minor secondary peak in the vertical distribution of artefacts just beneath the plough soil hinting that towards the end of the habitation period there might have been a slight intensification spell again at least in part of the site.

A total of 47 potsherds were found, mostly small fragments with corroded surfaces. All sherds are from pots of asbestos tempered ware but it is possible to distinguish only three separate vessels. Two of them belong to the Pöljä type with inwards turned rims; one is decorated with short deep incisions (Fig. 7b) and the other with low horizontal grooving (Fig. 7a). The first-mentioned vessel has had a sharply inturned rim while in the latter vessel the rim curves inwards smoothly. Two tiny sherds from a vessel or vessels of unknown shape show a possible comb stamp ornamentation.

The Pöljä asbestos ware is dated to a lengthy period between the typical comb ceramics and epineolithic asbestos and talk ware (Sär 2) / Sarsa-Tomitsa textile pottery (Meinander 1954, Edgren 1964, Purhonen 1973, Carpelan 1979 and Siiriäinen 1978 and 1984), i.e. between c. 2800 and 1200 BC. During this rather long time span, c. 1600 years, no unambiguous stylistic or other developments in the Pöljä pottery can be demonstrated. Carpelan (1979) distinguishes a certain late phase characterized by vessels with T-shaped rims and found in Finland only at one site, viz. Jysmä in Iisalmi (Edgren 1964); this he calls the Jysmä pottery.

The grooved vessel in Kärräniemi hints, however, to an earlier phase of the Pöljä »period». There is one such vessel, represented by only one bodysherd, from Kierikki in Yli-Ii which is dated to a period coinciding with the comb ceramic stage III in SW Finland (Siiriäinen 1967 and 1978). A precise stylistic determination of this vessel is impossible, but it is probable that the rim has been only thickened, and not turned inwards, as the rims of all the other vessels of the site are thickened, and as such it would not belong to the Pöljä type. From Niemi in Kullaa, SW Finland, there is an asbestos ceramic vessel (KM 18176: 187 and 244) with the outer surface

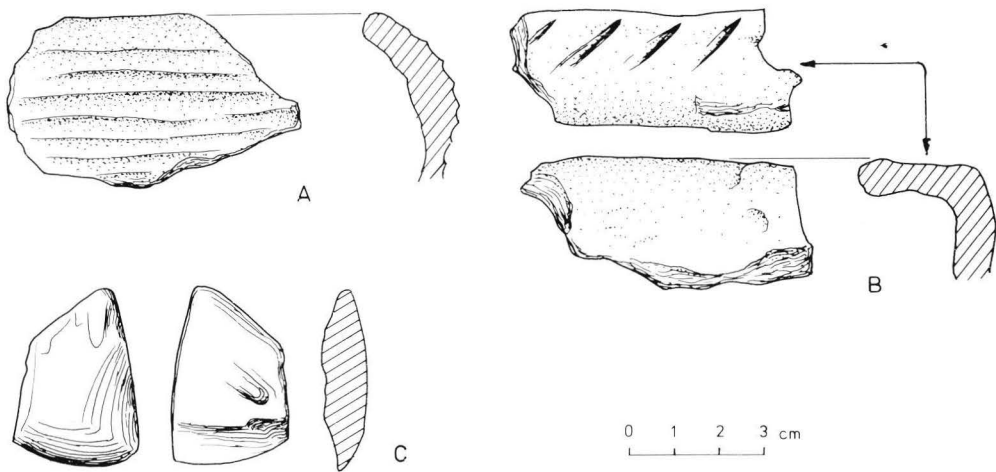


Fig. 7. Artefacts from Kääräniemi.

grooved; one rimsherd shows a straight rim. Otherwise the pottery in Niemi belongs to the comb ceramic stage III 1, and also the elevation of the site (45 m a.s.l.) postulates a dating to precisely that comb ceramic period, in fact the site lies exactly at the same shore niveau as the Kierikki site (its distance from the baseline in Siiriäinen 1969 is 160 km; cf also Siiriäinen 1978 Fig. 2). Finally, Puolijoki in Lapua, southern Ostrobothnia, from where a grooved vessel with a sharply inwards turned rim has been found, can be dated according to shore displacement evidence to the latter part of the middle subneolithic period (Meinander 1954). Thus the Kierikki, Niemi and Puolijoki finds would indicate that the grooved pottery belongs to the middle subneolithic part within the total Pöljä »period», and that it provides a link between the Kierikki asbestos pottery with thickened rims and the Pöljä pottery.

The rest of the archaeological material from Kääräniemi does not alter the above dating of the site. There are tiny fragments of at least three amber pendants (KM 14928: 858, 15222: 541 and 544) the exact forms of which cannot be reconstructed or the size measured. The occurrence of amber as such fits well with the proposed dating as the import of amber into Finland obviously ceased already before the beginning of the late subneolithic period (eg. Siiriäinen 1967; see however Kehusmaa 1972: 66 where a possibility is presented that the amber import into northern Finland could have continued even after the Stone Age).

The slate artefacts are rather indifferent for dating purposes. There is one complete smallish (length 34 cm) pick of amphibole schist with only the edge slightly polished (KM 15222: 539), two additional edge fragments of picks, and several fragments of narrow and thin amphibole schist »blades» with no or only casual polishing. The »blades» might originate from line sinkers or very long and narrow arrowheads. Several fragments found from squares XXIII: 20, 21 and 23 and XXIV: 22 are from one and the same artefact. One small slate implement with a polished scraper edge, common in Finnish and Karelian middle and late subneolithic finds (Meinander 1954), came from square XX: 20 spit 17 (Fig. 7c).

Small fragments of burnt bones were discovered from all the squares and sometimes they occurred in clusters. No faunal identifications have been so far carried out but remains of tooth enamel found from spit 2 in square XXIII: 15 have

been identified in 1966 in the Zoological Institute of the University of Helsinki as being probably from a cow tooth. They came from the sand layer c. 10 cm beneath the plough soil and consequently the tooth belong to the same late occupation of the site as the uppermost quartzes referred to above (p. 190). Thus its connection with the Pöljä ceramics remains dubious.

Immediately beneath the find layer, on level 10 (108 cm below surface) in the northernmost part of the excavation area (squares 21–23) and on level 11 (80–100 cm below surface) in the central and southern parts (squares 15–20) several small (diam. 4–8 cm) regularly round flecks were observed. These were slightly darker than the surrounding sand but the soil fraction was the same; often the central part of a fleck was darker than the margin. In some flecks the earth was stained grey by tiny fragments of charcoal.

As all the flecks which were observed in vertical section showed a pointed end (Fig. 8), and as there seems to be a certain patterning in the horizontal distribution of the flecks in the excavation area, discussed more closely below, there can be no doubts about the flecks being traces of posts driven into the ground. I am not going to enter into the difficult problem of distinguishing post-holes on archaeological sites in Finland (cf. Meinander 1976); suffice it to say that it requires an extremely suitable context and a careful excavation technique to enable one to detect post-holes in Finnish Stone Age sites (cf. Matiskainen and Jussila 1984). In Kärnäniemi the homogeneous fine-grained earth with no stones below the stony layer referred to above (p. 186) provided such an exceptionally good opportunity to observe post-holes.

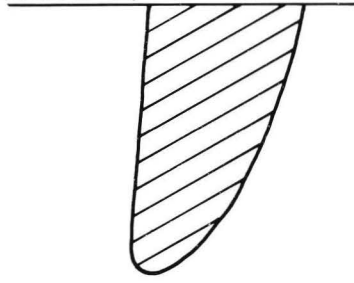
Post-holes were observed on several successive excavation levels: levels 10–13 in squares 21–23, levels 11–15 in squares 18–20 and levels 11–17 in squares 15–17. Many post-holes continued through one or more excavation spits so that they could be observed on two or three, in some cases even four, levels.

On the map (Fig. 9) the horizontal distribution of all separate post-holes ($N \approx 300$) is presented as a compilation from all the levels. An extremely clear pattern can be distinguished: there is a row of post-holes, almost all the way in pairs, from square XXVIII: 15 making a very gentle curve until square XXIII: 19 and from there as a straight line to square XXIII: 23 (the excavation has thus revealed only a section of the total length of the original row). Outside this row there are scattered post-holes which do not form any unambiguous patterns. There is however a lower limit in the occurrence of the post-holes as no observations were made in the lowermost squares of the excavation area. The spatial distribution of the post-holes coincides exactly with that of the artefacts (Fig. 10).

The posts in the row have been driven deeper into the ground than the posts outside it. This is clearly seen in Fig. 11 which shows the percentual distribution of all the isolated post-hole observations on each level (the total area has been divided into three sections as these were excavated separately and the excavation spits were not equally thick). In squares through which the row traverses the lower levels contained proportionally more observations than the squares outside the row. In the latter squares over 50 % of the observations came from the uppermost level with post-holes. During the excavation it was noticed that the majority of the post-holes belonging to the row continued vertically through several spits. The post-holes in squares XXIV: 19, XXVI: 17, XXVII: 17 and XXVIII: 17, i.e. in those to the east of the row, occurred only on level 11 and did not reach level 12. Thus it is obvious that the posts of the row were driven deeper into the ground and stood steadier than the other posts.

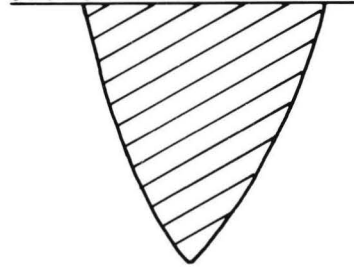
square XXIII:19

level 14



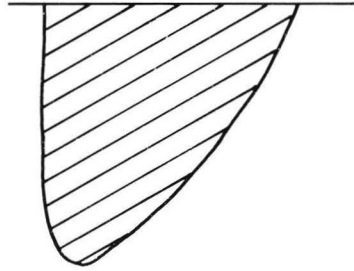
square XXIV:19

level 12



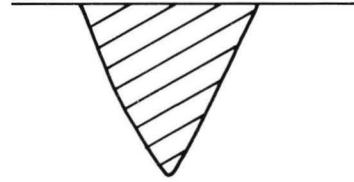
square XXIII:22

level 12



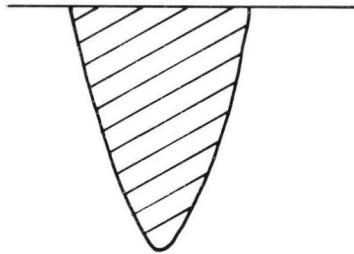
square XXIV:21

level 10



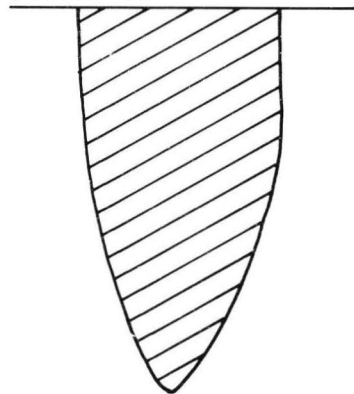
square XXIV:23

level 10



square XXIV:21

level 11



0 5 10 cm

Fig. 8. Sections of some of the post-holes.

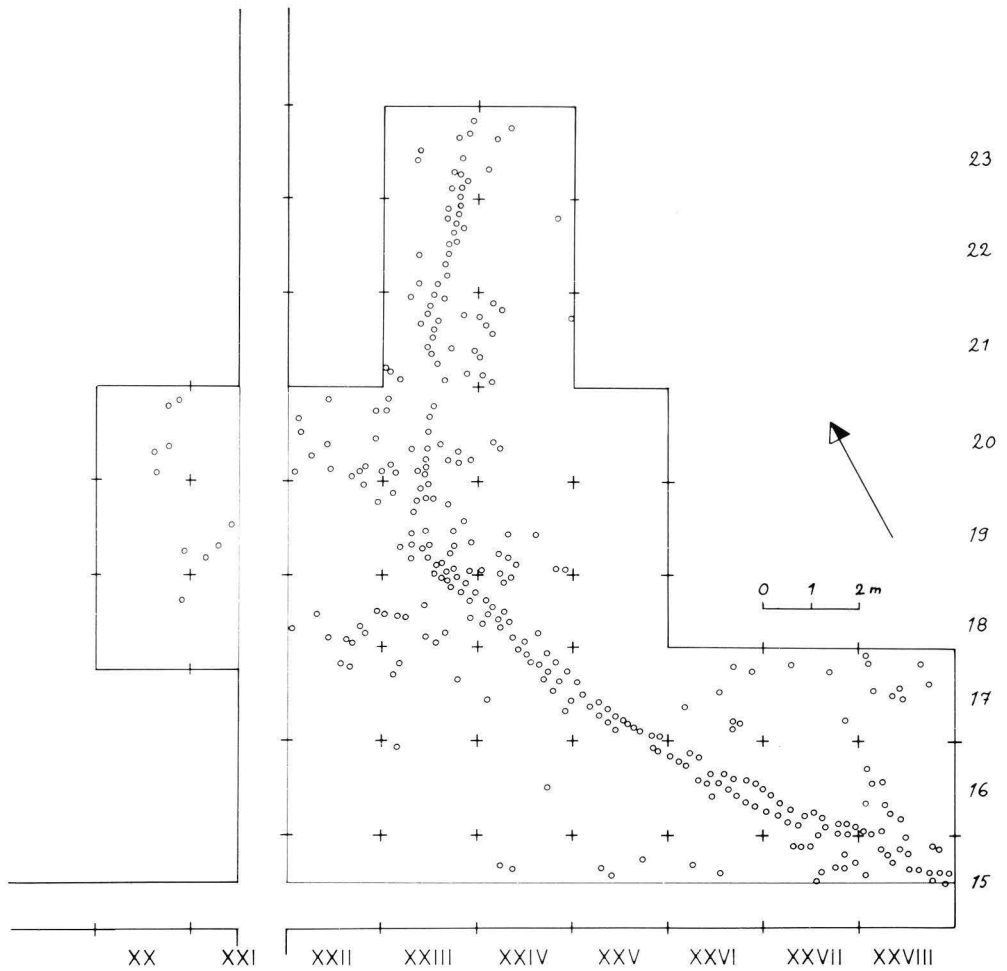


Fig. 9. The horizontal distribution of the post-holes.

If the function of the posts is considered, it is interesting to note that the row of posts follows the topography: for its whole length it maintains almost exactly the same level, 76.3–76.5 m a.s.l., measured from the uppermost occurrence of the post-holes (cf. Fig. 12). Thus it runs parallel to the original shoreline, but obviously a short distance from it judged from the artefacts which still occur abundantly to the west of the row on slightly lower altitudes (Figs. 5 and 10).

In my opinion the most plausible explanation for the post-hole row is that there has been a palisade which has protected a village, or part of a village, at least from the direction of the shore. The palisade would have consisted of two parallel rows of posts 15–30 cm from each other; the distance between the posts in both rows varied between 20 and 25 cm. There are no other traces of the construction of the palisade but it is probable that the space between the two parallel rows of posts has been filled with something, eg. horizontally placed trunks; on the levels on which the post-holes were observed there were also faintly visible 20–50 cm long and 5–10 cm broad

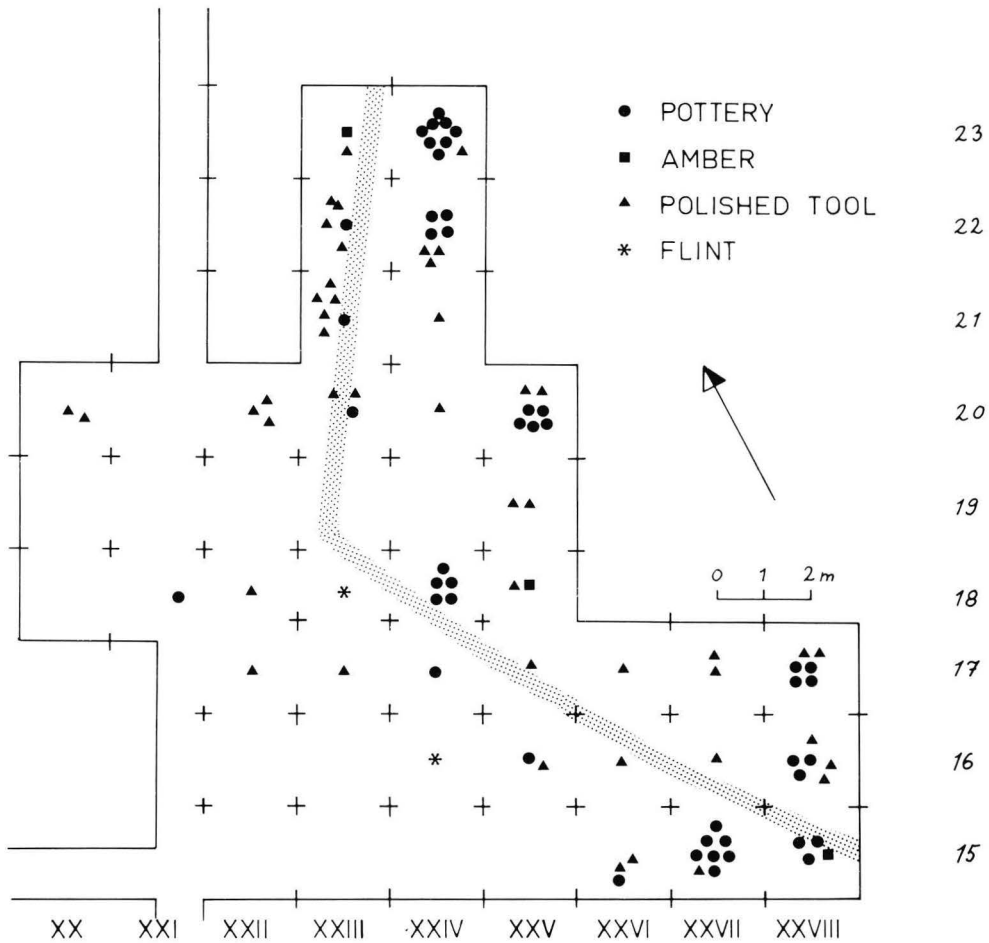


Fig. 10. The spatial distribution of the potsherds and amber, schist and flint artefacts. The stippled line shows the double row of post-holes (cf. Fig. 9).

»shadows» which might be coloured traces from horizontally accumulated tree-trunks.

To clarify the original topographical setting of the site it is necessary to determine the land/water interface during the habitation period. It was noticed above that the lowermost post-holes were discovered at an altitude of 76.3 m. There is a fairly high frequency of artefacts found even from squares below that altitude. A very clear decline in the frequencies of finds can be seen in the trial trench XXI:

square	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
altitude*	73.5	74.0	74.2	74.4	74.6	75.1	75.4	75.5	75.6	75.6	75.7	75.8	75.8	76.2	76.2	76.2	76.1	76.0		
finds in topsoil	1	1		2	1	1	1	1		1	1	1	1		5	2				
finds in sand			1	2				22	23	14	64	21	49	133	109	35	27	132	19	17

* measured from the bottom of the excavation

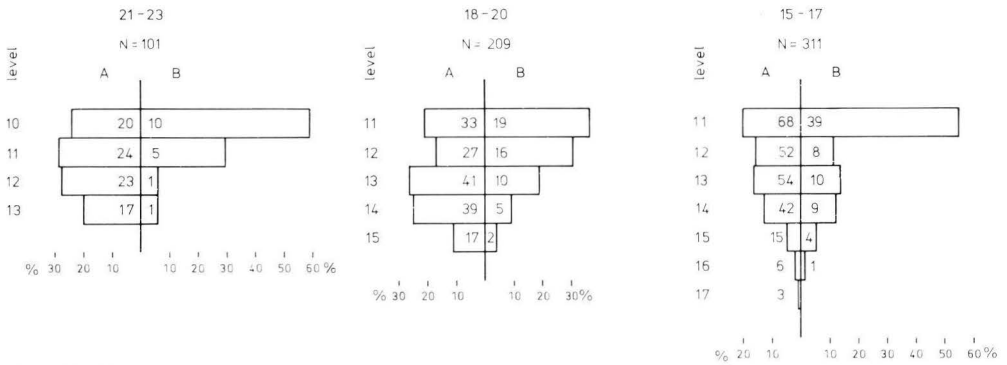


Fig. 11. The vertical distribution of all the post-hole observations in square rows 21-23, 18-20 and 15-17. A, squares through which the double row traverses (cf. Fig. 9); B, other squares.

The sand deposit in the lowermost squares 8 to 14 was virtually findless but from square 15 upwards there is a steady occurrence of finds reaching the highest frequencies in squares 18 to 25. It is thus evident that the shoreline has been at an elevation of 75.5 m a.s.l. or somewhat lower at the time of the main habitation in Kärnäniemi. The palisade had in that case been at a distance of c. 9 m from the shoreline.

If we follow the 75 m altitude on the topographical map (Fig. 1), we find that the site has been situated on the southern end of a small and low sand bar island near the eastern shore of a lake, or a still water, in the Kemijoki river valley. This assumed lake had a shore displacement reflected by the prehistoric sites found on the shores of the supposed lake (Siiriäinen 1978, cf. also Purhonen 1973). A couple of meters higher than Kärnäniemi there is the comb ceramic style II site at Kolpene, and opposite Kärnäniemi on the southwestern shore there is the rich site of Niskanperä. From Niskanperä Pöljä ceramics have been found just above 74 m a.s.l. (Purhonen 1973). Schematically taken Kärnäniemi dates younger than the typical comb ceramics in Kolpene and older than the Pöljä ceramics in Niskanperä which fits with the archaeological evidence if we assume that the pottery in Kärnäniemi represents an earlier variant of the Pöljä type than that in Niskanperä. – Considering the shore/site relationship it is here assumed that the habitation sites were always situated at the same distance from the mean annual water level. It is probable that the lake was extremely liable to annual and occasional floods, and that the settlements were not laid out much lower than the upper limit of the floods.

No parallels for the palisade of Kärnäniemi have been found in Finland unless the so-far unanalysed post-hole system observed in Kierikki (Siiriäinen 1967) is a such one. Purhonen (1982) reports a possible palisade construction from the corded ware period in Jönsas in Vantaa near Helsinki. Another palisade construction is known from Šventoji 1A in Latvia (Rimantiene 1980); this also belongs to the corded ware or Haffküsten culture and there are three radiocarbon determinations dating the site to the end of the third millennium BC or to c. 2000 BC (conv.). The construction of the Šventoji 1A palisade is not identical with the Kärnäniemi palisade being thicker and having the upright posts further apart (Rimantiene 1984 Fig. 132).

In Lagatša in eastern Latvia a double row of post-holes has been identified as a wall of a house (Lože 1978 and 1979). The proposed reconstruction shows an exactly similar construction principle as the one proposed above for the palisade in Kärnäniemi. The thickness (1 m) of the wall as well as the straight course, with an

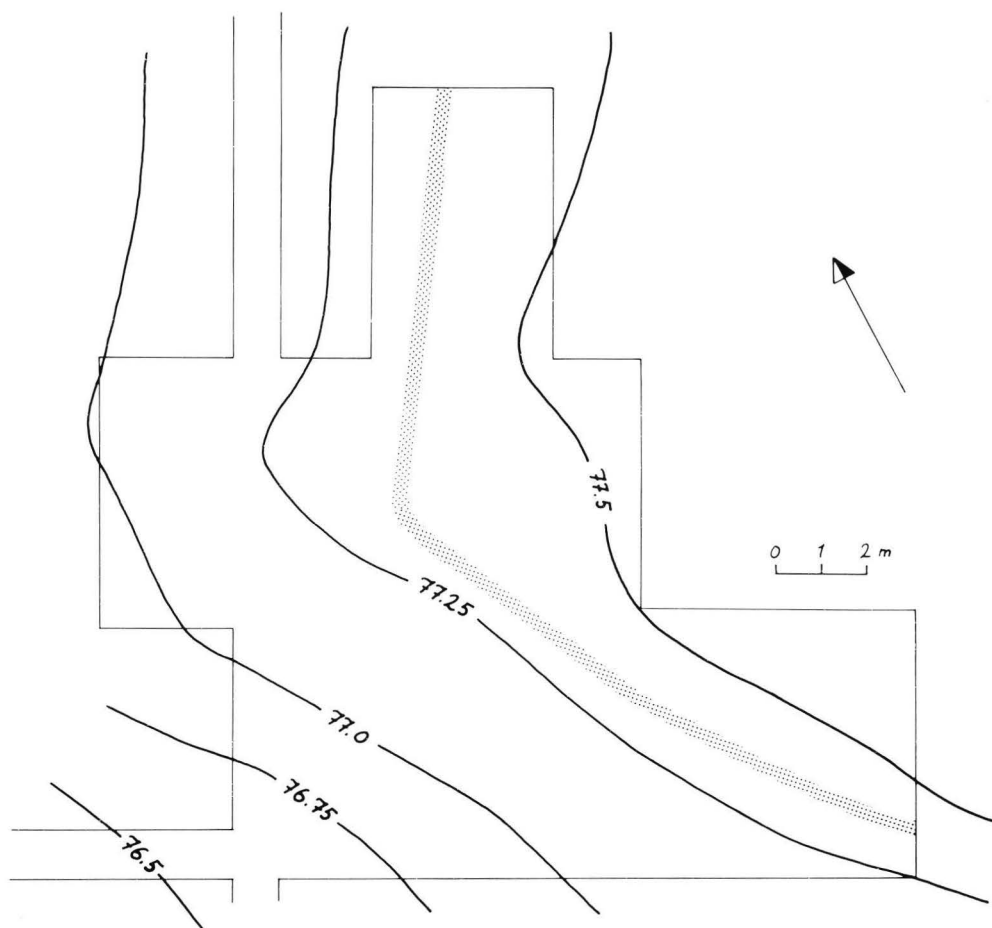


Fig. 12. The surface contours. The stippled line shows the double row of post-holes (cf. Fig. 9).

obtuse angle, of the post-hole row would suggest that there is indeed a palisade rather than a house wall discovered in Lagatša. The site has been dated to the early second millennium BC. In the same area, in the Lake Lubana basin, there has been found a complex of post-holes in Abora 1 (Lože 1979). Lože suggests that a part of the post-holes is from several palisades built successively to protect the site against floods and marsh expansion, but does not present reconstructions. Abora 1 is dated by one radiocarbon determination to c. 1800 BC (conv.).

There are several sites discovered in the East Baltic countries and in the northwestern USSR which contain some kinds of post constructions. In Modlona the posts occur in double rows and are thought to originate from bridges connecting the houses of the village and leading from the houses to the shoreline. The site is situated on low marshy ground at the junction of two rivers (Brjussow 1951 and Ošybkina 1978). A similar construction has been test investigated in Pogostitše 2 close to Modlona (Ošybkina 1978). Both sites have been dated to the latter half of the third millennium BC.

Recently Dolukhanov and Miklyayev (forthcoming) have reported several »pile dwelling» sites in the basins of the Zapadnaya Dvina and Lovat rivers c. 500 km west

of Moscow. Only test excavations have been carried out so far and consequently the authors are not able to present any details about the constructions in their preliminary communication. Three of the six sites investigated, all containing two or three successive habitation phases, are firmly dated by radiocarbon measurements to between c. 3000 and 1700 BC (conv.).

The above-mentioned sites, together with the bog habitation sites Šventoji 2A in Latvia (Rimantiene 1979) and Sarnate in Lithuania (Vankina 1970), seem to indicate that during the third millennium BC there was an increasing tendency to choose the habitation sites from naturally protected topographical locations and frequently build additional protective constructions around the villages. This trend, which can be seen as a parallel development to the occurrence of fortified villages during the neolithic and early chalcolithic period in western, central and southeastern Europe (eg. Müller-Karpe 1974), might have introduced new technical innovations towards northern and northeastern Europe such as the post constructions with double staking. Kärnäniemi and Kierikki can be taken as northern manifestations of this innovation.

Due to the scanty material this remains of course a vague hypothesis testing of which would require careful excavation of suitable sites. It would be extremely interesting to carry out further excavations in Kärnäniemi itself and to uncover the suggested palisade construction for its whole length and the possible traces of the houses inside the palisade.

References

- Brjussow 1951, see Брюсов.
- Carpelan, C. 1979: Om asbestkeramikens historia i Fennoskandien. *Finskt Museum* 1978 (1979).
- Dolukhanov, P. and Miklyayev (forthcoming): Prehistoric lacustrine pile dwellings in the northwestern part of the USSR. *Fennoscandia archaeologica*.
- Edgren, T. 1964: Jysmä i Idensalmi. En boplat med asbestkeramik och kamkeramik. *Finskt Museum* 1963 (1964).
- Kehusmaa, A. 1972: Kemijärven Neitilä 4. *Helsingin yliopiston Arkeologian laitos, moniste 2*.
- Lože, I. 1978: Neolita celtņu vietas Austrumbaltijā. *Arheologija un etnogrāfija XII*.
- Lože, I. 1979, see Лозе.
- Matskainen, H. and Jussila, T. 1984: Naarajärven kampakeraaminen asumus. *Suomen Museo*.
- Meinander, C. F. 1954: Die Kiukaiskultur. *Suomen Muinaismuistoyhdistyksen Aikakauskirja* 53. Helsingfors.
- Meinander, C. F. 1976: Hyddbottnar av Madeneva-typ. *Iskos 1*.
- Müller-Karpe, H. 1974: *Handbuch der Vorgeschichte Bd. III, Kupferzeit*. München.
- Ošybkina 1978, see Ошибкина.
- Purhonen, P. 1973: Rovaniemen Niskanperä 1. *Helsingin yliopiston Arkeologian laitos, moniste 8*.
- Purhonen, P. 1982: Myyrmäen esihistorialliset asuinpaikat. In *Vantaan muinaiset vuosituhannet*. Kerava.
- Rimantiene, R. 1979: *Šventoji. Narvos kultūros gyvenvietės*. Vilnius.
- Rimantiene, R. 1980: *Šventoji. Pamariu kultūros gyvenvietės*. Vilnius.
- Rimantiene, R. 1984: *Akmens amžius Lietuvoje*. Vilnius.
- Siiräinen, A. 1967: Yli-lin Kierikki. Asbestikeraaminen asuinpaikka Pohjois-Pohjanmaalla. *Suomen Museo*.
- Siiräinen, A. 1969: Über die Chronologie der steinzeitlichen Küstenwohnplätze Finnlands im Lichte der Uferverschiebung. *Suomen Museo*.
- Siiräinen, A. 1978: Archaeological shore displacement chronology in northern Ostrobothnia, Finland. *Iskos 2*.
- Siiräinen, A. 1984: On the Late Stone Age asbestos ware culture of northern and eastern Finland. *Iskos 4*.
- Vankina, L. 1970, see Ванкина.
- Брюсов, А. 1951: Свайное поселение на р. Моллоне и другие стоянки в Чарозерском районе Вологодской области. *МИА*, 20.
- Ванкина, Л. 1970: *Торфяниковая стоянка Сарнате*. Рига.
- Лозе 1979: *Поздний неолит и ранняя бронза Лубанской равнины*. Рига.
- Ошибкина, С. 1978: *Неолит Восточного Прионежья*. Москва.