

Markku Torvinen

SÄRÄISNIEMI 1 WARE

Abstract

This article discusses Early Neolithic Säräisniemi 1 ceramics (Sär 1) found in Northern and Northeastern Fennoscandia and regarded as a northern variant of the Early Comb Ware (Sperrings 1) occurring in the south. Until recently, the precise chronological status of Sär 1 has remained obscure. Recent studies show that the Sär 1 and Sperrings 1 ceramic groups had common roots, deriving from a ceramic tradition of the Upper Volga region. The differentiation of the groups in terms of style was a chronologically and geographically parallel process fuelled by ethnic factors. Although the people who developed and bore the traditions of these groups were close, they descended from distinct Late Mesolithic populations. The process whereby Sär 1 Ware formed has been described as the kernel of a series of developments that resulted in the emergence of the Sámi. Shoreline displacement and radiocarbon dates date the Sär 1 Ware of Finland to ca. 6100-5500 BP.

The present article is based on the author's unpublished licentiate thesis in archaeology on the Sär 1 tradition (Torvinen 1999a) at the Department of Archaeology of the Institute for Cultural Research of the University of Helsinki.

Keywords: Stone Age, early ceramics, Säräisniemi 1 Ware, Jokkavaara, Latokangas.

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INTRODUCTION

The Late Neolithic hunter-gatherer communities of Eastern Europe adopted ceramics without any preliminary stages, - naturally as early ceramics. This innovation spread through diffusion, and the emergence of ceramics probably signified new elements in ethnic composition. It appears that the population in question did not come to Finland from very far, either from Russian Karelia or from the upper reaches of the River Volga (Meinander 1984; Carpelan 1999).

The adoption of ceramics probably did not mark any major change in the former lifestyle. Because farming and animal husbandry - significant characteristics of the Neolithic economy - were not adopted along with ceramics, the culture became sub-Neolithic in nature (cf. Meinander 1961; 1984;

Carpelan 1999). Although there is notable and hardly random connection between the spread of ceramics and farming, it has often been seen that pottery tends spread before the practice of farming (Birket-Smith 1951:99).

In Finland the first sherds of Sär 1 Ware became available to researchers in the late 19th century. This material grew slowly during the 20th century and the ceramic group merited hardly any attention. Basic-level studies on Sär 1 Ware did not appear until after many years, as also a clear definition of the group, except for a few tentative sketches (Ailio 1909; Äyräpää 1950).

Sär 1 has been regarded as a northern variant of older Early Comb Ware, the earliest ceramic tradition of Russian Karelia and Finland (Sperrings 1 = Ka I : 1, known as Sperrings in Russian archaeological terminology). The chronological position

of Sär 1 has been unclear; it has been described as contemporary to Early Comb Ware but still remaining in use alongside Typical Comb Ware (Ka II).

Recent studies show that Sär 1 is not a northern variant of Early Comb Ware, although both groups have common roots in the ceramic tradition of the Upper Volga. These groups cannot be derived from one another in either direction. The overall situation and new radiocarbon dates in particular point to chronological and regional parallels in the differentiation of the groups (Torvinen 1998; 1999a:116).

In the North, to the northeast of the Ka I:1 distribution area ceramics were explicitly adopted as Sär 1, or the ceramic innovation soon became Sär 1 in the area. The hunter-gatherer communities adopted ceramics perhaps because it had a certain social function alongside its practical aspects. Despite the joint model or roots of parallel ceramic groups, a type of ceramics differing from other contemporary pottery (Ka I:1 = Sperrings) may be an indication of ethnic identity and its related "us vs. others" way of thinking (Torvinen 1998; Carpelan 1999).

It can also be asked whether Sär 1 represents an archaeologically distinct culture or group separate from the contemporary Comb Ware "mainstream" culture. So far it has not been possible to establish a clear connection between other artefacts *sensu Leitfossil* and Sär 1 to meet the criteria of an archaeological culture or culture and their often related ethnic content.

RESEARCH HISTORY

Interestingly, Finland's very first archaeologically studied sherds of Stone Age pottery were Sär 1 and came from the eponym site, "north of the rapids on the River Nimisjoki" at Nimisjärvi in Vaala, former parish of Säräisniemi (Aspelin 1885:8-9, Figs. 5 and 6).

The actual history of research did not begin until 1909, when the archaeologist Julius Ailio (1909:194-198) distinguished two groups within the ceramic finds from Nimisjärvi, giving them the terms "first" and "second" (Sär 1 and Sär 2). He interpreted group 1 as belonging to the Stone Age pottery tradition, because of the hemispherical base of the vessels and inclusion of coarse grit in the paste, while group 2 was more developed,

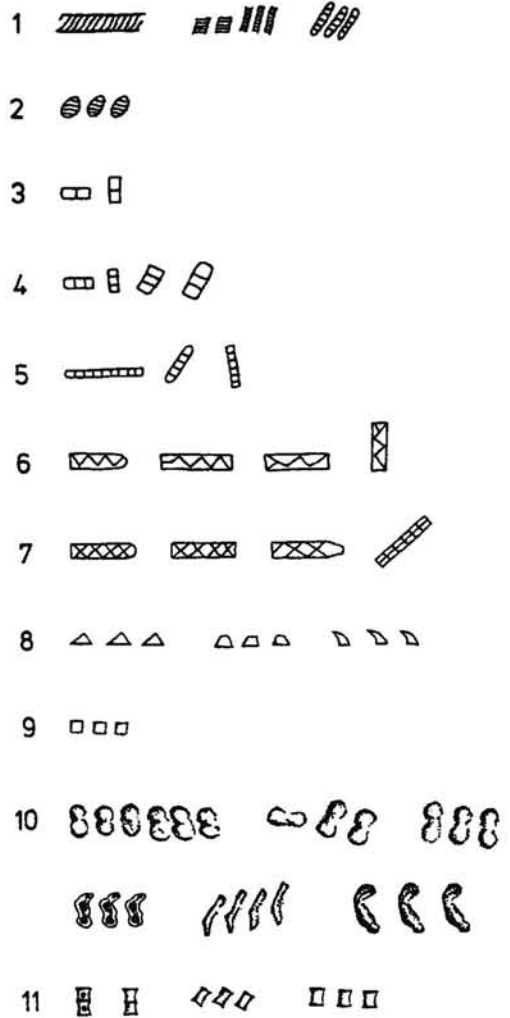


Fig. 1. Stamp impressions in Sär 1 Ware; not to scale. (1) wound cord, (2) oval wound cord (3) Two-part, (4) Three-part (5) Comb (6) Zigzag line, (7) Angled and straight hatching, (8) Triangular, (9) Square, (10) Joint (i.a. both ends of a bird humerus), (11) Vertebra (fish). Drawn according to the author's instructions Drawing by NBA/ Tuula Piili 2000.

being tempered with talc, muscovite and asbestos. With reference to the temper of pottery Ailio dated group 2 to the Bronze Age. He also identified an "intermediary group", in which the vessels were of Neolithic shape tempered with asbestos. Ailio's definition of group 1 was loose by modern

standards, and his definition can no longer be used to distinguish Sär 1 pottery from Early Comb Ware with sufficient clarity (Ka I; cf. e.g. Siiriäinen 1971:9).

Already in the 1920s Aarne Europaeus (Europaeus-Äyräpää, later Äyräpää) distinguished from Ailio's group pottery a "suitable body of material" for his emerging systematization of Comb Ware. In his university lectures, Äyräpää called the remaining pottery "the northern variant of Early Comb Ware" (= Sär), and maintained that it was younger than Typical Comb Ware (Europaeus 1921).

Anders Nummedal (1937; see also Solberg 1918) studied Stone Age ceramics from Karlebotn (= Sär 1. There is no other Early Neolithic pottery from North Norway), placing it artificially into Aarne Äyräpää's (1930) three-stage systematization of Comb Ware. Nummedal also presented the concept of Sär 1 Ware that has survived until the present, i.e. it is typologically associated with older Early Comb Ware (Ka I:1) but with ornament and features such as rim shape linking it with Typical Comb Ware (Ka II). Äyräpää (1950) suggested the same dating over ten years later.

Gutorm Gjessing (1942) listed Early Neolithic pottery from four sites in North Norway, describing this group as "Northeast European Comb Ware". Gjessing presented an extensive overview of its ornamental elements and patterns, and was the first to note the typical ornamental feature of long stamps with a pit at the end.

An important event in the history of research took place in 1957 when Povl Simonsen (1957) published the hitherto largest study on the essence and nature of Sär 1 Ware, with chronological observations based on material from the catchment of the River Pasvikelva (Paatsjoki). Simonsen also presented a definition of the ceramic group, deducing that its area of origin was Kainuu in Northeast Finland, or that it had emerged bicentrally at the ends of an axis running from Kainuu to Varanger. In fact, Simonsen carried on the study of Sär 1 pottery from the conclusions reached by Gjessing in the preceding decade with reference to a smaller body of material.

In Finland, the position of Sär 1 pottery began to emerge in the 1970s. Studies by Ari Siiriäinen (1971; 1978) suggested that the Sär 1 sites were on Early Comb Ware shorelines. Sär 1 Ware is lacking from shorelines that rose subsequently. This

means that the early emergence of the group began to appear certain, but its termination remains unclear. It was still regarded as probable that Sär 1 remained in use during the Ka II period.

Until now the actual Sär 1 pottery and its related problems of research have been addressed in greatest extent by Matti Huurre in several studies on the prehistory of Northern Finland. Huurre has discussed the paste of Sär 1 vessels, their forms, decoration and distribution, among other features. He regarded Kainuu or Russian Karelia to be the area of origin as the natural meeting-place of influences from several directions. He did not agree with the suggestion of areas at the extreme ends of an axis (e.g. Huurre 1983:142-144; 1986:55-56).

The Finnish material grew markedly through excavations in Northern Ostrobothnia and Southern Lapland in the 1980s and '90s, which provided the hitherto largest and "purest" bodies of Sär 1 material. Important excavations sites were Latokangas (Ylikiiiminki 28) and Vepsänkangas (Ylikiiiminki 46) in Ylikiiiminki and Jokkavaara (Rovaniemi 340) at Rovaniemi. It was especially with reference to finds and observations at these sites that a more precise dating could be obtained for Sär 1 along with more information on its technological-morphological nature and to outline with greater clarity its elements, patterns and "philosophy" of ornament. The material also permits a definition of Sär 1 Ware that corresponds to contemporary requirements (Torvinen 1999a:59-62; 1999c).

In Russian Karelia and the Kola Peninsula region research into Sär 1 Ware did not come under way until the 1980s, when this ceramic group began to be distinguished from Sperrings 1 ceramics (Ka I:1) in the local material. Leading scholars in this area are Nina Nikolayevna Gurina and Paula Pesonen. Simonsen's (1957) definition of the material is also the basis for the attribution of this ceramic group in Russian studies, while the presented dates corresponded to those presented by Siiriäinen (1971).

THE RESEARCH MATERIAL

Pottery was adopted in Finland as so-called Comb Ware without any preliminary stages. This has been demonstrated to have taken place ca. 6200/6150 BP (Siiriäinen 1974:18; 1978; Huurre 1983:124). This naturally means that Early Comb Ware, which

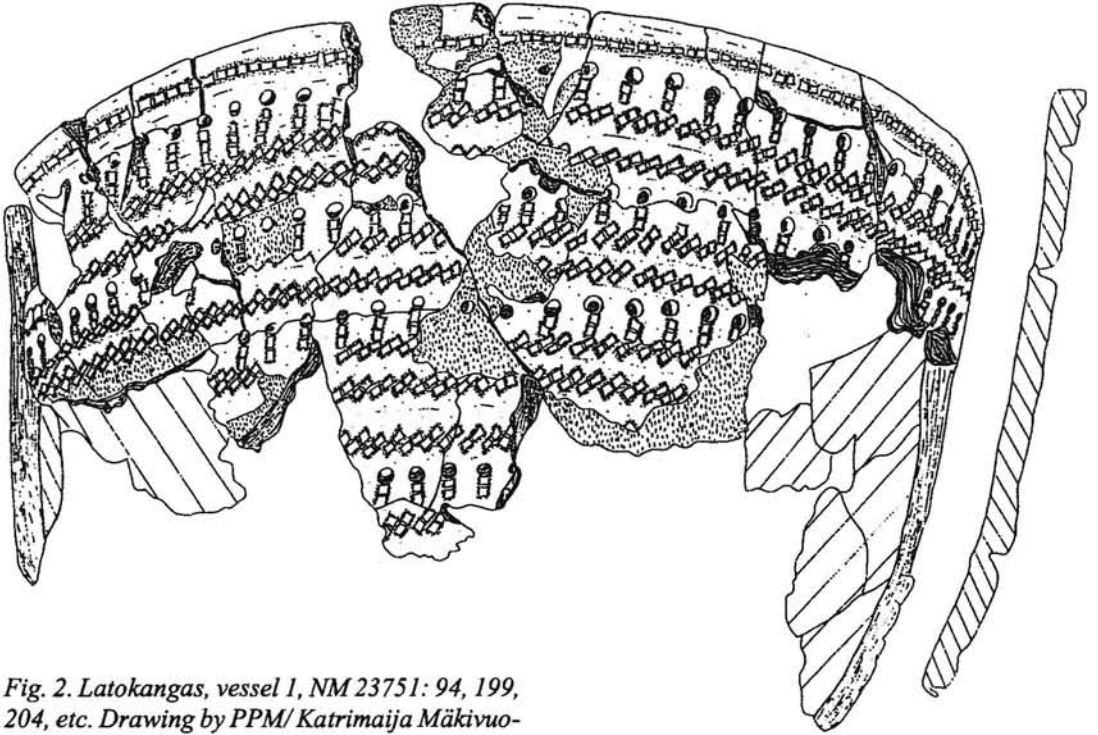


Fig. 2. Latokangas, vessel 1, NM 23751: 94, 199, 204, etc. Drawing by PPM/ Katrimaija Mäkivuo-ti. Scale approx. 1/3.

represents the oldest ceramics in Finland has been found only at the sites of highest elevation that can be linked to the shoreline displacement chronology of the Baltic. In the northern reaches of the Gulf of Bothnia the Ka I:1 horizon is located in a configuration in which e.g. the lower limit of the Ka I:1 shore at Pahkakoski (Pahkakoski 2) on the River Iijoki is at ca. 73 metres a.s.l. This zone is higher than the Typical Comb Ware (Ka II, ca. 60-61 metres a.s.l.), and thus older than they are.

Along the shores of the northern parts of the Gulf of Bothnia the Ka I horizon contains Early Comb Ware as such, but the finds may also include Sär 1. This possibility has been demonstrated by Siiriäinen (1971) who argues that Sär 1 is found on pre-Ka II shorelines and is at least partly contemporaneous with Early Comb Ware. If we distinguish the actual Early Comb Ware from the oldest ceramic finds in the north, we will find that only Sär 1 Ware will come forth (Torvinen 1999a:4-5). Using this method, the selection of research material avoids a course of circular reasoning in which the initial definition determines the results.

FEATURES AND DEFINITION

Basing on the Finnish Sär 1 material that has come to light in greater numbers in the 1980s and 1990s and has been found "uncontaminated" in places, the present author has recently been able to present a definition of Finnish Sär 1 Ware (Torvinen 1999a:59-62). The above-mentioned definition by Simonsen (1957) is the starting point and background factor of the new definition.

In Sär 1 pottery vessel shape is the same as in Comb Ware: a straight walled, round or tapering based kettle-like vessel usually with a straight rim even on the top, which may sometimes be slanting and thickened inwards.

The paste is tempered with crushed stone and/or sand, which may be coarse. In some cases feldspar also appears. No asbestos or organic temper was used. The vessels were apparently assembled in bands joined in tongue-and-groove technique. The surface was finished carefully, and the inner and outer wall surfaces were smoothed with a mixture of clay and water. The outer surface was almost regularly dyed red (with ochre).

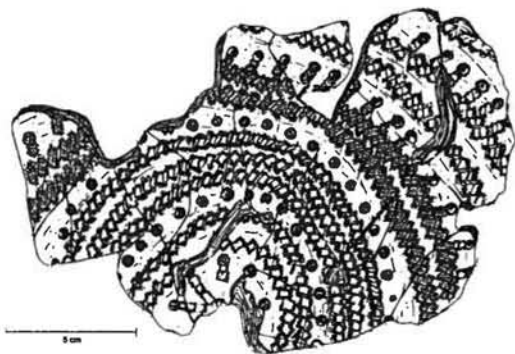


Fig. 3. *Latokangas vessel 1, NM 23751:247, 251 etc.* Drawing by PPM/Katrimaija Mäkivuoti 1987.

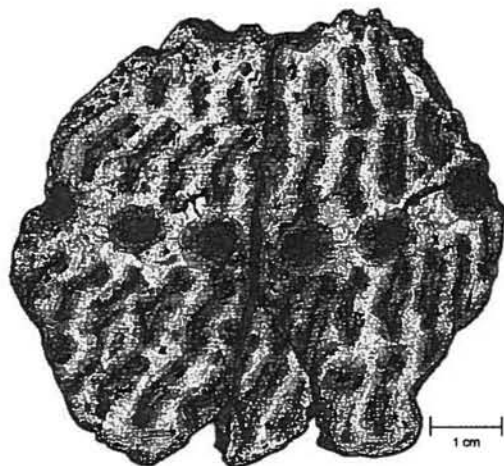


Fig. 4. *Inari, Heikkilä, NM 15523.* Drawing by NBA/ "monogrammist" P.S. 1985.

The Sär 1 vessels are "smallish" in comparison with e.g. the large Typical Comb Ware (Ka II) pots of up to several dozen litres. The diameter at the vessel mouth is 20-35 cm, and the walls have an average thickness of 9.3 mm. In only one case has it been possible to define the height of a Finnish Sär 1 vessel (ca. 40 cm). These dimensions indicate a volume of 8-10 litres (Mäkivuoti 1991:127).

The elements of decoration (stamp impressions, stamps) can be divided into two groups: intentionally made elements and those acquired "ready-made" from nature (Fig. 1). No other type of Stone Age pottery in Finland has such a large number and such variety of stamp impression as Sär 1 Ware has.

The expressly made stamps are the twisted cord, the oval twisted cord and the cord impression, various denticulated stamps, the comb stamp, the two or three-part stamp, and stamps with a straight or slanted checker design or broken line, as well as small stamp impressions with squares and triangles among other designs. Naturally obtained stamps are, at least, the fish vertebra (Figs. 2 and 3) and both joint ends of the humerus of a bird (Fig. 4).

The vertebra was also a popular element of decoration in the Sperrings I Ware of Russian Karelia. In Sär 1, the vertebra impression appears possibly as a "loan" in the contact zone of the groups

along the southwest border of the area of distribution. Humerus impressions occur in Norway, at least at Paatsjoki in Norway and at Nellimö, Inari in Finland.

In most cases the decoration was made with only one stamp as modules either individually or in rows, as a kind of basic unit of measurement by pressing the desired number of stamps consecutively, thus making the length of the row of stamps divisible by the length of the "original" stamp impression. This gives the surface decoration of the vessel a certain rhythm by repeating an element or its combinations in an established order (Figs. 5, 6, 7, 8, 9 and 10).

In some cases two stamps were used, in which case wound cord was a much-used second element (Fig. 11), as also the joint stamp (Fig. 12). More than two stamp impressions - in addition to the pit - do not appear to have been used in the same pot. The decoration is dense, covering the whole vessel surface including the base. Also the top of the rim would sometimes be decorated.

There are always pits in Sär 1 pottery. The conical, sometimes even-based, pits were impressed deeply, often almost through the wall. The pits were placed in separate zones, or impressed at one or both ends of the long stamp impression, in a stamped groove, at the angle or intersection of a zig-zag line etc. (Figs. 2, 5, 9, 11, 13 and 14).

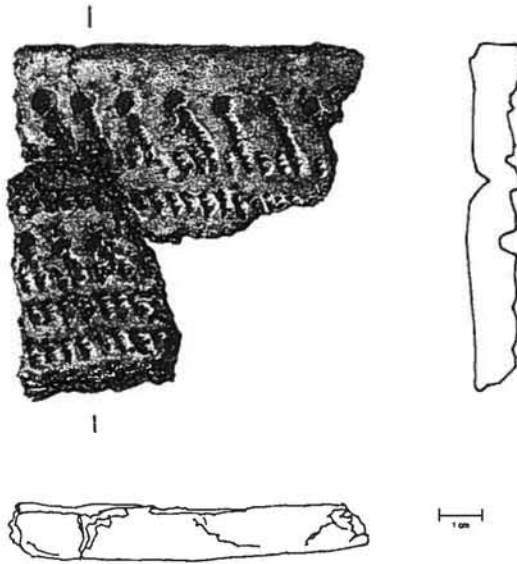


Fig. 5. Latokangas, vessel 2, NM 25731:385. Drawing by NBA/ Tiina Miettinen 1997.

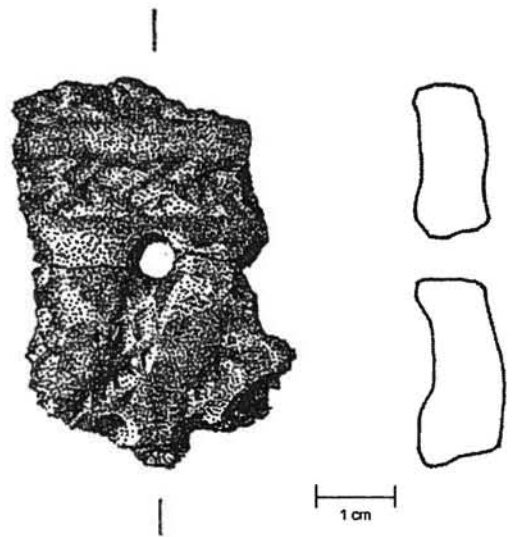


Fig. 7. Jokkavaara vessel 17, KM 25709:185. Drawing by NBA/ Tiina Miettinen 1997.

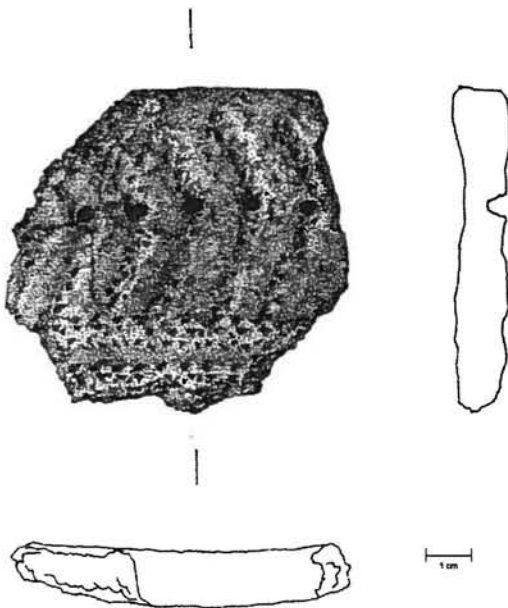


Fig. 6. Jokkavaara vessel 2, NM 21012:23. Drawing by NBA/ Tiina Miettinen 1997.

Although there are many forms of ornamental composition, the overall pattern is markedly horizontal. The decoration was executed with alternating bands of stamp impressions and pits or their combinations. Perhaps the most characteristic form of decoration is a horizontal band with the stamps touching each other usually at an angle of ca. 45 degrees, making the edge of the band look serrated. It is precisely this ornamental feature that makes Sär 1 Ware what it is (e.g. Figs. 5, 10, 12, 15, 16 and 17 etc.). Similar decoration is not found in any other type or style of prehistoric ceramics in Finland.

In many cases, a "knob" made by impressing the same stamp 2-3 times in a row projects from the ornamental band with a pit at the end. The band was often made with a three-part denticulated stamp, and also oval wound cord, vertebra or bone impressions were used (Figs. 2, 5 and 8). In addition to these diagonally impressed stamps there are also horizontal zones with consecutively impressed horizontal stamps. The stamped groove thus formed often contains pits impressed at reg-

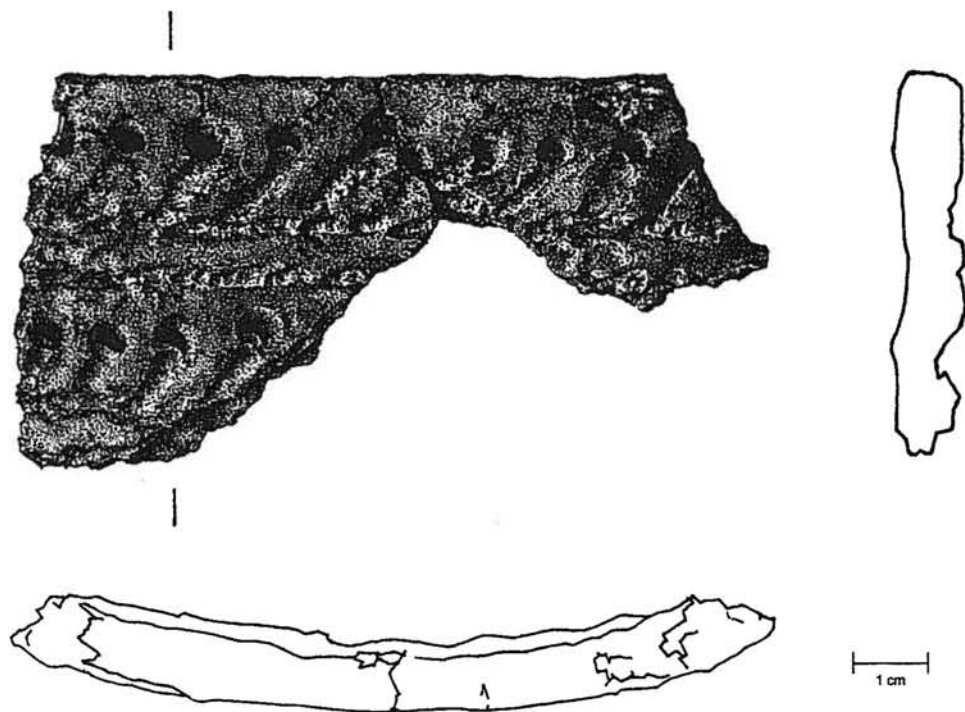


Fig. 8. Latokangas vessel 6, NM 25731:219, 255. Drawing by NBA/ Tiina Miettinen 1997.

ular intervals (Fig. 14)

The decoration of the base repeats the same scheme, which is apparently typical of Sär 1 Ware. In the centre of the base is a small pit, a "navel", with 6-8 rows of stamps radiating from it and ending at the lowermost ornamental band in the part of the vessel where the base changes over into the side (Figs. 3 and 18).

The decoration is purely ornamental without any figurative content. So far, a stylized water fowl theme has been found in only one Sär 1 vessel in Finland. This may be the oldest known representation of a bird in prehistoric pottery from Fennoscandia. The ornamental frieze in question was made with a three-part stamp approximately 5.5 mm long (Kiikarusniemi, Sotkamo) (Nieminen & Ruonavaara 1984; Laulumaa 1997:27-29; discussions with Christian Carpelan 17.2.2000; Pesonen 1996a; see also Utkin 1989).

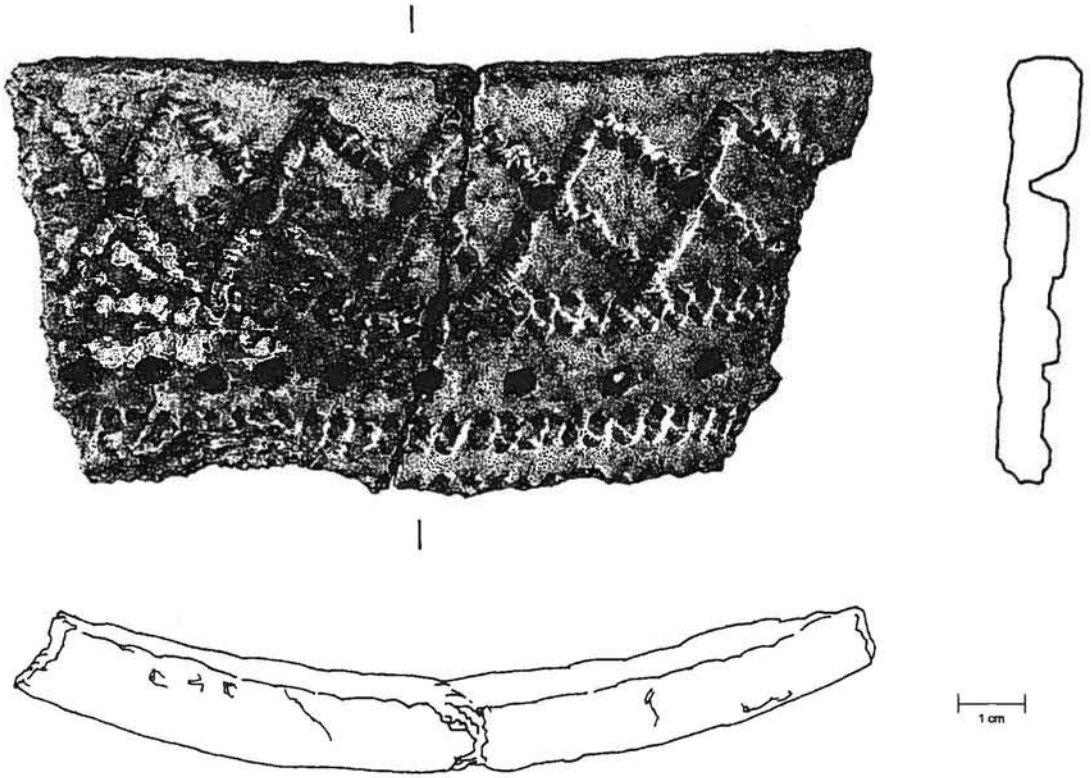
The bird frieze (Fig. 10) was executed in accordance with a scheme of decoration that is characteristic only of Sär 1 pottery: the body of the bird is formed by a "serrated" band; the neck consists

of three consecutive stamps with the head added on with a stamp pointing to the right and slightly downwards. All these features were made with the impressions of a single *module stamp*.

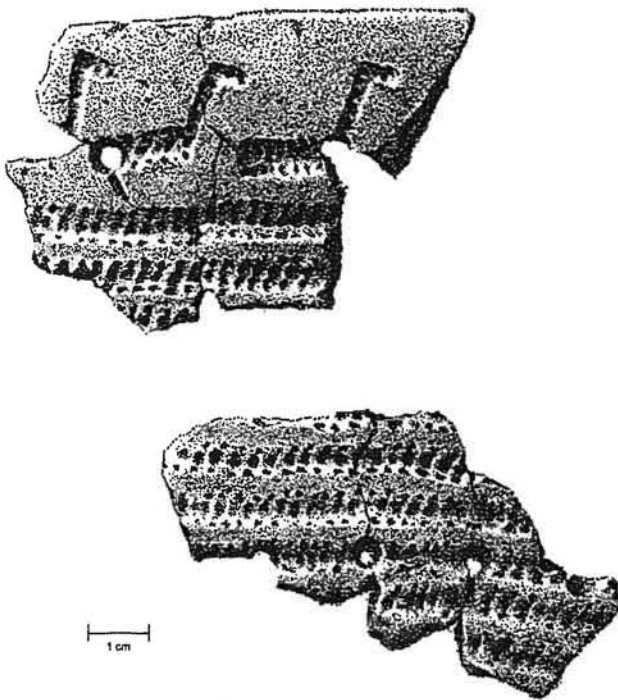
There are hardly any cases of completely similar decoration in two Sär 1 vessels, but the style is similar. The overall impression is a balanced one, make this ceramic group even artists, as described by Simonsen (1957:25). The decoration is dominated by a definite rhythm, which no doubt gives the surface treatment at times dryly monotonous appearance. But the general impression is often gay, at best even elegant: the product of a potter in command of his or her craft and with a sense of style making something that was perhaps regarded as unique.

CHRONOLOGY

Because the dating of Sär 1 Ware, and especially its termination, have been unclear, the present article particularly addresses points of chronology.



*Fig. 9. Latokangas, vessel 4 , NM 24377:218.
Drawing by NBA/ Tiina Miettinen 1998.*



*Fig. 10. Sotkamo, Kiikarusniemi,
NM 22198:168 and NM 21482:70.
Drawing by NBA/ Mikko Rautala 2000.*

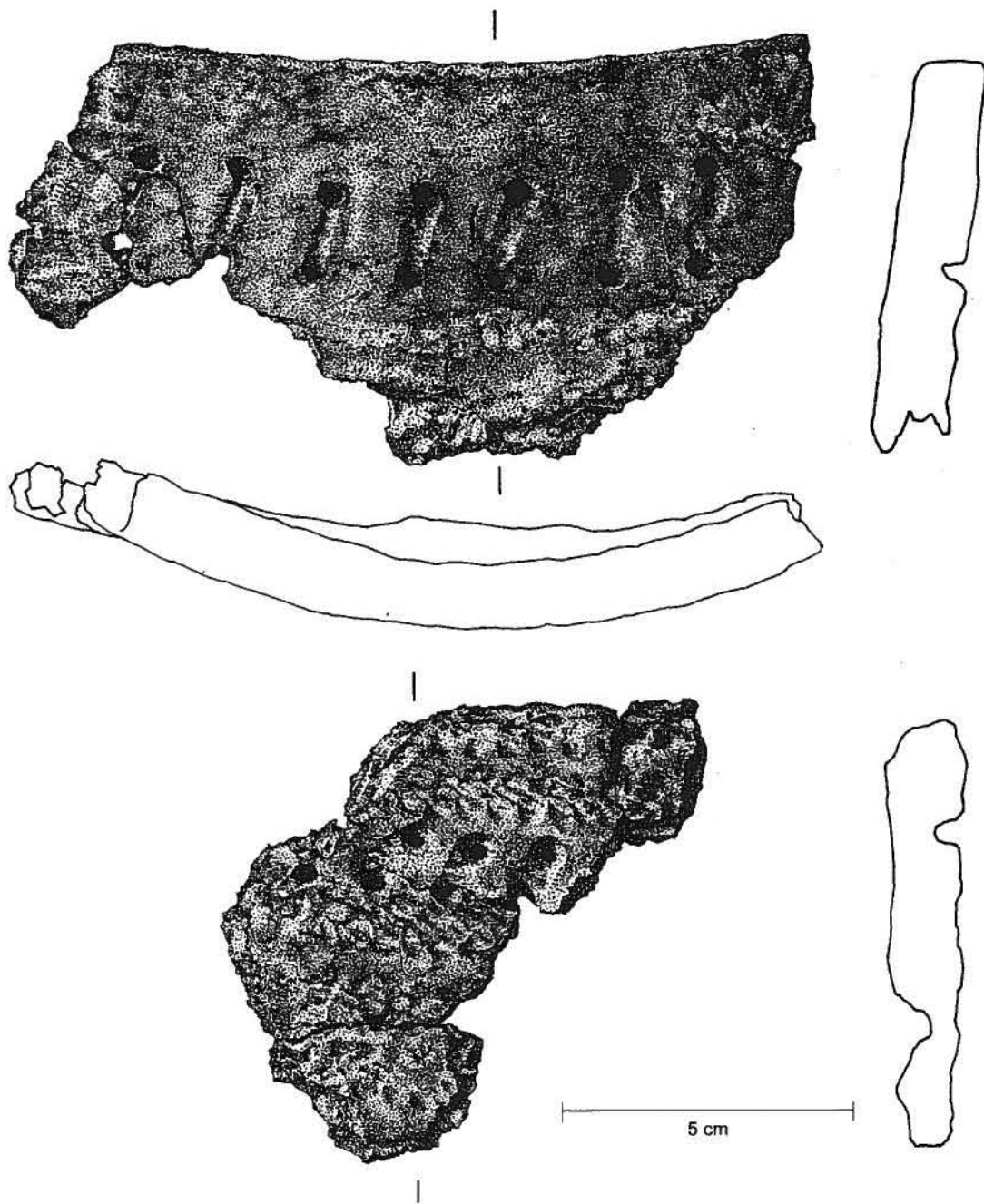


Fig. 11. Jokkavaara, vessel 1, NM 21012:34, 35. Drawing by NBA/ Tiina Miettinen 1997.

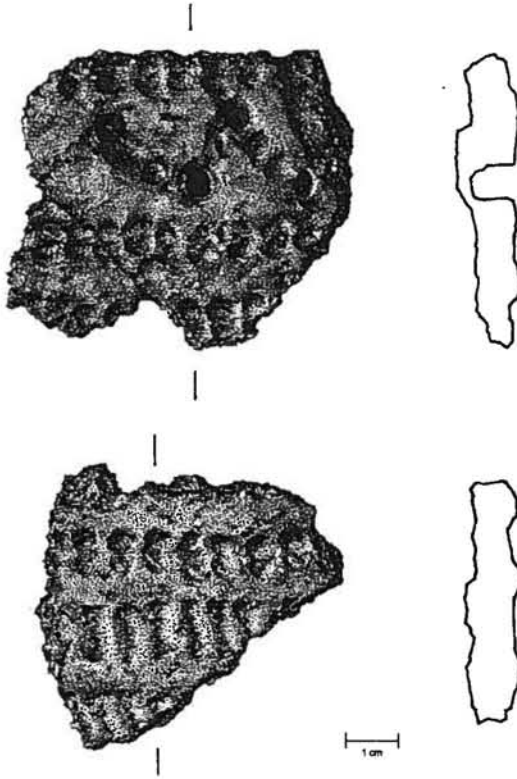


Fig. 12. Jokkavaara vessel 6, NM 25709: 100, 101. Drawing by NBA/ Tiina Miettinen 1997

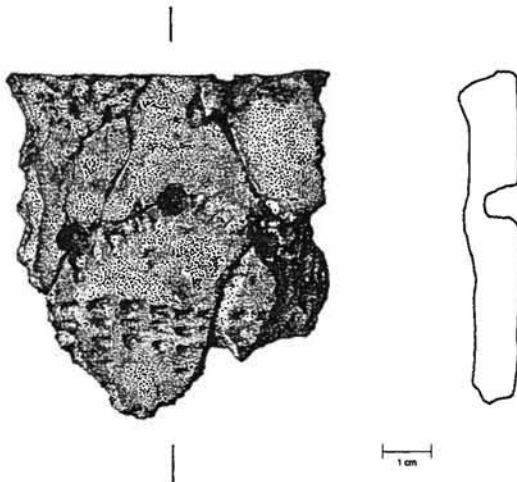


Fig. 13. Jokkavaara vessel 4, NM 21307:186, 204, 241. Drawing by NBA/ Tiina Miettinen 1997.

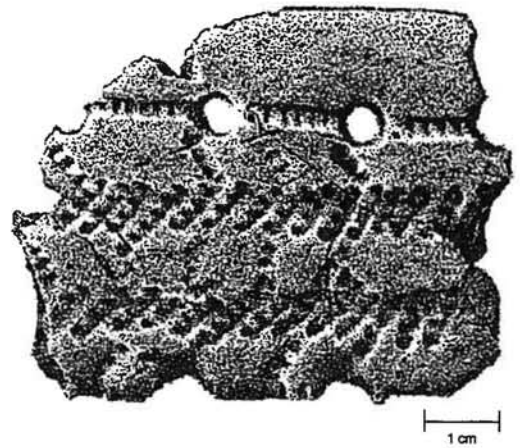


Fig. 14. Inari, Nellimöjoensuu, NM 24376:186. Drawing by NBA/ Mikko Rautala 2000.

Stratigraphy

There are only four sites in Finland that have provided stratigraphic observations on the chronology of the Sär 1 group. Three of them are at Kemi-järvi - Haveri, Neitilä 4 and Juuniemi - and one, Riitakanranta (excavated by Kotivuori 1989-90) is in the Rural Commune of Rovaniemi. At Haveri, Sär 1 Ware was found together with Ka I:1 Comb Ware as the only pottery types in the lower finds layers, while the Pöljä Ware from the upper layer is younger. At Neitilä 4, the Sär 1 horizon was clearly lower than and older than the Early Metal Period Kjelmøy (K) asbestos-tempered Ware of the upper horizon (Siiriäinen 1971:16; Kehusmaa 1972:46-48). The same chronological order also appears at Juuniemi. At the Riitakanranta site, Sär 1 pottery was found in a clearly lower layer than the Early Metal Period Lovozero (L) and Luukonsaari (Luu) pottery at the site (Torvinen 1999a:67-68).

In Norway, similar observations were made at three dwelling sites, all in the catchment of the River Paatsjoki, Nettet and Haugen at Noatun and Gravholmen. Here, Sär 1 Ware was found in a lower level, separated by a layer of clean sand from the upper level contained Late Neolithic Vuopaja ceramics (Kierikki Ware?) and Early Metal Period asbestos-tempered ware (Sär 2) (Simonsen 1957:235-237; 1963:275).

It is only at the Niva XII site on the River Nivajoki at Kantalahti on the Kola Peninsula that the

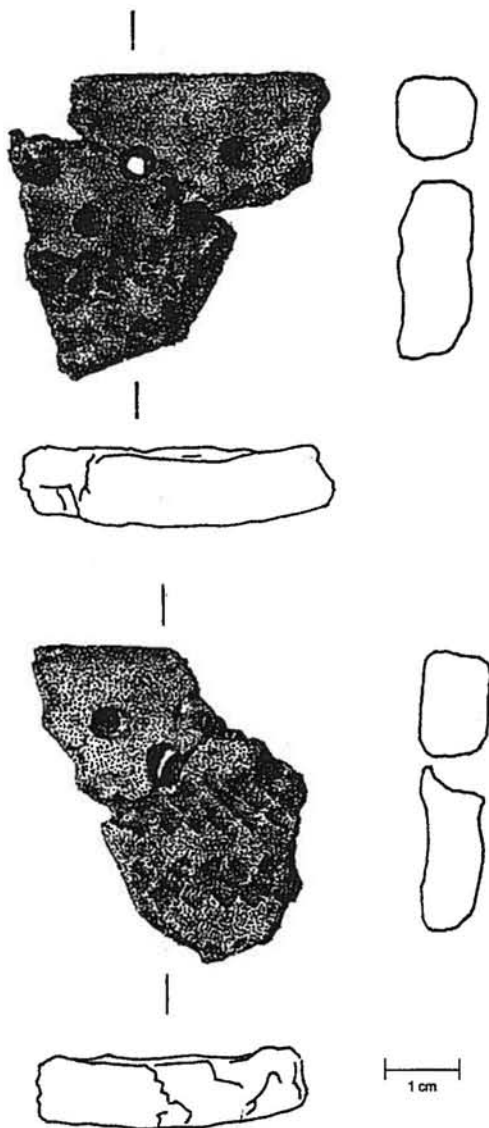


Fig. 15. Jokkavaara vessel 3, NM 21012:43, 95, 96 etc.. Drawing by NBA/ Tiina Miettinen 1997.

Sperrings I Ware (Ka I:1), found in a lower level, appeared to be older than the Sär I Ware from a higher level (Pesonen 1977; 1980).

Shore displacement and elevation data

Along the River Kalixälvs in Northern Sweden (the Stor Brändberget site) Sär I Ware has proven to be the oldest type of pottery on the basis of its

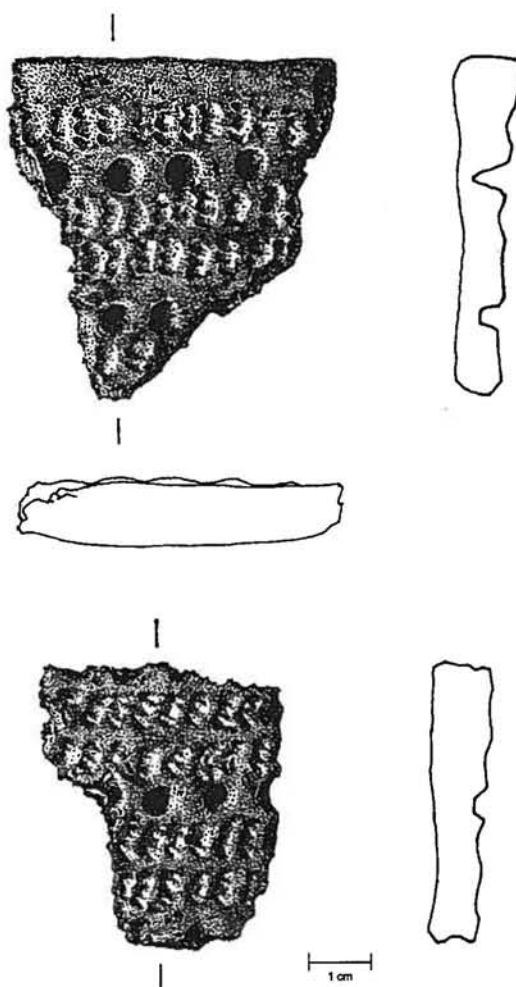


Fig. 16. Latokangas vessel 13, NM 25731: 277, 308. Drawing by NBA/ Tiina Miettinen 1997.

elevation (Halén 1994:147-152; Torvinen 1999a:68-69).

On the River Kemijoki in Finland, the Ancient Lake of Kolpene (most recently discussed in Kotivuori 1993; 1996:82-84; Saarnisto 1996:25-27; Torvinen 1999a:75-78; 1999b: 239, Fig. 16) at Rovaniemi was isolated into a basin above the rapids of Valajaskoski (Valajainen) towards the close of the pre-ceramic era (App. V). At Jokkavaara and

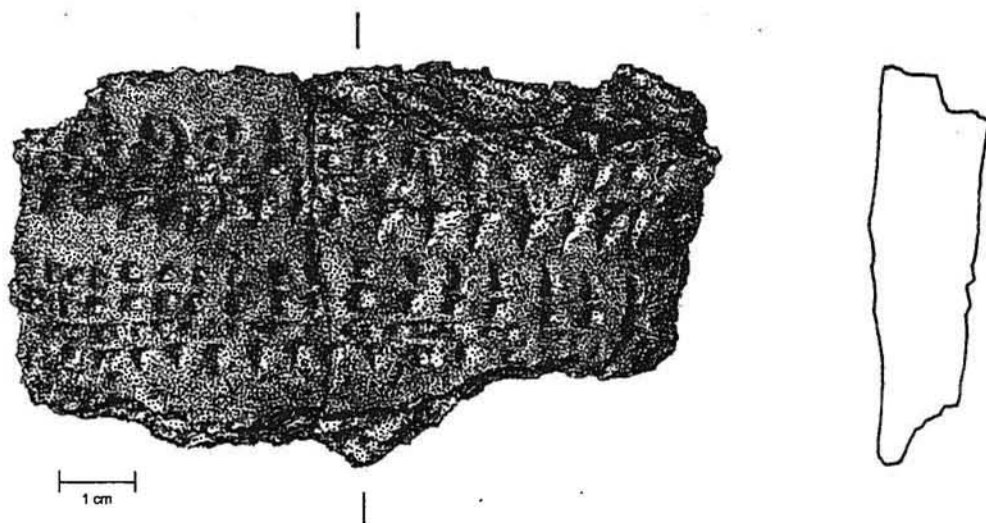


Fig. 17. Jokkavaara vessel 18, NM 21834:65. Drawing by NBA/ Tiina Miettinen 1997.

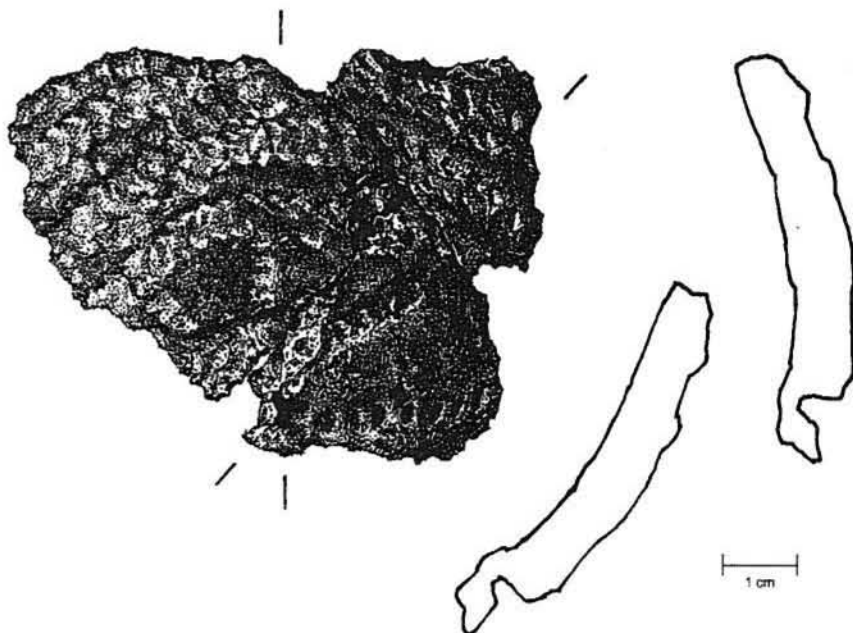


Fig. 18. Sotkamo, Kiikarusniemi, NM 22198:168 and NM 21482:70. Drawing by NBA/ Mikko Rautala 2000.



Fig. 19. Jokkavaara, Slettnes-type slate arrowhead NM 21012:145. Drawing by NBA/ Tiina Miettinen 1997.



Fig. 21 a. Retouched slate knife. Jokkavaara, NM 21012:198. Drawing by NBA/ Tiina Miettinen 1997.

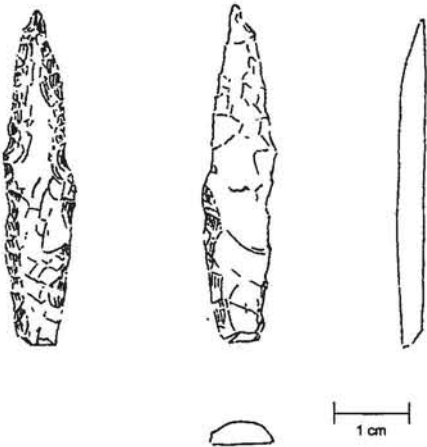


Fig. 20. Vepsänkangas, narrow based flint (chert?) NM 30561:709. Drawing by NBA/ Mikko Rautala 1998.

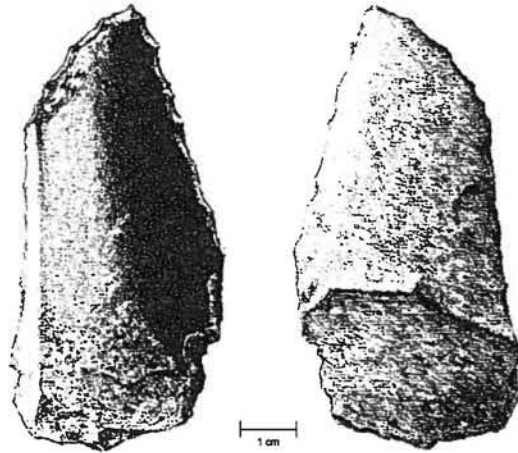


Fig 21 b. Retouched slate knife. Vepsänkangas, NM 30561: 687. Drawing by NBA/ Mikko Rautala 1998.

in the environs of Seirijärvi (Tappareniemi and mentioned sites) the Sär 1 Ware is older with reference to its elevation (82.5 - 89 m a.s.l.) than the Sär 1 Ware at lower sites on the shores of the ancient lake, ca. 80-81 m a.s.l., at Tapulinpelto and Pahtaja.

The Typical Comb Ware sites at Kolpene and Piirittävaara that formed on the shores of Ancient Lake Kolpene at approximately 76 m a.s.l. represent a younger stratum. Occurring at an even lower elevation (74 m a.s.l.) and thus clearly younger than the above are Corded Ware and Pöljä Ware at Niskanperä. Pöljä Ware has also been found at the Kärnäniemi site.

Following the sea shore receding outside the area Ancient Lake Kolpene it can be seen that at the lower reaches of the Valajainen rapids, Siikanie mi 1 and Turpeenniemi 9 are the lowermost sites (72-73 m a.s.l.) with finds of Sär 1 Ware. With regard to their elevation, these sites are on the shorelines of the late Ka I:1 stage or the transition stage Ka I:1/2.

Further south on the shore of the Gulf of Bothnia on the River Simojoki (Tainiari) Ka I:1 has been found at ca. 77 m a.s.l. and further south on the River Iijoki slightly lower at 73-75 m a.s.l. (Pahkakoski). No younger pottery has been found on the River Simojoki, but on the River Iijoki Typical Comb Ware (Ka II) has also been found on Ka I period shorelines, albeit more predominantly at a lower level, ca. 60-61 m a.s.l. (Kierikkikangas, Kierikin sorakuoppa). Early pottery is lacking from this elevation (App. VI).

At the Latokangas site on the River Kiiminkijoki, Sär 1 Ware is uppermost, with a lower limit of finds at 76 m a.s.l. (Mäki vuoti 1991). At lower elevations, with 74 m a.s.l. as the lower limit, Early and Typical Comb Ware sherds have been found in mixed contexts along with bone-tempered pottery and possibly Late Comb Ware (Ka III) and Early Asbestos-Tempered Ware (EA). It appears that the sequence at Latokangas was as follows: Sär 1 Ware first appears, with the other types Ka I-III and EA as later additions on the shores of the basin that possibly formed in the river channel.

Only Sär 1 Ware was found at Vepsänkangas (ca. 79 m a.s.l.) (Koivisto 1998). Less than two kilometres east of this site EA was found at the Kuusela site at ca. 75 m. a.s.l. Accordingly, the EA ware from Kuusela is younger than the Sär 1 Ware found at Latokangas and Vepsänkangas.

Along the River Oulujoki, Sär 1 and Ka I:1 are

the oldest pottery types. Sär 1 has been found at two sites at Utajärvi which are connected to the history of shore displacement of the Baltic: Roinila (77.5 m a.s.l.) and Pyhänniska (75 m a.s.l.). Ka I:1 has also been found at Roinila. The sites were located on the shoreline of the Ka I:1 and Sär 1 stages.

At Vihanti only the early stage of the Aartokangas sites (ca. 85 m a.s.l.) can presumably be associated with shoreline displacement in the Baltic. If this is the case, the Ka I:1 and Sär 1 pottery found there are of the same age. The Rönny site at Pihtipudas, which also revealed Sär 1 and Ka I:1 Ware, is linked - in terms of elevation - with the shoreline displacement history of Lake Päijänne and not the Baltic, and can be placed here at the beginning of the Ka I:1 stage (Siiriäinen 1971:15).

On the archaeological distance diagram for the Bothnian coast (Siiriäinen 1978:6-8, Fig. 1-2), the Sär 1 sites associated with shoreline displacement in the Baltic are above the Ka I:1 gradient, or lowermost at the Ka I:1/2 transition stage. Accordingly, Sär 1 is contemporary with Ka I:1 (App. I). The higher sites of the inland, e.g. along the rivers, cannot be linked to shoreline displacement on the part of the early ceramic period.

Radiocarbon dates

Unless otherwise mentioned, all the radiocarbon dates presented in this article are uncalibrated and marked BP (from 1950 AD with T_{1/2} at 5568 years).

At present there are eight reliably Hela dates made with the AMS (Accelerator Mass Spectrometry) method of carbonized deposits on Sär 1 sherds. According to these results, Sär 1 is dated to the period 6140-5520 BP, disregarding the \pm values of the dates (as is done throughout this section). Accordingly, Finland's oldest Sär 1 Ware is from Utajärvi (Pyhänniska, Hela-148, 6140 \pm 105) and Ylikiiminki (Vepsänkangas, Hela-236, 6120 \pm 75), while the youngest Sär 1 pottery is from Ala-Kemijoki (Turpeenniemi 6, Hela-40, 5520 \pm 185) (Torvinen 1999a:94-99). There are 17 traditional PGC (Proportional Gas Counting) Hela dates arguably or presumably associated with Sär 1 Ware from Finland. They place Sär 1 Ware in the period 6200-5440 BP (App. II).

Four, albeit debatable, dates associated with the "Sär 1 period" have been obtained from the Varanger Fjord area (Helskog 1974; 1980:53; Olsen 1994:52). These results place Varanger Sär 1 mate-

rial in the period 6210-5350 BP. On the Kola Peninsula, the Sär 1 stage is placed, with reference to only four dates, to 5760-5510 BP (Gurina 1997:138-139). With reference to the above, the Sär 1 period in Fennoscandia lasted from ca. 6200 to 5350 BP at its longest (Torvinen 1999a:94-96).

The dates obtained from Russian Karelia (e.g. Savvatev 1977:23-29, 290-291, Table 13; Oshibkina 1995:50; Timofeev & Zaitseva 1997) place the Sperrings 1 pottery and Sär 1, grouped within it, into the period ca. 6510-5460 BP, "at the most". The beginning of the period is clearly given an early date than in the Finnish material. There may be cause for this as the pottery spread from the southeast, reaching Karelia before Finland.

The Tainiari site in Simo is the only site that can be associated with the shoreline displacement history of the Baltic which also provided a series of radiocarbon dates unequivocally linked to Ka I:1. This series of six PGC results spans the period ca. 5850-5410 BP. In addition, there are also two AMS dates from the site (5940-5920 BP). Two sherd carbon deposit dates (5745-5615 BP) associated with style Ka I:1/2 have been obtained from Pahkakoski in Yli-Ii. A Ka I:1 sherd carbon deposit date of 5975 BP was obtained from Roinila at Utajärvi on the River Oulujoki. These results place the Ka I:1 stage of the Bothnia coast to the period ca. 5975-5410 BP (Torvinen 1999a:94-99).

The Ka II dates from the Bothnia coast are clearly younger. On the River Kalixälvs (Lillberget) the period in question is dated to 5220-4955 BP. The dates for Pirittävaara in Rovaniemi span the period 4900-4630 BP, and the results for a series of dates from Törmävaara in Tervola is slightly younger, 5010-4500 BP. The series of dates for the Kierikin sorakuoppa and Kuuselankangas sites at Yli-Ii give the period 5230-4890 BP for the former and 4590-4440 BP for the latter. Combined, these results date the Ka II ceramic period to ca. 5230-4440 BP in the Bothnian coastal region (Torvinen 1999a:96).

The chronological position of Sär 1 Ware in the Neolithic milieu

With reference to the above it can be noted that in its area of distribution Sär 1 Ware is approximately a contemporaneous or slightly earlier arrival than Early Comb Ware occurring in the areas southwest of it. Also the end of both periods is more or less the same. The Sär 1 and Ka I:1 stages lasted

500-600 radiocarbon years. Subsequently 400-500 radiocarbon years passed on the River Kemijoki and possibly 300-400 radiocarbon years passed on the River Iijoki before Typical Comb Ware appears in the finds.

Chronological summary of ceramic stages in the Bothnian coastal area with reference to radiocarbon dates:

Sär 1 ca. 6140-5520 BP

Ka I:1 ca. 5975-5410 BP

Ka II ca. 5230-4440 BP.

CLASSIFICATION AND COMPARISON OF STYLES

Opportunities for classification

There are only limited possibilities for an internal grouping of Sär 1 Ware. The morphological features, the shape of the wall, bottom or rim, are to such a degree similar that no classification can be carried out with reference to them. The only remaining possibility is a grouping based on decoration. Spatial features may also permit grouping, but this question is not discussed here.

Stylistic comparison, Sär 1 and

1) Early Comb Ware

Here, the focus is on Sär 1 *contra* Ka I:1 as the most important consideration, which is dictated by the existing situation in ceramic studies, i.e. the difficulty of distinguishing groups with sufficient clarity.

The characteristics of Early Comb Ware (Ka I:1) cited here follow those presented by Äyräpää (1930; 1956) complemented with observations of the material from Kraviojankangas site (Soininen 1991; also Äyräpää 1953; Luho 1957; Huurre 1983:124-129, 137-140; Edgren 1984:27-32). With the regard to the attribution of Sär 1 Ware I follow the definition presented by Povl Simonsen (1957) with additions of later observations of Finnish materials (Siiräinen 1971; Torvinen 1997; 1999a).

As noted above, the older stage of Early Comb Ware (Ka I, Sperrings 1) falls in the same chronological horizon as Sär 1. Because Sär 1 has been regarded as a northern variant of Ka I Ware, one could expect these groups to have numerous features in common. But this does not seem to be the case with regard to the material discussed here.

The features in common are quickly listed: vessel shape, main features of rim shape, temper and the decoration of the whole exterior. This means that morphology and features related to surface decoration cannot be used as criteria for distinguishing the ceramic groups from each other.

On the other hand there are many distinguishing traits. A few features of production technique and quantifiable differences can be outlined. Vessel size and wall thickness are larger in Ka I than in Sär 1. In Sär 1 vessels the surface bears a more complete finish, with both interior and exterior lined with slurry. The exterior is coloured red almost without exception and sometimes burnished as well. Ka I Ware is rarely smoothed; the surface has a rough, "concrete", feel to it. Red paint is sometimes found on the vessels. The paste of Sär 1 Ware is light-coloured, often a yellowish brown, while in Ka I it is (grey) brown.

The most distinct differences are to be found in ornament. The range of elements of decoration is much larger in Sär 1 than in Ka I:1, in which the actual comb stamp is hardly ever used. It is "replaced" in the early stage by a wound cord impression. Popular elements were a long "beam stamp" and a line with recurring indentations made with a stick. Vertebra stamps of I, II E and [- shape are common as also nail impressions and oval depressions.

There is no "beam stamp" in Sär 1, and the indented line occurs only rarely. The oval depressions nail impressions are also lacking. In addition to the conical pits, the wound cord impression is the only actual ornamental feature that both groups have in common, as also the (fish) vertebra impression, which appears to occur rarely in Sär 1, only in the contact zone of the distribution areas of both groups.

Elements characteristic of Sär 1 and hardly occurring in other prehistoric pottery are the oval wound cord impression and various denticulated stamps of which a rectangular and an oval tripartite stamp are popular. Found solely in Sär 1 is an often occurring stamp with a diagonal or straight hatched pattern or zig-zag lines on the base. There is also a variety of impressions made with both ends of bird humeruses.

A particularly typical Sär 1 feature is a combination in which there is a pit at one or both ends of a longiform stamp impression, or e.g. a horizon-

tal zig-zag band with a pit at the angles. A great number of combinations of stamps and pits are to be found in Sär 1 Ware.

The use of pits is different in the groups. In Ka I:1 the pits are pressed on top of rest of the decoration, appearing to form a separate stratum with no regard for the rest of the decoration. In Sär 1, on the other hand, the pits form separate horizontal bands or occur in connection with the stamps. In both groups there is a motif with pits impressed at regular intervals into an ornamental band, or stamped groove.

The decoration of Sär 1 Ware differs from Ka I:1 as markedly horizontal compositions in which only horizontal bands of pits and stamps alternate. There are no garlands or slanted or upright patterns. A special feature of Sär 1 is the "modular" use of ornamental stamps, repeated whole or in part, and a band of stamped impressions in which each stamp, often denticulated or consisting of three parts is obliquely impressed in staggered form at a 45-degree angle to the adjacent stamp, thus forming a "zig-zag band". These features do not occur in other types of early pottery.

In Later Early Comb Ware (Ka I:2 = Sperrings 2) the vessel form is the same, but the numerous stamps of the earlier style now fall out of use. The comb stamp proper now becomes more common in comparison with the wound cord impression. The decoration is more limited than in the preceding stage, and the composition clearly has greater horizontal emphasis. In between bands of upright and narrow comb stamps there may also be horizontal wavy or zig-zag grooved lines. The comb stamps are sometimes wide, thus preserving the impression of the wound cord (so-called false wound cord). There are also sharply tapering depressions, drawn designs and grooves. The stamps are pressed more lightly into the paste. Pits fall almost completely out of use, and only shallow impressions are found. The paste is finer consistency than in the previous stage with sand as temper. Asbestos fibres begin to come into use in Eastern and Northern Finland (Europaeus-Äyräpää 1930:177-179; Huurre 1983:128; Edgren 1984:31-33).

2) Early Asbestos-Tempered Ware

A common feature of technique in Early Asbestos-Tempered Ware (here EAW) is asbestos fibres in the temper and construction in bands with a U-

shaped groove matching the tongue of the lower band. The vessels are of "medium size", with a rim diameter of 31-50 cm. The bottom is round, the walls are straight - sometimes profiled - and the rim is mostly thickened on both sides, level on top or inwardly slanting. There are also vessels with a list protruding at the rim (Pesonen 1995:57-58).

The decoration is close and dense. The elements of ornament fall into three groups: bone impressions, comb stamps and oval stamps. There are also lines, stick-like stamps and notches. The composition of ornament is markedly horizontal with zones of inclined impression as the most common features. The oval and bone impressions were also used for horizontal zones. The most common motif is a "herring-bone" design made with a comb stamp.

It can be seen that the technological, morphological and ornamental differences between Sär 1 Ware and Early Comb Ware are so numerous that we can refer to two completely separate ceramic traditions. It is difficult to derive one from the other - in either direction. For chronological reasons alone, the groups cannot be paralleled as EAW is dated to ca. 5500-5200 BP (Pesonen 1995:138-139). It would appear that EAW carries on the Early Comb Ware heritage, while the ceramic tradition markedly weakened in the north for a long period when the Sär 1 stage came to an end. It was not until the end of the Stone Age and Early Metal Period that pottery reappeared as a strong wave in the archaeological record of the regions of Finland north of the Arctic Circle.

3) Typical Comb Ware

Similarities and parallels have been found between Sär 1 and Ka II pottery. This may primarily be the result of the indefinite dating of Sär 1 but also a reflection of the marked horizontality of ornamental patterns in both groups. Other features in common are the inwardly slanting and internally thickened rims sometimes occurring in Sär 1 pots and the above-mentioned stylized water-fowl motif, so far found in only one Sär 1 vessels but occurring slightly more often in Ka II and sometimes also in asbestos-tempered pottery (Äyräpää 1953:40-41; Edgren 1967:13, 15).

Numerous features of technique and surface decoration clearly distinguish Sär 1 from Ka II, not to mention dates according to which Sär 1 is def-

initely older than Ka II. Consequently, Typical Comb Ware could not influence the development of Sär 1.

Summary

It can be noted that Sär 1 Ware belongs to the same ceramic tradition as Ka I:1 and that it has a definite stylistic connection only with Early Comb Ware, which is also chronologically relevant in this connection. Both groups display a number of features in common as well as elements of ornament. The same can also be said of Ka I:2 in terms of technique but there are more differences in surface decoration, e.g. the adoption of the comb stamp and the lack of pits in Ka I:2.

DISTRIBUTION

The first distribution map of Sär 1 Ware was published by Ari Siiriäinen (1971:Fig. 1) in his article on the age of the group. The map gives 18 Finnish Sär 1 sites as well as a number of Norwegian locations. In Finland, the geographical focus is on the Kainuu - Lake Oulujärvi and Rovaniemi - Kemijärvi regions.

Since then, Sär 1 pottery and its distribution have been discussed in research literature concerning Northern Finland. The published maps point to the slow increase in this material. Matti Huurre's distribution map (1983:143) reveals the same geographical emphases as Siiriäinen's map, but now there were some thirty sites.

The next map to appear was also published by Huurre (1986:54), with 33 Sär 1 sites. This was followed by a distribution map by the present author in article written in 1994 but not published until 1997 (Torvinen 1997:25, Fig. 1). This map lists 66 sites. The most recent distribution map of Sär 1 Ware was published in 1999 (Torvinen 1999a:App. II:1; 1999b:Fig. 10; 1999c:10). At the time of writing (January 2000) Sär 1 pottery has been found at a total of 76 sites in Finland.

The first actual distribution map of the Norwegian material was published by Bjørnar Olsen (1994:Fig. 43), although the distribution of the group was already given in Povl Simonsen's (1961; 1963) studies of the prehistory of the Varanger Fjord and the River Pasvikelva regions. At that stage ten Sär 1 sites were known from Norway and

to my knowledge there have been no later additions to the tally.

A map of the distribution of Sär 1 Ware in Russian Karelia was published in 1997, listing 47 sites (German 1997:67, Fig. 2). Not all of these sites are accepted for the present study. In various connections, Nina Gurina (e.g. 1987:36) has presented several maps of the Neolithic sites of the Kola Peninsula, but they do not give the precise nature of the sites or their age. The distribution map on the part of the Kola Peninsula given here is compiled from various sources, primarily an article by Paula Pesonen (1991) and a posthumous publication of materials studied by Nina Gurina (1997, edited by V. I. Timofeev). Also German's distribution map concerning Russian Karelia has been appended with information given in Pesonen's article (1991).

With reference to the above-mentioned sources and including the Stor-Brändberget site at Överkalix in Sweden, Sär 1 Ware is now known from 158 different sites in Fennoscandia. The sites listed can be complete dwelling-sites or settlements, often with several Sär 1 vessels in their material, or locations where only a single Sär 1 sherd has been found. A distribution map of individual vessels would be a more accurate reflection of intensity, but so far it has not been possible to prepare such a map even of the Finnish material. (Sär 1 sites: Finland 76, Varanger Fjord and Pasvikelva 11, Russian Karelia 53, Kola Peninsula 17, Sweden 1; see App. III).

The overall distribution of Sär 1 as presented in this article must for the time being be regarded as tentative on the part of Russian Karelia and the Kola Peninsula. We do not know the criteria with which various researchers have ultimately attributed materials to Sär 1 and distinguished it from other early pottery. All of them, however, seem to have taken as their starting point Simonsen's (1957) definition appended with Siiriäinen's (1971) results.

In Finland, Sär 1 pottery forms a regionally distinct group in Northern and Eastern Finland. Most of the sites concerned are in an area between Lake Oulujärvi and the Arctic Circle. The distribution pattern reveals several clusters along the water routes of Kainuu, Hyrynsalmi and Sotkamo, the western parts of Lake Oulujärvi and the upper reaches of the River Oulujoki, where almost half of the Sär 1 sites of Finland have been discovered. There is another cluster in the Rovaniemi B Kemijärvi area, and in the ancient archipelago of the

mouth of the River Kiiminkijoki, with two large sites that have thus far revealed the largest concentrations of Sär 1 material (Latokangas and Vep-sänkangas).

There is a separate Sär 1 area on Lake Inarijärvi in Finland, closely associated with the Varanger Fjord and the catchment of the River Pasvikelva (Paatsjoki) in Norway. On the Finnish side of the border there are two clusters: one in the east by the River Pasvikelva and Nellimö Fjord and another southwest of Lake Inari on the River Ivalojoiki, at Lake Rahajärvi and at the mouth of the River Juutuanjoki.

As mentioned above, the only Early Neolithic pottery found in Norway is specifically Sär 1 Ware (Simonsen 1957; 1961; Olsen 1994). It has come to light only at three sites on the south shore of the Varanger Fjord and at eight sites in the catchment of the River Pasvikelva (Paatsjoki) if we include a find from Salmijärvi (1P), which formerly belonged to Finland. Already in the 1950s, the early pottery of the River Pasvikelva catchment constituted the largest ceramic assemblage north of Rovaniemi in Finland (Simonsen 1957:238) and to my knowledge it still is.

Sär 1 Ware has been found at 53 sites in Russian Karelia, the southernmost being in the northern parts of the Lake Onega region parallel with Karhumäki and Pitkälahti. Northwest and north of this area from a line running between lakes Uikujärvi and Seesjärvi to Kantalahti are a number of clusters, such as Lake Sumajärvi, Sorokka, the mouth of the River Kemijoki, Tunkua, lakes Kuitijärvi and the upper reaches of the River Kemijoki. Northward from these areas there are clusters in the Tuoppajärvi - Pääjärvi area and along the upper reaches of the River Kierettijoki.

There appear to be finds of Sär 1 Ware at 17 sites on the Kola Peninsula: at Kantalahti, and at the mouths of large rivers discharging into the White Sea, at the narrowing of the White Sea and along the shores of the Arctic Ocean. There are also clusters at the River Nivajoki in Kantalahti and at the mouth of the rivers Varzina and Drozdovka on the coast of the Arctic Ocean. A further cluster of finds in the inland is to be found at Lake Lovozero (Luujärvi), particularly on the east bank of the River Voronya, flowing north from the lake.

In Finland, Sär 1 Ware predominates in the north. In the contact zone of the border area (in the southwest) there is an overlap with Ka I:1,

which is found in the "Sär 1 zone" in Kainuu, along Lake Oulujärvi and the River Oulujoki and on the northern shores of the Gulf of Bothnia in the ancient estuaries of the rivers Kiiminkijoki, Iijoki and Simojoki. Finland's northernmost appreciable Early Comb Ware (Ka I:1) "colony" formed at Tainiari on the River Simojoki.

For practical purposes there are no finds of Early Comb Ware (Ka I) north of the line running from Simo to Posio. This suggests that all early pottery north of this line in the present Province of Lapland is specifically Sär 1 Ware. A similar line emerges in Russian Karelia along a line running from Sorokka to Akonlahti (Torvinen 1999a:122, App. II:5).

AREA OF ORIGIN AND ROUTES OF DISTRIBUTION

In Europe, the craft of pottery spread in a general pattern from the southeast to the northwest, being adopted last in the British Isles and in Central and Northern Scandinavia. Recent radiocarbon dates suggest conclusions as to when pottery reached the forested zone of Northeastern Europe and the shores of the Arctic Ocean. Pottery appeared in the South Russian material in the Azov Sea region around 7500 BP. In Central Russia, the craft was adopted some five-hundred radiocarbon years later. In the East European forest zone, pottery first appeared in Upper Volga region in the Verkhnevolzskaya culture and around the same time at sites of the Valdai Culture ca. 7000 BP. The origins of the Upper Volga ceramics are presumably in the south on the Black Sea steppe. The first pottery made its appearance in Karelia and Finland (Sperrings 1 = Ka I:1) around the middle of the 6th millennium or during its second half (6500-6000 BP). Sperrings Ware has been regarded as a derivative of the ceramic tradition of the Upper Volga. Another route for the spread of ceramics led directly north from the Upper Volga, and the craft reached the Arkhangelsk area possibly around the same time as it came to Finland. The dates for the Arkhangelsk area are from the site Prilukskaya site with Chernoborskaya III Ware (Meinander 1984; Timofeev & Zaitseva 1997; Engovatova *et al.* 1998; Carpelan 1999; with cited sources).

The Chernoborskaya III and Sperrings I Wares display several features in common in ornament

and technique with the Early Neolithic pottery of the Upper Volga and Valdai regions. Since the Early Neolithic sites of the Upper Volga have provided earlier dates than e.g. in Karelia, ca. 6500 BP, we can assume that the former region was one of the centres from where pottery spread to the north and northeast, coming into use in the Northeast European forest zone within the span of a few centuries (7000-6500 BP) and reaching the Kola Peninsula ca. 500 radiocarbon years later (Timofeev & Zaitseva 1997 and cited sources).

The problem of the area of origin of Sär 1 Ware has been discussed in the research literature. It has been suggested that this area was Kainuu, and more precisely the environs of Lake Oulujärvi, in view of the large amounts of pottery found there and its variegated decoration. The northernmost Sär 1 areas on the River Pasvikelva (Paatsjoki), the southern parts of the Varanger Fjord and the Kola Peninsula have been assumed to represent colonists from the Lake Oulujärvi region. On the other hand, it has been suggested, with reference to long distance of ca. 600 km between Lake Oulujärvi and Varanger that Sär 1 Ware originated and developed its style in a bi-central manner (Simonsen 1957:25-251).

Huurte (1983:142-144; 1986:52-56) maintains that the northernmost areas, Finnmark, the Kola Peninsula and the catchment of the River Kemijoki in Finland can hardly be considered as an area of origin, nor the outlying southern areas such as Northern Savo in Finland, or the southernmost areas of distribution in Russian Karelia near the northern shores of Lake Onega. The only remaining alternative is thus the Lake Oulujärvi water system, mainly Kainuu or the "central" parts of Russian Karelia. Approximately half of all the Sär 1 pottery found in Finland is specifically from Kainuu or along the River Oulujoki. The pattern of Sär 1 distribution that is now emerging on the part of Russian Karelia suggests that the problem of the area of origin should be reconsidered (Torvinen 1999a:115-119).

The area in question may be situated east of the Kainuu region. Even though this would move the focus of distribution some distance to the east it would not change Huurte's assumption that the core region of Sär 1 and possibly its area of origin could have been situated at the natural convergence of currents and influences from various di-

rections. Already at an early stage, these impulses could have promoted the emergence and development of a local ceramic style in the north, a style that did not gain a foothold in the south but spread northward all the way to the Arctic Ocean.

This question must remain open for the time being. The overall picture of the area of origin of Sär 1 could be clarified by a distribution map based on vessel counts that would help define the specific focuses of distribution more closely. In various connections, researchers have pointed to the fact that the pottery making its appearance in new areas is often of high technical quality (Carpelan 1999:254). In this respect, the Lake Oulujärvi - Kainuu region or the ancient estuary of the River Kii-minkijoki, with finds of Sär 1 pottery of the highest technical and stylistic quality in the Finnish material.

THE SÄR 1 CULTURE AND ITS BEARERS

All viable cultures have an innate tendency to spread into new areas, but all (cultural) innovations must be suited to the "receiving" culture in order to gain any kind of foothold (Birket-Smith 1951:38-39). This was also true of pottery when it spread among the Late Mesolithic hunter populations of the northeastern forest zone of Eastern Europe.

Material culture

Until now the Sär 1 group has been manifested solely via its pottery with its compact pattern of distribution and differing from contemporary ceramics with regard to its decoration. So far it has been possible to link only a few artefact types in any reliable way to the Sär 1 context, in order to jointly meet the criteria of an archaeological culture or culture group (Meinander 1984:21; Edgren 1966:149; Pesonen 1995:2-3). The main reason for this has been the lack of distinct contexts of finds.

Two arrowhead types have recently been added to the Sär 1 context in North Norwegian studies. One is the so-called Slettnes point, made from slate with the use of retouch. The blade of the point tapers evenly towards the top and there is a narrowed tang part at the base. With reference to finds from Varangen and Sørøya, Olsen (1994:52-54, Fig. 26) places the point type in the earliest stage of

the Late Stone Age, i.e. to period I or the Säräisniemi period.

Two similar points have been discovered at the Jokkavaara site. The larger of these (Fig. 19) is almost identical to the point described by Olsen. Moreover, the finds from Jokkavaara include two unfinished Slettnes points. Similar points, albeit of "more random shape" have been found at the Vepsänkangas and Riitakankangas sites together with Sär 1 pottery (Kotivuori 1996:93-94; Koivisto 1998:46-47, Fig. 9; Torvinen 1999b:234, Fig. 15).

The other artefact type associated with the Säräisniemi period in Norway is a tapering-based flint or chert point with surface retouch. This arrowhead type is common at Period I sites throughout the Finnmark region and is found not only along with Sär 1 Ware at Varanger and in the catchment of the River Pasvikelva (Paatsjoki), but also in aceramic contexts (Simonsen 1961; 1963; Olsen 1994:52-53, Fig. 25). The arrowhead type is a rare object in the finds from Jokkavaara and Vepsänkangas (Fig. 20) (Koivisto 1998:46-47, Fig. 10; Torvinen 1999b:234).

A slate artefact often of random shape, roughly struck and with a retouched blade which can arguably be described as a knife has recently been attributed to the Finnish Sär 1 context (Fig. 21). Two artefacts of this type have been found at Jokkavaara, and it occurs in larger numbers in the material from Latokangas and Vepsänkangas. At the last-mentioned sites, this object was often made from a split or broken-off piece of a polished stone artefact (Kotivuori 1996:61; Mäki vuoti 1991:133; Koivisto 1998:46-47, Fig. 8; Torvinen 1999b:234, Fig. 14).

As at other Stone Age dwelling sites, quartz and artefacts made from it are the most common category of finds. For example, some 80% of the quartz artefacts from Jokkavaara are scrapers. The stone artefacts represent so-called Bothnia forms (see e.g. Huurre 1983:94-111). The artefacts include adzes, miniature adzes, ice-picks, knives, arrowheads and whetstones. As the Jokkavaara site was also in use during the Late Mesolithic, not all the finds can be unequivocally linked to the Sär 1 phase; a number of clearly Mesolithic types can be excluded (Torvinen 1999b).

Also at the Latokangas site, where finds from elevations above 76 metres a.s.l. can be quite confidently assigned to the Sär 1 context, most of the finds are quartzes. In comparison with the lithic

artefacts from the Comb Ware culture site at a lower elevation on the slope, the assemblage from the Sär 1 area is considerably more limited. Here, too, the lithic artefacts represent so-called Bothnian forms and many of them are unfinished (Mäki vuoti 1991:133).

Of the sites discussed here, Vepsänkangas is the most "purebred" example of a Sär 1 context. The largest category of finds is quartz and there are only a few lithic artefacts. There is a large proportion of knives and various cutting blades. Also in this assemblage the identified stone artefacts are Bothnian types and many are unfinished. The finds also include a flat miniature adze and fragments of a narrow adze, ice-picks of various size and a stone axe. There were also finds of chewing resin and red ochre suitable for painting and dyeing. In fact, the whole assemblage of the site consists mainly of small artefacts that appear to be "temporary" (Koivisto 1998).

There is very little data on the dwellings of the Sär 1 culture. Recent numerous finds of hut-floor depressions from the coastal region of the Gulf of Bothnia do not appear to be associated with the Sär 1 context. The depression did not become common until the Typical Comb Ware period and in places they are associated in large numbers with the Late Neolithic period of asbestos-tempered ceramics. This distinguishes the earliest ceramic "horizon" from the later stages of the Neolithic and links the Sär 1 form of habitation with Early Comb Ware (Meinander 1976; Kotivuori 1993; 1996:86-87; Pesonen 1995:144; 1996b:28; 1999:2-13).

For the time being, the Nellimöjoensuu S site at the mouth of the River Nellimöjoki is the only location in Finland providing data on a Sär 1 -period dwelling. It is indicated indirectly by numerous finds, including potsherds and markedly stained soil (occupation layer) limited to a round area measuring ca. 6 metres around a hearth of stones (Sohlström 1992). The dwellings appears to have been a conical hut erected on the surface of the ground B no post-holes are visible. The floor of the hut was not dug to a lower level than the surrounding surface, which means that the location of the dwelling is not discernible as a depression or a raised embankment. The hearth of the hut and finds of refuse fauna point occupation in late winter at Nellimö.

Stone settings for hearths at Sär 1 sites are rel-

atively small, often less than 1 metre in diameter and composed of two or three layers of stones, which are often considerably fire-worn. It appears that the same stones were used several times over. It can also be suggested that the hearth stones were heated to boil water, which would explain the disturbed settings and the weathered condition of the stones (Mäki vuoti 1991:122; Torvinen 1999b:235-236).

Ecology and subsistence

Both Latokangas and Vepsänkangas were originally on the coast in a sheltered archipelago location. During the Mesolithic, Jokkavaara was in river estuary and later on the shore of ancient Lake Kolpene, which formed at the confluence of the rivers Ounasjoki and Kemijoki (App. V). During the Sär 1 period Jokkavaara was thus no longer a "marine" hunting and fishing site in an estuary archipelago location. Nellimö was an inland site near a large lake, possibly a winter settlement.

The refuse fauna from Latokangas and Vepsänkangas mainly represents coastal hunting and fishing, while Jokkavaara is more indicative of inland hunting and fishing. Therefore the picture provided by the table (App. IV) as such may be one-sided. The Jokkavaara material contains all the refuse fauna from the site, although includes the remains of Mesolithic game, while the Latokangas fauna is from the Sär 1 component of the site (above 76 metres a.s.l.). The Vepsänkangas and Nellimö materials are the smallest, but they are most clearly associated with the Sär 1 context and are treated here as a whole.

The rich and diverse refuse fauna from Jokkavaara consists primarily of beaver. The material contains fragments of all parts of the skeleton. There are large numbers of seal bones from the upper sections of the site area (above 86 metres a.s.l.), but seal is lacking in the lower area. There are fragments of all parts of the skeleton. The material also includes large amounts of elk remains, while there are only few bone fragments of wild reindeer and predatory animals. There are also canine remains and a markedly small proportion of bird bones. Pike is the largest category among the fish. The relatively high proportion of elk remains may indicate seasonal occupation in the winter, while seal would point to late winter and pike to spring.

The faunal material from Latokangas is also varied. The main body of material represents large mammals. The largest number of identified bones were of seal. The material contains relatively large amounts of canine, pine marten and beaver remains, and hare is particularly prominent. Elk is lacking. The few bird remains are of water fowl and gallinaceous birds, wood grouse, willow grouse and even eagle. On the other hand, there are large numbers of fish bone fragments, particularly of pike. This suggests that Latokangas was in particular a fishing site in late spring and early summer, while seal points to hunting in the late winter.

The body of refuse fauna from Vepsänkangas is smaller than the above corpora but nonetheless represents a wide range of species, particularly of water fowl. Seal predominates and the seal bones represent different parts of the anatomy. The material includes the toe of a young seal, which would suggest hunting in the spring. There are beaver fragments representing almost all parts of the skeleton, as well as fragments of the lower extremities of elk and a mountain hare. Only one fragment of wild reindeer bone was recorded. Pike was the most numerous fish species identified in the material. The large proportion of birds suggests that the site was in particular a hunting location used during the nesting season of water fowl. The seal remains suggest hunting in the late winter.

The largest number of identified bone fragments from the Nellimö site were of fish, with pike predominating. Beaver was the main mammal species, but the material also included elk, mountain hare, wild reindeer and bear. This limited material suggests that the site was utilized in the late winter and early spring.

The Sär 1 culture

The Mesolithic and Neolithic cultures of the coniferous zone of the northeastern parts of Eastern Europe have been described as having been purely "hunter-gatherer-fisher societies". The material record of these cultures does not contain any evidence to the contrary. The role of coastal hunting and fishing as the primary source of subsistence is indicated by the finds from the sites and the choice of settlement locations. This is also true of the Comb Ware culture and the Sär 1 group distinguishable in its early stages. This conception also finds support in recent studies on the mythol-

ogy of the Uralic and early Fenno-Ugrian cultures (see e.g. Huurre 1979:34; 1983:215; 1998:138, 186; Olsen 1994:15-16; Siikala 1999).

We can only guess why the Early Mesolithic hunter communities adopted an innovation such as pottery, which was fragile and as such poorly suited to their mobile way of life. Pottery may have had some social function. In any case this was made possible by the existence of a population of common descent maintaining contact among its members. If the craft of pottery was women's work and its skills spread through a postulated exogamous system of marriage, the archaeological culture concerned can be defined in terms of the ceramic output of women sharing the same "pattern book" as a kind of "mating field" within which the women living within the same tradition found their mates and reproduced (Nunez 1990; Carpelan 1999:249; Torvinen 1999a:115-119).

Sär 1 Ware resembles mostly Early Comb Ware (Ka I). A certain kinship can be observed between these groups, typologically separating them from other ceramic groups, especially from Early Asbestos-Tempered Ware (EAW) and Typical Comb Ware (Ka II). In terms of tradition the older stage of Early Comb Ware (Ka I:1) and Sär 1 represent the same ceramic origins from the Upper Volga. Their differentiation has been attributed to the descent of the bearer populations from different Late Mesolithic populations (German 1997; Torvinen 1999a:113-115; see also Shumkin 1990).

With the end of the Sär 1 stage the ceramic tradition of the northern regions (north of the Arctic Circle in Finland) was broken, which was not the case further south. Pottery reappeared in the area as a marked phase several millennia later at the end of the Stone Age or at the transition to the Early Metal Period. The reasons for the breaking of the tradition can only be conjectured. Possibly pottery was not ultimately "suited" to the Sär 1 hunter-gatherer culture that received it. The communities may have found the pots impractical as they were fragile and difficult to transport. There may have been a return to old ways and or the pots may have been replaced with other containers better suited to the needs of a hunter-gatherer culture.

Pottery was a cultural loan that was received and passed on and it obviously changed in transit. This transformation may have had less to do with ceramic technology and morphology than with ornament - tastes are legion. Therefore a meas-

ure of tolerance is needed in attributing ceramics to different groups on the basis of ornament. The function of an Early Neolithic pot in a hunter community is unclear and accordingly the nature and essence of Early Neolithic ceramics are difficult to interpret. Sär 1 Ware could have been only a curio or a fad, and as such doomed to disappear albeit after a "life-span" of 500-600 radiocarbon years.

For the time being the Sär 1 populations are manifested as a group or culture only via their pottery. A number of *Leitfossil* artefacts have recently been associated with the group. As objects, they are all suited explicitly to hunting and treating the catch. A prominent feature of the material is the large proportion of quartz and especially quartz *scrapers* for treating hides. Large lithic artefacts, axes and adzes are rare and have mostly been found in fragmentary condition at sites. The identified stone artefacts represent the so-called Bothnian types. The largest number of identified pieces are fragments of *ice-picks*. The smaller objects are the above-mentioned *arrowhead types*, the flat *small adzes* and retouched *knives* and *scrapers* which were made from splinters of slate and which are often of "temporary form" and made from the fragments of polished stone artefacts.

It appears that the larger objects were not discarded, and their fragments show that they were used. Heavier implements for wood-working may have needed at the winter sites but not at the hunting and fishing sites on the coast, where lighter equipment sufficed in the spring and summer for making and repairing hunting and fishing gear. The material record of the coastal hunting and fishing sites gives a somewhat "temporary" image of the Sär 1 culture. Many objects, including retouched knives, which were perhaps regarded as "disposable" appear to have been made at the hunting and fishing sites from whatever materials were available. It is difficult to define the function of ceramics in a cultural context of this kind.

Arrowheads are the only artefacts in the Sär 1 material directly pointing to hunting. However, the refuse fauna from the sites tells of productive seal and beaver hunting, which would hardly have been done with bare hands. Other hunting weapons must have been in use along with the bow and arrow. Basing on analogies such as bone artefacts from Russian Karelia (e.g. Brjussow 1957:134, Fig. 23; Foss 1952:104, Fig. 56) we can assume that the majority of the hunting gear of the Sär 1 culture was made of organic material such as wood, one

and antler, which do not survive in Finnish soils. Accordingly, the Sär 1 group can be described specifically as a *wood and bone culture* borne by hunter-gatherers of the coastal regions and inland waterways, deriving from the Mesolithic tradition and characterized in particular by bone harpoons and points useful for hunting seal and beaver and possibly various types clubs and maces made from wood.

Little is known of the dwellings of the Sär 1 culture. During the warm months of the year people lived in light conical huts, while the dwelling of the cold season, apparently represented by the round-floored hut at Nellimö, appears to have been sturdier than the summer hut and to have had a hearth. The dwelling was built on level ground without the digging of site for it. Therefore the Early Neolithic hut floors cannot be observed as depressions like the later Comb Ware and Late Stone Age hut-floor areas which are large and may even resemble small villages.

Few sites could be inhabited year-round. It was necessary to relocate in search of subsistence. The annual transhumance of hunter-gatherers between the coast of the Arctic Ocean and the inland as presented by Olsen (1994:82) may well be represented by the Nellimö hut and its inhabitants, whose equipment included artefacts made of chert, also known as Finnmark flint. The inhabitants may have belonged to a population that would move to the coast in the summer to fish and hunt but would spend the winter in a sheltered forest region.

The mobile hunter-fisher groups of the "Sär 1 people" appear to have been conservative and despite the use of pottery differing hardly at all from the hunters of the Late Mesolithic (e.g. Huurre 1979:33). The hunter-fisher bands seem to have been small communities consisting perhaps of only one family or kind group. The groups were still too limited for ventures such as maintaining systems of hunting pits, requiring cooperation and a considerable input of labour. Once adopted, these systems influenced social organization and made settlements permanent while serving to lay down regional boundaries that were later known as the *siida* system of the Sámi (cf. e.g. Olsen 1994:18). According to the refuse fauna, wild reindeer and elk were not the main game animals; the "Sär 1 people" distinguished themselves as hunters of aquatic animals: hunting pits were not needed for catching beaver and seal. It is possible that bea-

ver communities were favoured as "fur and food banks". Even in winter an active beaver population could help ensure the subsistence of a dwelling band wintering in its vicinity (cf. Torvinen 1999b:235-237).

The emergence of a distinct boundary between the Sär 1 and the Early Comb Ware grounds (Ka I:1 and Sperrings 1) within the early ceramic context has been explained with the suggestion that although both groups derived from the same Upper Volga ceramic tradition, their differentiation was caused by the fact that their bearer populations, though close, descended from different Late Mesolithic groups (German 1997). This archaeologically discernible boundary may have had an ethnic dimension.

It has been suggested that the emergence and formation of Sär 1 pottery were associated with and kernel of the course of development that led to the emergence of the Sámi much later. In the light of the present study, these events may be dated to the transition from the Mesolithic to the Neolithic or to the beginning of the Neolithic period, ca. 6100-6000 BP according to Finnish chronology, and it may not be coincidence that the distribution of Sär 1 Ware coincides precisely with the area that has subsequently been regarded as the territory of the Sámi (Huurre 1983:411; 1991:61; Gurina 1987; Torvinen 1999a:116, 124).

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ABBREVIATIONS

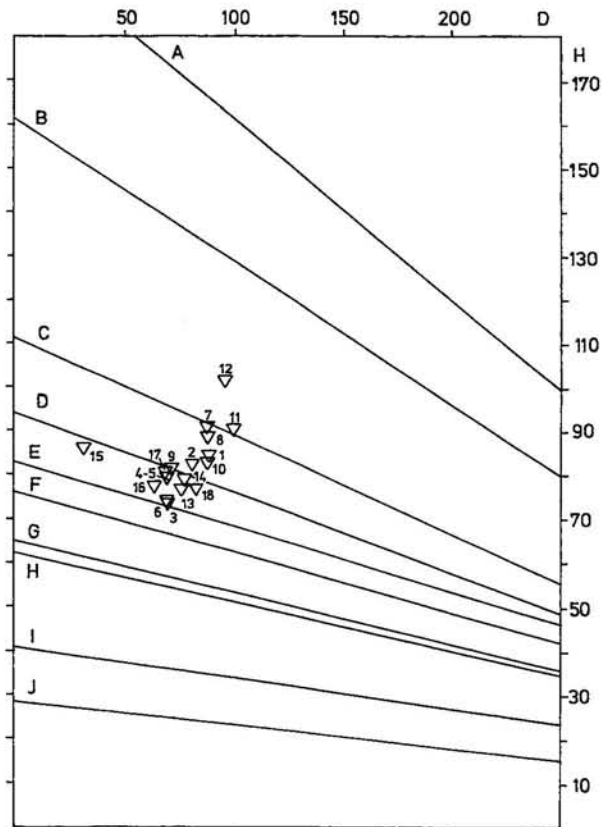
- FA = Fennoscandia archaeologica
 FM = Finskt Museum
 MIA = Materialy i issledovanija po arheologii SSSR
 NAR = Norwegian Archaeological Review
 NBA = National Board of Antiquities (Helsinki)
 NM = National Museum of Finland (Helsinki)
 PPM = Pohjois-Pohjanmaan museo (Oulu)
 RAN = Rossijskaja Akademija Nauk
 SA = Sovjetskaja Arheologija
 SM = Suomen Museo
 SMYA = Suomen Muinaismuistoyhdistyksen Aikakauskirja
 Soc. Sci. Fenn. = Societas Scientiarum Fennica
 UOÅ = Universitetets Oldsamling Årbok

APPENDIX I

Sär 1 sites placed on the archaeological distance diagram for the coastal region of Ostrobothnia. End stages: Gradients D = Suomusjärvi Culture, E = Ka I: 1, F = Ka I: 2, G = Ka II.
Source: Siiriäinen 1978, Fig. 2. Drawn according to the author's instructions by NBA/Tuula Piili 2000.

ROVANIEMI	H	D	UTAJÄRVI	H	D
1. Jokkavaara	83	88	12. Pikkarainen	100	89
2. Tapulinpelto	81	81	13. Pyhänniska	75	75
3. Siikaniemi 1	72	70	14. Roinila	77.5	77
4. Turpeenniemi 5	78	69			
5. Turpeenniemi 8	78	69	VIHANTI		
6. Turpeenniemi 9	73	69	15. Aartokangas	85	31
7. Riitakaranta	90	87			
8. Tapparaniemi	87.5	87	YLIKIIMINKI		
9. Pahtaja	80	71	16. Latokangas	76	63
10. Kotijänkä	82.5	87	17. Vepsänkangas	79	68
11. Ollonen	89	99			
			PULKKILA		
			18. Mattila	75	81

H = elevation above sea level in metres on the ordinate, D = distance in kilometres from the base line on the abscissa.



APPENDIX II

AMS dates (Hela) of carbonized deposits on Sär 1 Ware:

Sample location	Lab. no.	Results \pm
Utajärvi 78, Pyhänniska	Hela-148	6140 \pm 105
Ylikiiminki 46, Vepsänkangas	Hela-236	6120 \pm 75
Ylikiiminki 46, Vepsänkangas	Hela-128	5995 \pm 65
Inari 507, Rönkönraivio	Hela-38	5830 \pm 85
Kemijärvi 104, Neitilä 4	Hela-34	5800 \pm 90
Ylikiiminki 28, Latokangas	Hela-146	5795 \pm 90
Ylikiiminki 28, Latokangas	Hela-42	5790 \pm 105
Rovaniemi 135, Turpeenniemi 5	Hela-40	5520 \pm 185
Rovaniemi 340, Jokkavaara	Hela-57	5070 \pm 80

AMS AND PGS (Hel) DATES FOR WOOD CHARCOAL AND CHEWING RESIN FROM SÄR 1 CONTEXTS IN THE FINNISH MATERIAL

Rovaniemi 340, Jokkavaara	Hel-3026	6200 \pm 110
Ylikiiminki 46, Vepsänkangas	Hel-4127	6170 \pm 90
Sotkamo 10, Kiikarusniemi	Hel-1750	6150 \pm 110
Rovaniemi 340, Jokkavaara	Hel-1620	6120 \pm 110
Ylikiiminki 46, Vepsänkangas	Hela-235	6065 \pm 75
Ylikiiminki 46, Vepsänkangas	Hela-129	6020 \pm 80
Inari 406, Nellimjoen suu	Hel-2678	6000 \pm 120
Rovaniemi 340, Jokkavaara	Hel-3029	5940 \pm 100
Rovaniemi 340, Jokkavaara	Hel-3025	5930 \pm 259
Rovaniemi 340, Jokkavaara	Hel-1619	5860 \pm 110
Posio 39, Kuorikkikangas	Su-2681	5750 \pm 110
Rovaniemi 340, Jokkavaara	Hel-3030	5660 \pm 130
Rovaniemi 340, Jokkavaara	Hel-3028	5650 \pm 140
Rovaniemi 340, Jokkavaara	Hel-3027	5620 \pm 130
Sotkamo 23, Räätäkangas	Hel-2294	5440 \pm 100

APPENDIX III

SÄR I SITES IN FENNOSCANDIA .

The numbering of the map follows the numbering of the list drawn up by country or region. Map (Torvinen 1999a) revised by the author in 2000. NBA/Tuula Piili 1998.

FINLAND

1. Eno 1, Koukunniemi
2. Hyrynsalmi 21, Nahkaniva
3. Hyrynsalmi 15, Saha
4. Hyrynsalmi 16, Koppeloniemi
5. Hyrynsalmi 18, Vonkka
6. Inari 13 b, Saamenmuseo II
7. Inari 43, Heikkilä
8. Inari 368, Rajavartiosto
9. Inari 406, Nellimöjoen suu S
10. Inari 507, Rönkönravio
11. Inari 653, Mustatlatot N
12. Inari 762, Auniolahden suu
13. Kemijärvi 61, Neitilä 1
14. Kemijärvi 74, Juuniemi
15. Kemijärvi 87, Haveri
16. Kemijärvi 101, Neitilä 1a
17. Kemijärvi 104, Neitilä 4
18. Kemijärvi 105, Neitilä 5
19. Kemijärvi 106, Neitilä 6
20. Kemijärvi 133, Oilunganniemi
21. Kemijärvi 315, Narkilahti
22. Kiuruvesi 2, Tuliniemi
23. Kiuruvesi 4, Hukkala
24. Kuhmo 29, Sylväjänniemi
25. Kuhmo 52, Pajasaari
26. Kuhmo 134, Järvelä
27. Paltamo 11, Alatalo = Väälitalo
28. Paltamo 14, Autioniemi
29. Pielavesi 15, Kivimäki
30. Pihtipudas 20, Rönnny
31. Posio 39, Kuorikkikangas E
32. Posio 170, Kotipuronsuo 1
33. Pulkki 39, Mattila
34. Ranua 37, Kultisalmi
35. Rovaniemi 46, Pahtaja
36. Rovaniemi 61, Ollonen
37. Rovaniemi 123, Siikaniemi 1
38. Rovaniemi 135, Turpeenniemi 5
39. Rovaniemi 138, Turpeenniemi 8
40. Rovaniemi 139, Turpeenniemi 9
41. Rovaniemi 337, Tapulinpelto
42. Rovaniemi 340, Jokkavaara
43. Rovaniemi 469, Kotijänkä
44. Rovaniemi 473, Tapparaniemi
45. Rovaniemi 474, Riitakanranta
46. Salla 67, Kenttälampi NE
47. Sodankylä 209, Alempi Kiertämäjärvi
48. Sodankylä 228, Ylä-Liesijoki
49. Sotkamo 10, Kiikarusniemi
50. Sotkamo 23, Räätäkangas
51. Sotkamo 53, Kämäräisenniemi
52. Sotkamo 58, Rytiniemi
53. Sotkamo 62, Ammonsari
54. Sotkamo 75, Putkonlahti
55. Suomussalmi 25, Kalmosärkkä
56. Suomussalmi 27, Kellolaisten tuli
57. Suomussalmi 53, Tormuansärkkä
58. Suomussalmi 56, Mikonsärkkä
59. Suomussalmi 114, Kukkosaaari
60. Suomussalmi 168, Pääskynen
61. Suomussalmi 189, Niipaskoski S
62. Suomussalmi 210, Horsmanniemi
63. Utajärvi 59, Pikkarainen
64. Utajärvi 78, Pyhänniska
65. Utajärvi 85, Roinila
66. Vaala ?, Nimisojan suu
67. Vaala ?, Sytjävaara
68. Vaala 8, Sillankorva
69. Vaala 9, Uusitalo
70. Vaala 10, Niemelänniemi
71. Vaala 11, Järventaka
72. Vaala 14, Puhakka
73. Vaala 20, Kaitanen
74. Vihanti 5, Aartokangas
75. Ylikiiminki 28, Latokangas
76. Ylikiiminki 46, Vepsänkangas

RUSSIAN KARELIA

1. Berezovo I (Koivuniemi)
2. Berezovo VIII
3. Berezovo X
4. Berezovo XXIV
5. Berezovo XXV
6. Hjame III
7. Haikekja V
8. Hapjarvi II
9. Ivoskaja
10. Jerpín Pudas I
11. Jolijarvi II
12. Jolijarvi III
13. Jolijarvi IV
14. Jovalakša V
15. Kalmozero XI
16. Kemskaia I
17. Kemskaia II
18. Kepa VIII
19. Keretti I
20. Keretti II
21. Korguba I
22. Kudamkuba VII (Kuutamolahti)
23. Lomozero III (Luomajärvi)
24. Orovnavolok V (Oravaniemi)
25. Pindushi II
26. Porog Ponca
27. Ponogma III
28. Putkinskaja II
29. Putkinskaja III
30. Sandermoha II
31. Sandermoha IV
32. Seretža IV
33. Skovoroda I
34. Skovoroda IV
35. Skovoroda V
36. Sofjanga I
37. Sumozero I
38. Sumozero VI
39. Sumozero XIII
40. Suopasalmi V
41. Torosozero IV (Torasjärvi)
42. Tetrijarvi
43. Tsholmuzhi I (Tsolmuinen)
44. Tunguda II
45. Tunguda IV
46. Tunguda XV
47. Tunguda XXVII
48. Ust-Ponèa I

49. Ust-Ponèa II
50. Voknavolok IV
51. Vorenža I
52. Vygostrov II
53. Zašek

KOLA PENINSULA

1. Lovozero I
2. Lovozero II
3. Lovozero III
4. Lovozero I
5. Lovozero V
6. Majak II
7. Mys Semerka I
8. Navolok
9. Nerpèja Guba
10. Niva XII I
11. Niva XX I
12. Niva XXI
13. Pjalitsa 18
14. Tsaga I
15. Tshavanga I
16. Ust-Drozdovka
17. Varžina 6

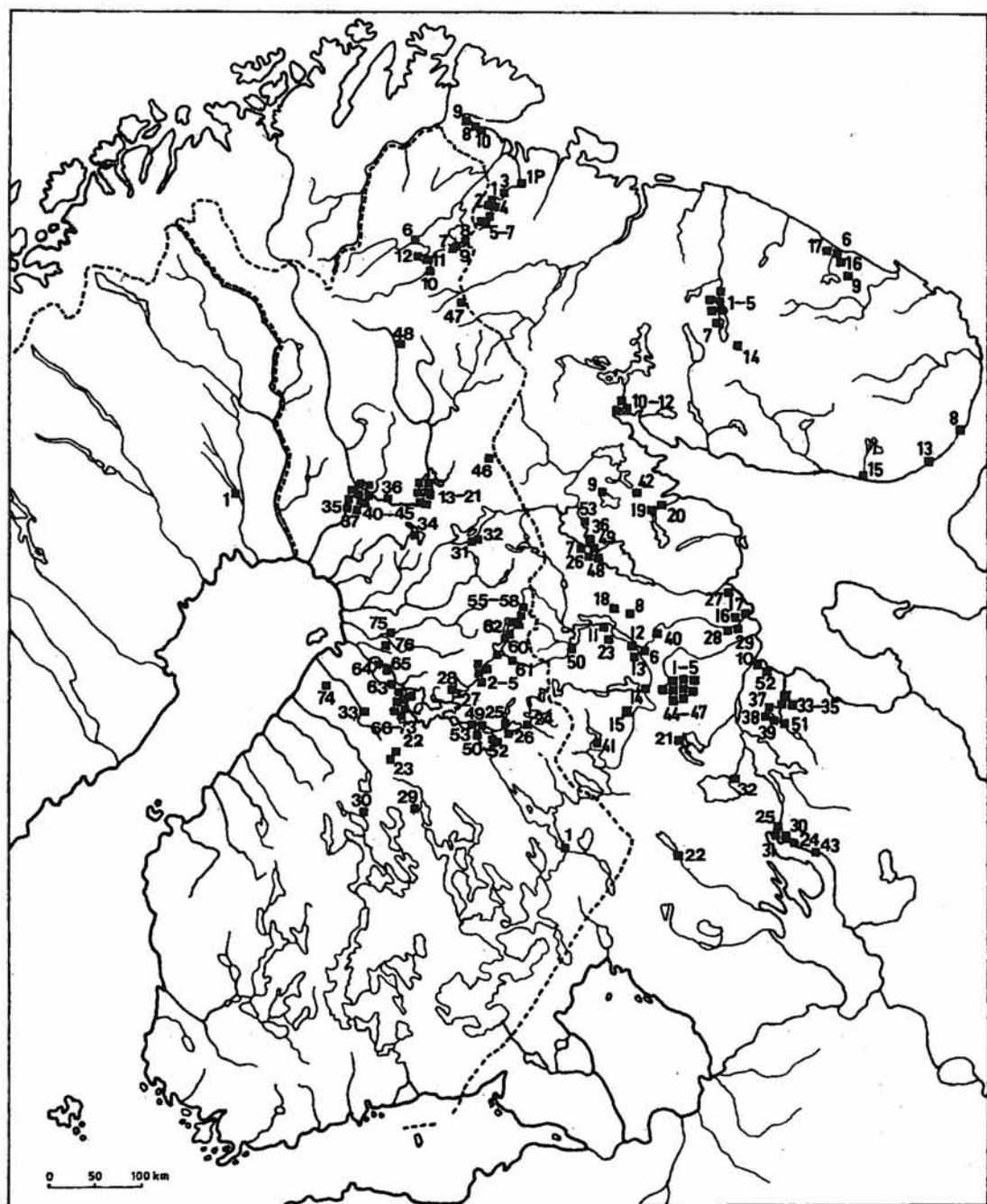
VARANGER-PASVIKELVA

1. Gravholm
2. Kjerringneset IV
3. Mennika (Fi.Männikkökoski)
4. Nessheim
5. Noatun, Haugen
6. Noatun, Nesset
7. Noatun, Nesset vest
8. Gressbacken, Øvre
9. Nordli
10. Nyelv, nedre øst ("Lossoas hus")
- 1 (P). Salmijärvi (*)

SWEDEN

1. Stor-Brändberget

(* Salmijärvi is in the Petsamo area that belonged to Finland until 1944)



APPENDIX IV

Osteological analyses of materials from Sär 1 sites:

Jokka = Jokkavaara. 1980-82, excavations. Markku Torvinen; 1990, Maija Tusa; 1991, Taisto Karjalainen
 Lato = Latokangas. 1987, Markku Mäki vuoti; 1988, Mika Sarkkinen; 1989-90, Katrimaija Mäki vuoti
 Vepsä = Vepsänkangas. 1997-1998, Satu Koivisto
 Nellimö = Mouth of the River Nellimöjoki S. 1988, Beatrice Sohlström

The most extensive identifications of refuse fauna from Sär 1 sites:

Seven from Jokkavaara, (Ukkonen 1994, 4 analyses, 1996, 3 analyses); three from Latokangas (Ukkonen 1996) and two from Vepsänkangas (Ukkonen 1997, Mannermaa 1999). Included for purposes of comparison is the Nellimö site (From 1988). The bodies of material are of different size and not directly comparable with each other.

Ryhmä	Leiji	Jokka 80	Jokka 81	Jokka 82	Jokka 90	Jokka 91	Lato 87	Lato 88	Lato 90	Vepsä 97	Vepsä 98	Nellimö 88
AVES	<i>Anas crecca</i> (tavi)									8	4	
	<i>Anas platyrhynchos</i> (sinisorsa)									3	11	
	Anatidae (orsalinnut)						1			1	1	
	<i>Aves</i> (cf. <i>A. crecca</i>) (tavi ?)										1	
	<i>Aves</i> (cf. <i>A. penelope</i>) (haapana ?)						2	1		8		
	<i>Aves</i> (cf. <i>T. urogallus</i>) (metso ?)								3			
	<i>Aves</i> sp. (linnut)	1		1			5			7	40	1
	<i>Aves/A. platyrhynchos</i> (sinisorsa)					1						
	<i>Aves/Aquila/Haliaeetus</i> (kotikat)					1	5					
	<i>Aythya fuligulata</i> (tukkasotka)									6		
	<i>Aythya</i> sp. (cf. <i>marila</i>) (lapasotka ?)											1
	<i>Circus hircus</i> (ali)											4
	<i>Gavia arctica</i> (kuikka)											1
	<i>Gavia</i> sp. (kuikat)									1	4	
	<i>Gavia</i> sp. (cf. <i>stellata</i>) (kaakkuri ?)											1
	<i>Gavia stellata</i> (kaakkuri)											1
	<i>Lagopus lagopus</i> (riekko)											
	<i>Melanitta fusca</i> (piikkasipi)			1								2
	<i>Mergus albellus</i> (uivelo)									1	5	
	<i>Podiceps</i> sp. (cf. <i>crisegana</i>) (uikut)											1
	<i>Somateria mollissima</i> (haahka)											1
	<i>Tetrao tetrix</i> (teeni)	2										
	<i>Tetrao urogallus</i> (metso)			1								
Tetraonidae (cf. <i>Lagopus</i>) (riekko ?)	1											
MAMMALIA	<i>Alces alces</i> (hirvi)	24	105	30	3	37				9	2	2
	<i>Canis</i> ? (koira/susi)					2	1	1				
	<i>Canis familiaris</i> (kesy koira)						13	25				
	<i>Carnivora</i> (petoeläin)			1				12	1		3	
	<i>Castor fiber</i> (majava)	182	737	271	8	74	1	26	5	6	16	6
	<i>Cervidae</i> cf. <i>Rangifer</i> (peura ?)		2									
	cf. <i>Phocidae</i> (hyökät ?)	17	82	25		18		6				
	cf. <i>Castor</i> (majava ?)			57		3	2	2	1	31		
	<i>Lepus timidus</i> (metsäjänis)	1	1				24	95		1	7	2
	Mammalia (mesom) (keskikok. nisäkkäs)				7	81	21	40	2		12	
	Mammalia (cf. <i>Alces</i>) (hirvi ?)		13					1				
	Mammalia (cf. <i>Lepus</i>) (metsäjänis ?)							21				
	Mammalia (cf. <i>Martes</i>) (näätä ?)							1				
	Mammalia sp. (nisäkkäät)	2	4	33	1	8				2	9	
	<i>Martes martes</i> (näätä)						7					
	Megamammalia (suuret nisäkkäät)											1
	<i>Phocidae</i> sp. (hyökät)		3	113			9	100	79	5		162
	<i>Rangifer tarandus</i> (peura)		1									1
	Ruminantia (märehtijä)			4								
<i>Ursus arctos</i> (karhu)		2										
<i>Vulpes vulpes</i> (kettu)			1		2						1	
TELEOSTEI	Cyprinidae (sätkökalat)		1	2	1	2	10	6		1	9	
	<i>Esox lucius</i> (hauki)	8	40	26	1	28	223	253	5	17	51	25
	<i>Lucioperca lucioperca</i> (kuha)	1										
	<i>Perca fluviatilis</i> (ahven)						9	19				12
	Percidae (ahvenkalat)						1					
Teleostei (luukalat)		30	7	1	30	446	1342	7	13	62	36	

APPENDIX V

Ancient Lake Kolpene in Rovaniemi at the confluence of the rivers Ounasjoki and Kemijoki rivers and above-mentioned sites with Neolithic pottery on its former shores and along the river channel downstream from it.:

SÄR 1: 1) Turpeenniemi, 2) Siikaniemi, 3) Pahtaja, 4) Tapulinpelto, 5) Kotijänkä, 6) Tapparaniemi, 7) Riitakaranta, 8) Jokkavaara

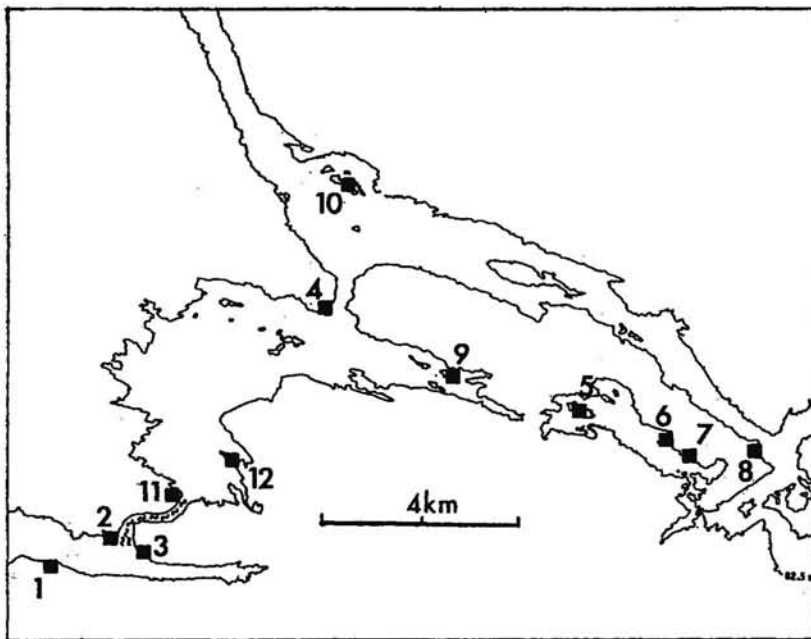
KA II: 9) Kolpene, 10) Piirittävaara

Late Neolithic: 11) Niskanperä, 12) Käräniemi, both with finds of Pöljä Ware, and also Corded Ware from the first-mentioned. This is the northernmost known occurrence of Corded Ware in Finland.

The lake basin formed between 6600 and 6300 PB above the present-day Valajainen rapids (location 11; Torvinen 1999a, 76). The lake basin is drawn according to the 82.5 metre a.s.l. elevation line. This elevation corresponds to the lowest finds of Sär 1 Ware in the basin area. The Ka II and Late Neolithic shorelines are situated lower at approx. 77.5 – 74 metres a.s.l..

The River Ounasjoki flows into the lake from the upper left and the River Kemijoki from the right. The direction of flow is beyond the Valajainen rapids to the lower left towards the sea.

Map by the author, based on Kotivuori 1996, 88



APPENDIX VI

Locations of certain non-Sär 1 sites mentioned in the text:

KAI: 1) Simo, Tainiara, 2) Yli-Ii, Pahkakoski

VA: 3) Ylikiminki, Kuusela

KAI: 4) Överkalix, Lillberget, 5) Tervola, Törmävaara, 6) Yli-Ii, Kierikkikangas ja 7) Kuuselankangas

Map by the author based on NBA/Tuula Piili 1998

