Studia humaniora ouluensia 1

PEOPLE, MATERIAL CULTURE AND ENVIRONMENT IN THE NORTH

Proceedings of the 22nd Nordic Archaeological Conference, University of Oulu, 18-23 August 2004

Edited by

Vesa-Pekka Herva

GUMMERUS KIRJAPAINO OY 2006

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Publishing office and distribution:
Faculty of Humanities
Linnanmaa
P.O. Box 1000
90014 University of Oulu
Finland

ISBN 951-42-8133-0
ISSN 1796-4725

Also available http://herkules.oulu.fi/isbn9514281411/

Typesetting: Antti Krapu
Cover design: Raimo Ahonen

GUMMERUS KIRJAPAINO OY 2006

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Introduction

Vesa-Pekka Herva

The 22nd Nordic Archaeological Conference was held at the University of Oulu, Finland, in 18-23 August 2004, and the present volume publishes 38 papers delivered at the conference. All speakers were not able to contribute to the present volume, but the papers included here do give a representative sample of the over 50 presentations given in 8 separate sessions. While this publication may not capture the full richness of archaeological research in the Nordic Countries, it does perhaps give a glimpse of the issues and approaches that are of interest to the Nordic archaeological community today.

The organizing committee of the conference invited papers on several broad themes, which were chosen so as to link the recent research carried out in the hosting institute, and Finland in general, to what were regarded as wider debates and central issues in present-day Nordic archaeology. Naturally, these themes are also mirrored in the contents and structure of the present volume, which is divided in five sections: ‘Ethnicity, identity and archaeology’, ‘Culture and society’, ‘Houses, settlements and landscape’, ‘Physical anthropology’ and ‘Historical archaeology’. Instead of attempting to sum up all the papers, I shall only briefly reflect on the key topics themselves and explain why they became to be chosen.

The first section maps the relationship between ethnicity, identity and archaeology. The idea of ethnicity was important to the late 19th and early 20th century European archaeology, but it turned into a bad word after the Second World War. Ethnicity was (partly) released from its decades-long banning in the 1990s when ‘archaeologies of identity’ (e.g. Meskell 2001) developed into an important branch of study. The relationship between ethnicity and archaeology is still a potentially controversial issue, just like the relationship between language and archaeology, but both are so important – not only archaeologically but also socially – that archaeologists perhaps cannot choose not to address, discuss and debate them. To what extent molecular biology and other natural scientific approaches can cast light on these questions remains to be seen, but they certainly promise to make an interesting contribution to the current debates (see e.g. Welinder 2003). The papers included in the first section of the present volume approach the questions of identity and the 'origins' from historical and theoretical points of view, as well as through case studies.

The papers comprising the next two sections, 'Culture and society' and 'Houses, settlements and landscapes', were originally delivered in several different sessions. The broad themes articulated in the headings of the two sections are timeless in the sense that they have always been central to archaeology. The papers included here consider manifold topics, but an emphasis on the Stone Age and especially the Neolithic is in evidence. This is not a coincidence, as Neolithization and the Late Neolithic were among the main topics of the conference. In Finland, the archaeology of the Neolithic – conventionally defined in Finland on the basis of the appearance of pottery – experienced a major thrust some fifteen years ago when Stone Age settlements in the form of the clusters of semi-subterranean houses were discovered in different parts of the country. A considerable number of such sites are known today, and some of them have been rather extensively excavated (for an overview, see Pesonen 2002). Larger sites can easily contain remains of several dozens of buildings, and it seems possible that at least some of them represent village-like settlements. In northern Ostrobothnia, these 'villages' are also associated with the large stone-structures called 'Giants' Churches' and exotica, such as amber. Many important questions regarding the 'villages' consisting of semi-subterranean houses remain unanswered – and many equally important questions undoubtedly unasked – but it seems clear that the material points towards the rise of social complexity during the later Stone Age (e.g. Núñez & Okkonen 2005). Therein lies a thematic link to the long-standing concerns of Neolithization not only in Scandinavia but in Europe more generally. Despite certain 'bias' towards the Neolithic, however, the papers included in the two sections in question do address a very wide range of issues from the earliest Mesolithic settlement to the problems of cultural heritage management.

Physical anthropology became an important research topic at the University of Oulu in the mid-1990s when Milton Núñez was appointed the first professor of archaeology. Since the beginning of his professorship, physical anthropology, or bioarchaeology more generally, has been an integral part of the curriculum in archaeology. Given that Prof. Núñez taught courses in physical anthropology in his distinctively enthusiastic manner, and that another specialist in the field, Dr. Markku Niskanen, also became associated with the department at the same time, one is hardly surprised that physical anthropology is an important field of specialization at the University of Oulu today. The first doctoral dissertation was defended in 2005 and more are expected in the future.

Historical archaeology was originally one of the main research interests among the archaeologists at the University of Oulu. After a brief period of decreased attention, historical archaeology was revived again towards the end of the 1990s. This development reflects more general trends in Finland and Europe in general. The strong rise of post-medieval archaeology is perhaps particularly noteworthy and clearly associated with increased theoretical awareness among historical archaeologists; historical archaeology is no longer regarded only as a means of 'filling in the gaps' of documentary sources, but considered to make a significant contribution to the understanding of the emergence of the 'modern' world (see e.g. Johnson 1996). The papers included in this section consider various aspects of historical archaeology from primarily methodological to distinctively interpretive contributions.

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Archaeology, ethnicity and identity

The search for a past: the prehistory of the indigenous Saami in northern coastal Sweden

Noel D. Broadbent

Abstract. *The Saami people are historically known as reindeer herders and hunters inhabiting northwest Russia and northernmost Norway, Sweden and Finland. This characterization has limited our understanding of Saami society for much of prehistory. Saami settlement was both more widespread and their economy more diversified than historical and ethnographic sources imply. There are strong grounds for considering the archaeology of coastal Sweden as relevant to Saami prehistory and for examining the disappearance of the Saami from this region as a consequence of Scandinavian expansion in the Late Iron Age and Medieval periods (AD 800–1300). This period also corresponds in time to the widespread transformation of Saami hunting and fishing society into the culture we recognize today. Recent finds, including a ritual bear grave dating to the Viking Period, provide new evidence of Saami settlement and land use in the Swedish coastal zone. Archaeology can make major contributions to our understanding of the pre-historic, pre-Christian and pre-reindeer-dependent Saami in Sweden.*

Keywords: *Saami, sealing, bear grave, sacrificial circles, place-names*

Introduction

One of the most debated issues in Nordic research is the ‘origin’ of the Saami (Lappish) people, their culture, language and place in prehistory. Speculation about this indigenous culture has been ongoing since the *Phinoi* of Ultima Thule were mentioned by Pytheas in 325 BC, and Tacitus in AD 98 as well as other sources that speak of the *fenni* or *skridfenni*. Based on medieval accounts such as the *History of the Nordic People* by Olaus Magnus in 1555, and with the publication of *Lapponia* by Johannes Schefferus in

1673, Saami territory and economy in Sweden have been largely defined on the basis of reindeer exploitation in Fennoscandia´s interior and mountain regions. This characterization still prevails in Sweden and has been institutionalised by government policy (Lundmark 2002). As pointed out by Bjørnar Olsen (1994), the Saami have been defined by ethnology and history, not prehistory. In spite of new surveys and excavations in northern coastal Sweden during the past two decades, no serious attempts have been made to relate coastal archaeology to Saami prehistory. One reason for this is that historical references to coastal Saami in Sweden have been considered as anecdotal and recent.

A closer look at this issue has revealed that there are references to coastal Saami along the Norrland coast. For instance, Schefferus himself, quoting the Umeå priest Niurenius (1580-1645), wrote that the Saami had formerly had their camps on the Bothnian coast, *but they had been driven away* (Schefferus 1673: 30 with references). In the same region (Umeå), the three first settlers of Holmön Island were the 'Fishing Saami' Hakar, Klemet and Kerstop. Their farm sites are known and believed to date to ca AD 1300. They can very well be descendents of the seal hunters who frequented the adjacent Stora Fjäderägg Island, with huts dating to the Viking Period.

Place-names with the prefix *Lapp*, the East Nordic term for the Saami, have also been virtually ignored by prehistorians in these areas, although these names undoubtedly reflect Saami land use prior to the 13th century and the renaming of the landscape by a Swedish speaking population.

A new project, funded by the U.S. National Science Foundation, is investigating the Bothnian hut complexes, ritual sites and place-names from the perspective of Saami prehistory. The project is based at the Smithsonian Institution. The principal investigator is Professor Noel D. Broadbent. Britta Wennstedt Edvinger is also supported by this grant and is carrying out parallel archaeological studies in Hälsingland, as well as addressing issues regarding Saami archaeology, ethnography and land use. The project extends until 2007.

Project Objectives

The overarching objectives of the coastal Saami project are as follows:

1. Presentation of new material relevant to the prehistory of coastal Sweden with special attention given to Saami identity as manifested by household structures, ritual sites, settlement organization and economy.
2. Use of linguistic, historical and ethnological sources for defining and testing models of settlement territories in the coastal zone.
3. Assessing the interactions of coastal Saami and other groups in terms of material culture, ritual behavior, settlement organization and economy.
4. Comparisons with northern Norway, northern Finland and northwest Russia regarding long term adaptation and change in Saami prehistory.

Results of prior research

The Seal Hunting Cultures Project, undertaken in the late 1980s has set the stage for the present investigation; it involved archaeology, ethnology, history, geography, Scandinavian languages and Saami languages (Broadbent 2000).

The Seal Hunting Cultures Project was initially published in the form of reports from the Center for Arctic Cultural Research (Broadbent 1987a, 1987b; Edlund 1989; Kvist 1988, 1990; Nilsson 1989; Nyström 1988; Wennstedt 1988). The archaeological material has not yet been presented in an integrated way and recent analyses of animal bones as well as new radiocarbon dates have cast entirely new light on the significance of this material in the context of Saami prehistory.

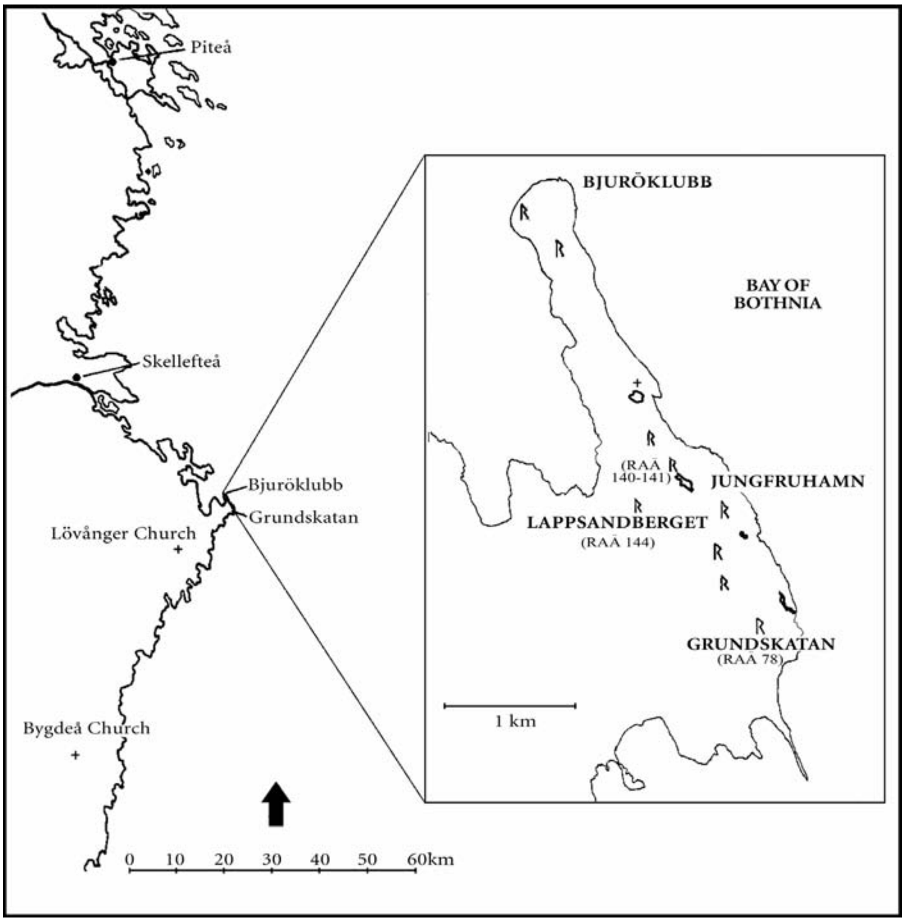

Fig. 1. Map of Västerbotten coast in Northern Sweden and the Bjuröklubb region showing sites mentioned in text.

Sites were investigated at over 15 locales along a ca. 300 km stretch of coast from southern Västerbotten to the Finnish border. These sites were situated on islands and promontories between 20 m and 5 m.a.s.l, shorelines that date from AD 0-1500. Numerous hut complexes were found, mapped and sampled for carbon, bone and macrofossils. In addition, other features such as stone labyrinths, grave and storage cairns, compass roses, net drying complexes, so-called Russian ovens (bread-baking ovens), boat slips, stone enclosures, chapels and harbor basins were investigated (Broadbent 2000). New techniques for dating stone features using lichen growth (lichenometry) and rock weathering were developed and provided a chronology for this coastal material (Broadbent & Bergkvist 1986; Broadbent 1987b; Broadbent & Sjöberg 1990). An area of detailed study is Lövånger Parish and the Bjuröklubb area, Skellefteå Municipality, in Västerbotten (Fig. 1).

Calibrated radiocarbon dates (*Oxcal*) showed that the Bothnian huts belong to the period ca. AD 400 - 1300. Most of the huts date to the Viking Period, AD 800-1100. These huts are found by the hundreds along the north Swedish coast. Osteological analysis demonstrates that they were used by seal hunters who specialized in the taking of ringed seals. Sealing was undertaken on the ice of late winter (February through April), but was also practiced in the fall using nets, a technique going back to the Mesolithic period in this region (Broadbent 1979). The other stone features, dated using a combination of radiocarbon, shoreline displacement and lichenometry, fall into later periods: the labyrinths to c. AD 1400 – 1800; the fishing harbors and chapel sites to AD 1300–1700; the Russian ovens to AD 1400–1700, and the compass roses to AD 1500–1700 (Broadbent 1987).

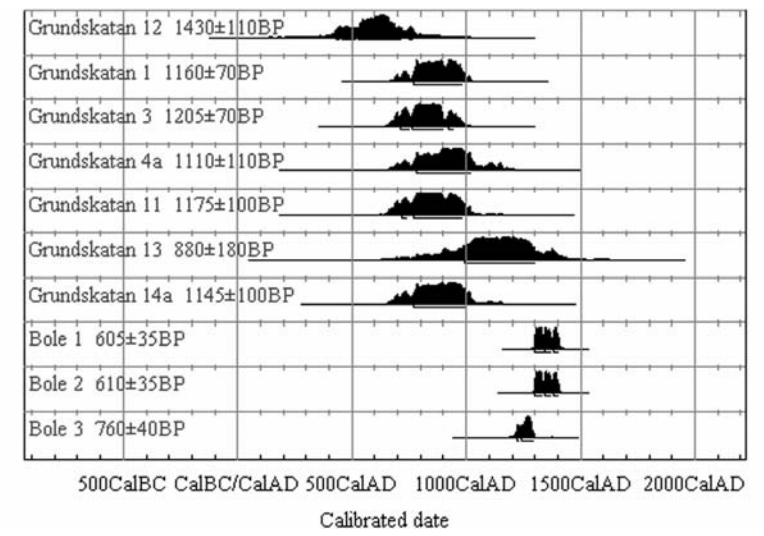

Fig. 2. Radiocarbon dates of sealer's huts at Grundskatan and the farming site at Böle (Rathje 2003) in Lövånger.

These dates suggest that there was a discontinuity between an older hunting and fishing society in the region, as represented by the hut complexes which ceased to be used by ca. AD 1300, and the expansion of a Scandinavian population that brought, among other things, state control of trade, taxation, Christianity and Hanseatic mercantilism. The nature of and reasons for this discontinuity are major research questions in the proposed coastal Saami study.

Stone labyrinths, which also number in the hundreds in the Bothnian region, mark the emergence of these new trends. Lichen chronology shows the labyrinths date to the Medieval Period, especially the 1500s, which was the peak of the herring fisheries. Most are found in connection with fishing harbors and fishing sites on islands (Broadbent & Sjöberg 1990). At the Grundskatan site, which is the largest hut complex in Västerbotten, a labyrinth was built directly on top of a sealer's hut, thus providing stratigraphic evidence of its later date. The hearth in this hut was found directly under the labyrinth stones and radiocarbon dated to AD 870–1230 (Grundskatan 14). The labyrinths, although connected with fishing superstitions, are also Christian symbols. The Bothnian types are based on the Christian cross at their center and have been found in churches where they are known to symbolize pilgrimage.

Scandinavian colonization of the coasts of northern Sweden north of *Helsingland* was almost certainly underway in the 13th century and Uppsala Cathedral claimed ownership of salmon fisheries on the Ume River in 1316. Rathje (2003) has recently obtained several radiocarbon dates from Böle near Lövånger Church. These fireplaces and fields date to the 1200s–1300s. In 1328, however, the coastal areas north of Umeå and Bygdeå were still designated *deserta loca terre nostre helsinge* (the empty tracts north of our land Helsingland). This northern territory did not even have a name and the first parishes (*Skellopt cum capella Lavanger*) date to 1340.

The cultural context of coastal sealing settlements

The initial investigation of the sealing site complexes was done from a straight-forward archaeological perspective. Huts and hearths were mapped and sampled. It was immediately obvious that the huts tended to occur in clusters of three to five. These mostly oval dwellings average 4 x 5 m, and usually have central hearths. The hut clusters suggest collective, village based, activities, comparable to the Saami *siida* organization (cf. Mulk 1994).

Bothnian sealing teams, as known from historical sources from the 1500s, consisted of the adult men from each village (the average village in this region consisted of 5 households). They shared boats, nets and the take. Potential village locations within 3-5 km, i.e. available grazing areas, were associated with nearby sealing sites (Broadbent 1991). I made an argument for a local population involved in the sealing, a people who practised a mixed economy with some livestock keeping (sheep/goats, cattle, reindeer), perhaps some farming, fishing and trading. The non-Scandinavian hunting pattern persisted in the organization of farmsteads in the region in spite of the later dominance of the agrarian economy (Roeck Hansen 2002). These communities could very well have been of Saami origin and thus a good parallel with North Norway (cf. Grydeland 1996), or perhaps a mixed and less well defined ethnic and economically specialized group than known today.

In addition to dwelling huts, there are smaller huts (3 x 3 m) that were probably used for keeping sheep/goats or reindeer. These are well known among the Saami in Sweden (Manker 1944; Stoor 1991). In addition, there are low cobble walls, sometimes attached to dwellings, which could have been livestock enclosures/corrals (Fig. 3).

Rathje (2001) made good arguments for a resident Västerbotten coastal population, including female graves and some pollen evidence of grazing, but makes no mention of the Saami, in spite of the fact this is a region without finds of longhouses or grave mounds and cemeteries, runestones, silver caches, iron ingots, forts or the characteristic Nordic place-names *vin*, *sta* and *hem*. The archaeological material reflects no hierarchy, as manifested by the Iron Age graves and houses of Middle Norrland, and nothing in the folklore to suggest anything of the *Asa* belief system based on Nordic gods and rituals. In other words, while there is evidence that people lived in coastal Västerbotten, most Nordic cultural and religious elements are lacking.

Criticism of this settlement model was earlier made by Lindström and Olofsson (1993), who preferred to connect the coastal sealing to outside incursions by the seal hunters from Österbotten or Middle Norrland. This is actually quite consistent with the church and state view during the 14th century that this northern region was *bona vacantia*. This justification was, in fact, used by the Swedish King Magnus Eriksson to encourage Swedish settlement of the North Bothnian coast following the Treaty with Novgorod in 1323. Hunters, fisherman and herders, especially non-Christian peoples, were considered as nomadic and their lands as not settled.

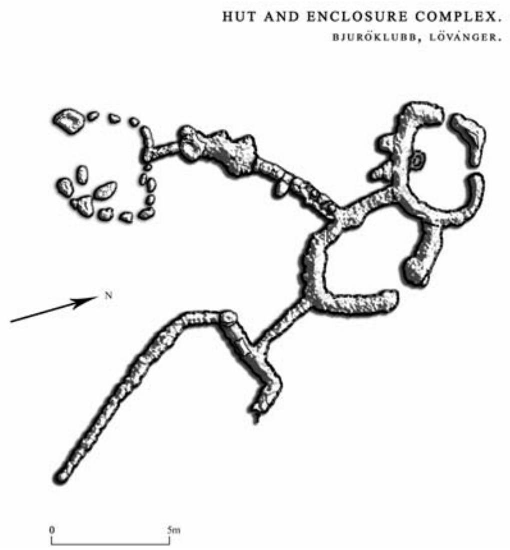

Fig. 3. Huts and enclosures (corrals) near Lappsandberget, Bjurön, in Lövånger.

The bear grave at Grundsgatan

With new resources from the Northern Crossroads Project (Broadbent 2001b), the osteological material from Iron Age sealing sites (hearths) could for the first time be systematically analyzed (Storå 2002). Not surprising, bones of ringed seals dominate along with a few bones from sheep/goats, large ungulates (moose or reindeer), hare, fish and birds.

The most intriguing results were, nevertheless, systematically buried bear bones in a sealer's hut at Grundskatan in Lövånger (Broadbent & Storå 2003). The hearth in this hut had previously been dated to AD 780–1020. The bear bone was subsequently dated and rendered an age of AD 890–1020 (Grundskatan 14). The bones from a single adult bear had been gathered together from all body parts, placed on the floor level in the southeast corner of the hut and covered with a stone cairn. The radiocarbon dates correspond and suggest that the hut was occupied, and subsequently ritually used, by the same group. This find can be classified as a ritual bear grave (Broadbent & Storå 2003). This practice is closely connected with Saami and circumpolar shamanism (Hallowell 1926; Zachrisson & Iregren 1974). Some 13 bear graves have been documented in northern Sweden, one of which, the Karats grave, dates to the same time period as Grundskatan, AD 890–1160 (Mulk & Iregren 1995). Some 30 Saami bear graves have been documented in northern Norway, four from the Viking period, and most from the coastal regions (Myrstad 1996). More detailed documentation of the Grundskatan bear grave was undertaken in 2004. Soil chemistry was performed and supports the bear grave interpretation. Additional radiocarbon samples are being analysed.

This find is of immense significance and demonstrates the association of these hut complexes with the Saami. This further confirms the other similarities, including datings, with the so-called *Stalo* huts in the mountains, which have been established as being Saami seasonal hunting complexes. The bear grave at Grundskatan contextualizes the coastal hut complexes and opens the door to quite new questions regarding the coastal landscape.

Circular sacrificial features

The bear grave might be viewed as an exception regarding the Västerbotten coastal region and it begs the question as to whether or not there is more archaeological evidence of Saami ritual activities in the context of the dwelling sites in the coastal zone.

Inga-Maria Mulk has described the individual Saami site complexes in Sirkas from this same time period as consisting of huts, notably groups of 3 to 7 such huts, storage cairns or pits, and ritual features (Mulk 1994). Additionally, she associates these sites with hunting pit systems. Her model together with that of Manker (1957) provides a framework for comparisons regarding site level features and regional land use.

Recognizing the importance of ritual behavior among the Saami, a whole new class of sites are now being investigated in the project. These so-called circular sacrificial features were first noted in the coastal zone an article by Britta Wennstedt Edvinger (1989). Numerous features at Gagsmark north of Byske were discovered in the survey of the coast in the late 1980s. Circular sacrificial features have been previously documented in the interior of Norrland (Manker 1957) and in northern Norway (Vorren et al. 1993). A feature of this type was more recently documented at Altarberget near Lycksele by Huggert (2000).

In the summer of 2004, we excavated a circular feature of this type on *Lappsandberget* Mountain on Bjurön near Bjuröklubb. It had been previously recorded in the archaeological survey (Raä 144) but did not correspond to anything known from the

Nordic archaeology inventory. As a Saami feature it makes perfect sense, however, situated just below the crest of this mountain and in the vicinity of hut complexes. The place-name *Lappsandberget* suggests this mountain was indeed associated with the Saami. The site lies at ca 25 m.a.s.l. and once had a clear view of the sea. This feature measures ca 3.0 m in diameter and probably once had a small central cairn. It was plundered (the pit form suggests metal shovels) and today there is a depression in its center and scattered stones within the stone circle.

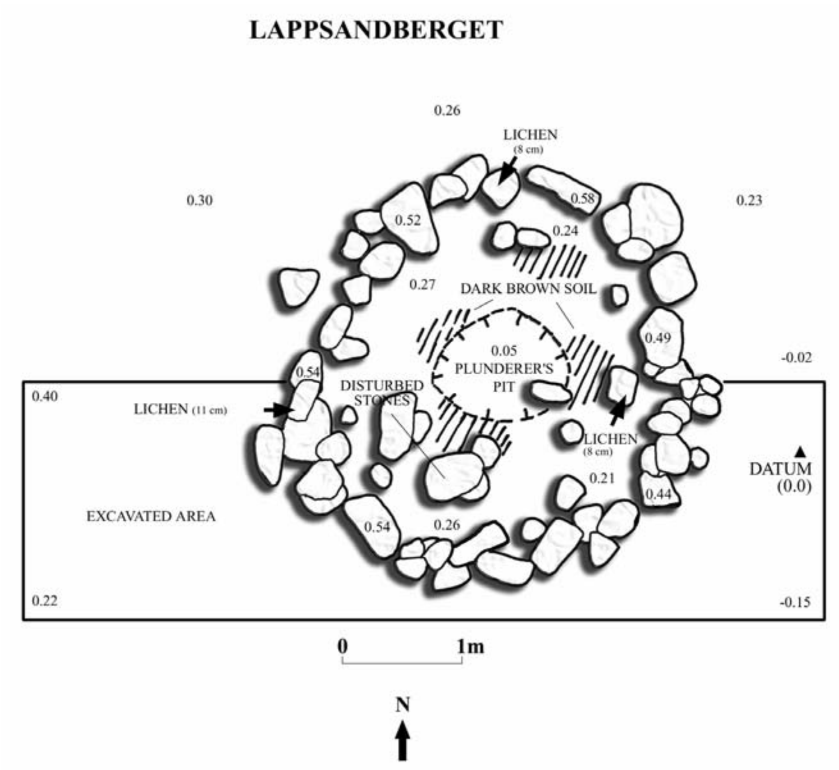

Fig. 4. Map of sacrificial feature on Lappsandberget, Bjurön, in Lövånger.

Soil chemical analysis was carried out within and outside of the circle. High nitrogen content was determined within the circle and corresponds with a dark brown soil that had apparently also been displaced outward by the plunderers. Phosphorus, by contrast, was low. Nitrogen enrichment is associated with muscle tissue, which corresponds well with the interpretation of the site as a place where animals were sacrificed. This result is very encouraging and supports the interpretation of the site type as a sacrificial feature.

Lichens on the stones measuring 8 to 11 cm in diameter give a minimum age of between 530 to 425 years (AD 1474–1579). The name of the site, *Lappsandberget*, is one of a complex of *Lapp* place-names in the Parish (Wennstedt 1988). While the *Lapp* prefix probably dates to after AD 1200 (through the Scandinavian renaming of Saami names), the lowest elevations of *Lapp* place-names in the area (*Lappkåtatjärnen*, *Lappkåta*, *Lappvik*) lie at about 10 m.a.s.l., which dates to AD 800. Thirty-three percent of the 125 names with the prefix *Lapp* in Skellefteå Municipality refer to mountains, hills, peninsulas, islands, cliffs and caves. There are only three names of Saami linguistic origin still left in this coastal area: the names of the two main rivers *Ume* and *Skellefte*, and *Kåddis* outside of Umeå. They are linguistic remnants in an area of almost total Saami name replacement. This did not occur to the same degree in the interior where Saami languages were still spoken.

The overall context of the Lappsandberget sacrificial ring is that it is close to the numerous sealers' huts. In fact, it overlooks the so-called Jungfrugraven, an 18.5 x 14.5 m roughly oval stone enclosure with a central cairn (plundered) above the 10 m.a.s.l. While I have previously considered this as possibly a chapel enclosure this has never been convincing. It is much more similar to Saami sacrificial structures described by Vorren et al. (1993) in Varanger, Norway. The overall site complex on Bjurön (Beaver Island) adds credence to this new interpretation.

Bjurön is paralleled by another hut complex in the region, Stora Fjäderägg Island, some distance off shore and north of Holmön Island. Not only are there numerous huts and cairns dating to the same time period as Grundskatan, there is a complex of 10 ritual structures lying above the 7 m level which would date to AD 1200. One of these features is a wall like circular enclosure with a very distinctive stone, a probably *seite* or sacred stone, in its wall. Plundered metal finds (a silver ring and bells) from the island have direct parallels to finds in the Saami metal sacrificial site of Gråträsk (Serning 1956, 1960).

Fig. 5. Enclosure and *seite* on Stora Fjäderägg Island (Photo: Noel Broadbent).

Artifacts and graves

The distribution of metal artefacts in Upper Norrland from the Late Iron Age corresponds with the waterways and eskers, which reflects both trade routes and settlement areas in the interior and on the coast (Serning 1960). There are some 25 registered metal artefacts from the coastal area under study. Fifty percent of the finds from the Västerbotten coast have direct parallels in the artifacts found at Saami sacrifical sites in Upper Norrland's interior. Twenty-eight percent of the coastal finds come from small cairns with cremated bones and, as such, parallel the so-called *insjögravar* known from southern Lapland and Västerbotten, as well as a more recent find in Norrbotten (Hedman 2003). Zachrisson (1997) argues that the Saami took up cremation burials during the Late Iron Age. The Lövånger area is especially rich in these finds.

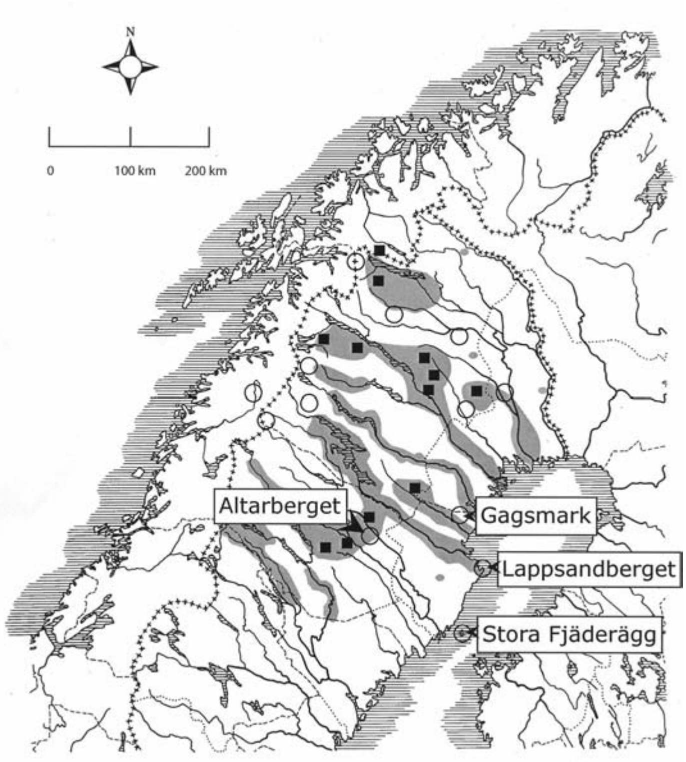

Fig. 6. Map of Upper Norrland showing distributions of Viking Period artifacts (gray), Saami metal sacrificial sites (black squares), and circular ritual features mentioned in text (circiles).

New fieldwork in Hälsingland

Britta Wennstedt Edvinger is developing a parallel study area to Lövånger in coastal Hälsingland, 550 km to the south. This region is only 300 km north of Stockholm. Coastal sites on Hornslandet near Hudiksvall are direct parallels to the hut complexes at Bjuröklubb and Stora Fjäderägg. Remarkably, these sites have already been viewed as being of 'Lappish origin' which is reinforced by the local place-names *Lappmon* and *Lappmoberget* (Westberg 1964). Preliminary fieldwork carried out this fall documented, among other things, several circular features similar to those documented in Upper Norrland. The region will be subject to more intense scrutiny and archaeological investigations in 2005. Dr. Roger Kvist, a Saami historian based at Gävle University College, will be joining the project as well.

Summary and conclusions

Evidence of Saami settlement in the coastal zone comes from a number of sources: oral history, written accounts, place-names, archaeological finds and artifacts, hut complexes, livestock enclosures and storage facilities, radiocarbon dates, osteological material, distinctive ritual features and soil chemistry. This pattern of land use seems to have changed after AD 1300 and is probably connected with the expansion of Swedish agrarian communities, the expansion of the Church, state control of trade and taxation and the expansion of herring fisheries northward. Another factor contributing to the end of subsistence-based sealing communities on the Swedish coast was the onset of the Little Ice Age in the early 1300s. It is likely that worsened ice conditions made the coastal based sealing much more difficult. Hunting statistics show that greater ice cover on the Gulf of Bothnia meant a wider distribution of seals and a reduced harvest. Increased ice cover would have also led to a more southerly distribution of ringed seals. Subsistence sealing was eventually replaced by the more boat- and firearm based sealing which is known as the *fälan*. This type of sealing was primarily based in Österbotten where it could be supported by a more productive agrarian base (Kvist 1988, 1990). Finally, one more negative factor that probably affected the coastal communities was the Black Death which reached Sweden in 1342.

This project is focusing on sites in Västerbotten and Hälsingland, two coastal regions 550 kilometers apart and extending from Upper Norrland to within 300 kilometers of Stockholm. Beyond archaeology itself, the new project has considerable implications regarding the recognition of the Saami as indigenous people and their antiquity, diversity and former territory in Sweden.

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Searching for the Finnish roots – archaeological cultures and ethnic groups in the works of Aspelin and Tallgren

Timo Salminen

Abstract. *The concept of relationships between archaeological cultures and ethnic groups formed a precondition for seeking the roots of the Finnish people starting from the 1860s. However, it was subject to several changes during the next seven decades. This development is examined here with the methods of archaeology, history and cultural semiotics. Finnish archaeological research began in the 1860s. Its cultural duty was to find the roots of the Finnish people. European cultural nationalism was modified to suit the Finnish circumstances. Even though Finnish archaeology largely followed Scandinavian patterns, its emphasis was more ethnographic because of the need to recognize prehistoric peoples from the finds. Archaeological cultures were an established part of J. R. Aspelin's thinking and their relationship to ethnic groups existed as a background construction behind the interpretations. A. M. Tallgren broke the Aspelinian signification system, but did not build a new one instead. He attempted to formulate his views about archaeological groups and their relationship to ethnoses several times especially in the 1920s. Tallgren's thoughts were influenced by archaeology, history and linguistics. The connection between archaeological cultures and ethnic groups, especially in the Ural-Altaic context, was needed for building the Finnish identity in the 19th century. Later, when Finland had gained independence, the need for this was no longer as acute.*

Keywords: *concept of archaeological culture, national romanticism, Aspelinian tradition, Russia*

Aspelin

Below I examine how Finnish archaeologists Johan Reinhold Aspelin (1842–1915) and Aarne Michaël Tallgren (1885–1945) viewed the relationship between archaeological cultures and ethnic groups and expressed it in their works. Romanticism set archaeology the task of searching the roots of existing peoples and also taking part in contemporary disputes and endeavours. In Finland, that meant a special duty to find the Finnish roots and in this way improve the position of Finnish-speaking people both at home and in their relationship to the Russian administration and foreign publicity. Archaeology could serve as the means to discover the forgotten past and culture of the Finns and show that they were as valuable a people as any other in Europe. (Salminen 1993, 1998, 2003 with references.)

When national history developed into national prehistory, European nations were given preconditions to commit themselves to a past they could experience as their own. This kind of approach was utilized on the one hand by peoples who felt that their rights were threatened by larger and more powerful peoples, as was the case for Finland, and on the other hand by those peoples who needed special national integrity against inner dissolution, such as Denmark after the Napoleonic wars. Most archaeologists took for granted the idea that material cultures reflected national differences. (Trigger 1978: 93–5, 1989: 162, 174; Lõugas 1988: 39–40; Díaz-Andreu 1996: esp. 49–54; Hides 1996; Karjahärm & Sirk 1997: 209–14 etc.; Werbart 2002: 15–16, 85 etc.)

Therefore, for Johan Reinhold Aspelin, the first practical duty of archaeology was to find out what kind of artefacts were made by which people. For him, archaeology was prehistoric ethnography. Here he followed the lead of M. A. Castrén. Only later would it be possible to study the development history of different artefact types, but then it would become the most important part of archaeological research. That would make archaeology a fruitful discipline. (Aspelin 1875: 1–3; J. R. Aspelin's letter to Rudolf Virchow, publ. by Andree 1976: 31–2; see also Salminen 1993: 15–17.) In that respect, Aspelin's attitude was very different from that of the Swede Oscar Montelius, who already considered his primary goal to be the definition of laws of development in prehistoric material. Aspelin stood closer to the Dane Sophus Müller who strived for a general understanding of cultures. (Müller 1884: 187–97; Muurimäki 2000: 137–56.)

Aspelin understood an archaeological culture in an established way already in the 1870s. In his material, he separated certain *groups*, as he mostly called them. Undoubtedly Aspelin can be considered as one of the very first to use a concept equivalent to archaeological culture. For instance, we can easily notice that, for Aspelin, the Ural-Altaic Bronze Age culture was one entity, the signs of which were certain forms of antiquities and artefacts. (Aspelin 1875: 65, 78; cf. Trigger 1978: 82–3; 1989: 161–3; Meinander 1981; Díaz-Andreu 1996.)

Aspelin thought that no people can take their entire culture as a loan from other peoples, and even if it were possible, the borrowing people would modify it according to its own tastes. Therefore, national areas acted as a sub-conscious background for all Aspelin's interpretations of archaeological cultures, although he did not always say it explicitly. (Aspelin 1875: 140.)

When Aspelin presumed a close connection between peoples and cultures, he has had to consider that a similar relationship existed between cultures and languages, too.

Aspelin formulated his views at first in his doctoral dissertation, *Suomalais-ugrilaisen muinaistutkinnon alkeita* (Elements of Finno-Ugric Archaeology) in 1875 and, for international audiences, in *Muinaisjäännöksiä Suomen suvun asumus-aloilta – Antiquités du nord finno-ougrien*. In both of them, the material from metal periods was presented in national groups.

The Stone Age in Russia did not belong to the Aspelinian Ural-Altaic cultural sphere. Aspelin emphasized its connection to Western Europe and divided it into several groups. One of them was the western Finnish Stone Age, as Aspelin called it. He divided this further into two parts, one – close to the Germanic Stone Age – in southwestern Finland, and the other in Karelia. Aspelin considered the Karelian Stone Age to be rather close to the Ural-Altaic culture because of the animal figures. One part of the Ural-Altaic culture, for him, was the Arctic Stone Age group. (Aspelin 1875: 17–36, 52, 86, 131, 1877–84: 13–5.)

By connecting the Russian Stone Age to the Germanic areas, Aspelin interpreted it also as Germanic by nationality, although he did regard the ethnic conclusion as unsure for the time being (Aspelin 1875: 36–49, 1877–84: 29–30).

He considered it otherwise impossible to define national groups in Stone Age cultures, because very little research about the forms of stone tools and weapons had been done. He also believed that stone as material determined the tool forms. Later, the ‘flowing material’, bronze, gave the craftsmen freedom to form their products as they wanted. Thus the ‘special consciousness of beauty’ of each people could be freely expressed in bronze artefacts. (Aspelin 1875: 57.)

Aspelin divided the Bronze Age at first into western and eastern parts, and the western part further into several national groups. According to Aspelin, the eastern Bronze Age was more uniform, and he could not be sure from where its origins could be sought. Similar forms did not automatically mean ethnic similarity here, though. Aspelin especially noted the connection between the Scythian Early Iron Age and the Siberian Bronze Age, but he did not specify whether it was due to national kinship or a shared source of culture. (Aspelin 1875: 79–80, 83–6, 125; Trigger 1978: 79–86, 1989: 161–3.)

The Finnish and Baltic Bronze Age was still mostly unknown in Aspelin’s time (Aspelin 1875: 57–65, 1877–84: 91–2).

The Finno-Ugric peoples seemed to have left Siberia for the west, and in Ananino the same Bronze Age people seemed to have learned to use iron. Thus, the introduction of the Iron Age did not mean the introduction of new inhabitants who could have displaced the presumably Finno-Ugric Bronze Age population. (Aspelin 1875: 106–107.)

A decisive proof for the hypothesis that Altaic Bronze Age people had wandered towards the west could be found in the bone culture in the Vjatka government. Aspelin thought that the animal heads used as ornaments continued the same tradition he had already recognized in the Altai. In the same way, the stone artefacts in the forms of different animals found in Olonets belonged to the same tradition and to the same people. The connection was proved also by the bone culture in Finnmark and the bone arrowheads of the Fenni mentioned by Tacitus. The Danish archaeologist J. J. A. Worsaae had come to similar conclusions some years earlier. (Worsaae 1872: 360; Aspelin 1875: 131–5.)

How could the Bronze Age and Early Iron Age culture be connected to the Late Iron Age cultures known from the habitation areas of different Finno-Ugric peoples? Aspelin left this question unanswered. He had to admit that he did not know whether the same culture and population remained in those areas until historic times or not, despite more or less similar forms of artefacts. (Aspelin 1875: 158–9; Shnirelman 1996: 228.)

The question would be crucial for Aspelin's whole theory, because by then, only the Late Iron Age was an established part of the Finno-Ugric cultural sphere and the assumed language-based ethnic groups. No matter how unsure the details of this interpretation were, they did not influence the whole.

Aspelin divided the Late Iron Age into Permian, Cheremissian, Murom-Mordvinian, Meryan, Vepsian, Ingrian, Estonian-Livonian and Finnish groups, in addition to which there was also Åland. The Early Iron Age in Finland had been Scandinavian, Gothic. (Aspelin 1875: 140–366, 1877–84: 123–5, 179–80, 201–3, 223–4, 249–50, 325–7.)

Both in his dissertation and the large atlas, Aspelin did not draw any special conclusions about the Finnish material. However, Aspelin thought that the Scandinavian Iron Age ended in Finland at a specific time, about the year AD 700. For him it was a sign of the Finnish immigration to Finland. (Aspelin 1875: 335–66, 1877–84: 261–262; Fewster 1999: 16.)

Later, in 1885, Aspelin published a popular book about the prehistory of Finland, *Suomen asukkaat pakanuuden aikana* (The Inhabitants of Finland in the Age of Paganism). A couple of details from this book deserve to be discussed briefly here. They explain much about Aspelin's attitude towards physical anthropology, but they have also given reason for misunderstandings.

Aspelin writes that the Lappish culture remained in the Stone Age phase of development until historic times. This point of view has been interpreted as a racist tone in the Aspelinian theory of settlement. Also the fact that Aspelin left the craniological material from Ladoga Canal unused has been explained by saying that he ignored it because it did not ethnically fit his general theory of colonization of Finland. Actually, Aspelin was never interested in physical anthropology and his interpretations were based almost exclusively on archaeological material. Sometimes he might take linguistic evidence into account. The Aspelinian framework consisted of a people or nation (German *Volk*) and its character and idea of progress. Race has no part in it, so that his interpretations cannot be viewed through the dichotomy of racist–anti-racist. (Aspelin 1885; Isaksson 2001: 217–18.)

Tallgren

When A. M. Tallgren began to re-evaluate the Aspelinian results around 1908, there was much more background information available than there had been 40 years earlier. Especially Sophus Müller and some Russian scholars had investigated the Bronze Age in Russia and had regarded the European and Siberian Bronze Ages as independent cultural groups already in the 1880s.

However, the way in which Tallgren named cultural areas shows his close relations with the Aspelinian tradition. Especially the general concept of the 'so-called Ural-Altaic area' testifies to this. This concept was needed in order to maintain the whole of the area signified as Finnish property in spite of new interpretations. This large area consisted of several smaller entities. Unlike Aspelin, Tallgren used a concept like 'national forms' mostly just to separate geographically limited cultural areas – without any connection to ethnic identity. (Tallgren 1911: V, 1–2, 10–12, 15, 122, 1926, 1927b: 3–4.)

Tallgren denied a fixed connection between material cultures and ethnic groups. Despite this, he considered that ethnic conclusions could be made about material culture. For example, he supposed that the Bronze Age population in Eastern Russia could have been Finno-Ugric. At least Finno-Ugrians were bearers of East Russian Bronze Age culture, because finds from the Ananino period formed a precondition for the later 'certainly Finno-Ugric' Permian bone and iron culture. (Tallgren 1911: 217–8, 1915: 218, 1913.)

Tallgren considered that a future goal for archaeology would be the ability to shed light on such questions as the original home of the Finns, although, in his opinion, there were no certain features of material culture that could directly determine nationality, as Aspelin had thought. (Tallgren 1919: esp. 103, 181–4, 1923: 335; see discussion in Ligi 1994a: 114, 1994b; Tõnisson 1994: 808–9.)

All this describes Tallgren's early works, before 1920. Actually, Tallgren did not formulate his theoretical ideas explicitly before the 1930s, that is, before his active career as an archaeologist was almost over (Tallgren 1934, 1936, 1937; Richthofen 1938; see also Tallgren 1935: 233–4, 1939, 1925: 125). Tallgren's thoughts developed especially in the 1920s. Though he had denied the binding connection between archaeological cultures and ethnic groups, at the beginning of that decade he still often expressed the thought that cultural provinces were also national areas. (Tallgren 1921a: 65, 1919: 103; later developments, Tallgren 1921b, 1923: 132–3, 138, 1924, 1925, 1927a.)

Of the other Finnish archaeologists contemporary to Tallgren, especially Julius Ailio, ethnic problems were even more important than for Tallgren. As did Aspelin in his time, Ailio also thought that archaeology should seek answers to questions like the original homes of Indo-Germans and Finno-Ugrians. Unlike Aspelin, Ailio considered analysis to be archaeology's primary task from the very beginning, however. Later it would be possible to progress to larger questions. This is what also Oscar Montelius in Sweden had thought. (Ailio 1922: 3–4; Salminen 1993: 25–7; cf. Fewster 1999: 17–18.) Ailio was clearly more a descendant of national romanticism than has been thought earlier.

Although the 1920s and 1930s were a time of strong national ideologies in Finland, the development of archaeology was largely even the opposite. The increasing number of archaeologists meant increasingly different opinions and attitudes. Already from the 1890s, Finnish archaeology was divided into national and international branches. National romanticism and the ethnic paradigm had given Finns a prehistory, after which new problems had emerged. Simultaneously, earlier ideas about the prehistory of the Finnish tribe had to be re-evaluated. Because of the new responsibilities that he had appointed the Finnish archaeological research in the east and because of his political and social thinking, Tallgren questioned the national romantic connection between archaeological cultures and ethnic groups. Also, the political use of ethnic archaeology in Germany and the Soviet Union made the old paradigm less and less acceptable for Tallgren. At home, archaeology was set new tasks in building the society of a new republic. The Aspelinian tradition was so strong, however, that it took a long time before any final conclusions were reached.

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Saami archaeology in Sweden and Swedish archaeology in Sápmi: boundaries and networks in archaeological research

Carl-Gösta Ojala

Abstract. *In this paper, questions about how Saami archaeology has been treated in archaeological research in Sweden, and how archaeologists have related to issues of ethnic identities are discussed. The importance of looking at 'ethnicity' in its larger contexts, and to discuss the relationships between ethnic, national and geographical concepts used in archaeological research is stressed. In the paper, a relational or network approach to ethnicity is suggested, as a way of avoiding homogeneous and essentialist understandings of people in prehistory. In this perspective, ethnicity is seen as one set of relationships among many others. Managing identity networks involves both inclusion and exclusion. What is inside and what is outside the networks of Swedish archaeology?*

Keywords: *Saami, Sweden, cultural heritage management, ethnicity, networks*

One-entities and black-boxes – archaeology and ethnicity

Ethnicity is a very controversial concept in archaeology, and it is often considered to be one of the most difficult concepts in the social sciences to encircle and define. Ethnicity is a controversial concept because it is part of a long tradition of an external categorizing and arranging of people in the present and the past, within evolutionary, ethnocentric, colonialist and racist frameworks of interpretation. It is also controversial because it is so intimately connected with political issues and agendas in the present, including nationalism, nationalism of previously colonized people, claims for indigenous and minority rights and self-determination, and of course because of the ethnic conflicts, ethnic cleansing and genocides that have taken place in the 1990s and that have drowned the word ‘ethnic’ in blood.

There is a sort of ‘one-entity’ syndrome in archaeological research, an urge for a single basic unit for categorizing people, a unit in which language, cultural identity, material culture and genetics are fused. This syndrome could be illustrated by the ‘pool hall’ metaphor used by Eric Wolf in his book *Europe and the People Without History*:

> By turning names into things we create false models of reality. By endowing nations, societies or cultures with the qualities of internally homogeneous and externally distinctive and bounded objects, we create a model of the world as a global pool hall in which the entities spin off each other like so many hard and round billiard balls (Wolf 1997 [1982]: 6).

Wolf continues: ‘Thus it becomes easy to sort the world into differently colored balls, to declare that “East is East, and West is West, and never the twain shall meet”’ (Wolf 1997: 6f.). The pool hall is symptomatic of the traditional culture-historical view on ethnos and people in anthropology and archaeology.

Ethnicity as an analytical concept and as a mode of collective identification has been much discussed in anthropology and archaeology (e.g. Banks 1996; Jones 1997; Eriksen 2002), and related topics such as nationalism have also been discussed in connection to archaeological practice (e.g. Díaz-Andreu & Champion 1995; Kohl & Fawcett 1995). Still, ethnic, national and geographical concepts are often used as black-boxes in archaeology, as seemingly neutral empty containers that can be used for storing more elaborate interpretations about people and their ways of life. The structure of the containers, the links and connections behind the concepts often remain in the dark.

In the recent discussions on ethnicity, at least in Scandinavia and Britain, the focus has been on interaction and on self-definition of ethnic identity, as a distinction made by groups of people between ‘us’ and ‘them’. A definition which is representative of much of recent approaches to ethnicity, is one proposed by Siân Jones in her book from 1997, *The Archaeology of Ethnicity*. Ethnic identity is defined by Jones as ‘that aspect of a person’s self-conceptualization which results from identification with a broader group in opposition to others on the basis of perceived cultural differentiation and/or common descent’ (Jones 1997: xiii). And an ethnic group is described as ‘any group of people who set themselves apart and/or are set apart by others with whom they interact, or co-exist, on the basis of their perceptions of cultural differentiation and/or common descent’ (Jones 1997: xiii).

However, there have been, and still are, varying views on the formation of ethnic groups and the character of ethnicity. Rather simplified, many writers distinguish between a primordial and an instrumentalist approach to ethnicity, which are often presented as opposites. Of course, there are many different positions held within these two fields and in-between.

In the primordial perspective (Jones 1997: 65ff.), ethnic attachments are seen as essential, natural and universal, as an important part of ‘human nature’. Ethnic identities are passed on through processes of socialization to new generations. There is often an emphasis on a strong emotional content of ethnic attachment. Ethnicity is seen as something stable and durable, and is some times connected to biology.

On the other side, the instrumentalist perspective (Jones 1997: 72ff.; Eriksen 2002: 53ff.) is a constructivist perspective. Ethnic identity is considered to be an outcome of other social processes. Ethnicity is seen as dynamic and situational. The emphasis is put on the role of ethnicity in inter-group relations, on ethnicity as social organization; ethnic attachments arise in specific contexts and for specific reasons. In this perspective ethnic groups are often seen as interest groups, and ethnicity as an instrument for gaining access to economic or political resources.

The question is if ethnicity might be a useful concept in archaeology, if it is possible to trace prehistoric ethnic groups, and if it is then how. There have been quite a lot of recent discussions about the problems of archaeology and ethnicity among Swedish archaeologists (eg. Bågenholm 1996; Johnsen & Welinder 1998; Werbart 2002; Siapkas 2003; Welinder 2003). To apply theoretical concepts that have been constructed based on studies of living societies in the modern world onto imagined prehistoric contexts poses special challenges, and requires some rethinking and reconstruction of the original concepts and their meanings.

In archaeological analyses, it has often been claimed that in certain situations, such as situations of social or economic stress facing other groups, manifestations of ethnicity become stronger and the signaling of ethnic identity might become visible in the material culture pattern (cf. Hodder 1979). Others suggest that there is no way of knowing how ethnicity would have functioned in prehistoric societies; some argue that it is impossible for archaeologists to reach prehistoric peoples' self-definitions and self-understandings, and have expressed serious doubts about the possibilities of tracing ethnic groups in the past. Some archaeologists, for instance Bozena Werbart (Werbart 2002: 29ff.), have suggested that archaeologists should talk about cultural identity instead of ethnicity. But the important thing is of course how the concept is used – sometimes archaeologists use 'cultural identity' as a 'one-entity' and the resulting representation of the past is the same as before.

Thomas Hylland Eriksen (e.g. Eriksen 1996), among others, have discussed the importance of the past, or *a* past, in creating myths about group identity, and the human need for myths about the world and their place in it. Archaeology serves as a producer of raw material for such myths, and not only for academic narratives about the past.

Saami as the 'eternal other' in Swedish archaeology

The concepts of a 'Saami prehistory' and a 'Saami archaeology' have been and still are considered very controversial within the Swedish archaeology community (cf. Zachrisson 1994, 2004). Ethnicity is often used only concerning minority groups and not the majority group. It is obvious that the Saami in Sweden are seen as 'ethnic', while the Swedes are considered to be 'non-ethnic', just normal Swedes. Often ethnicity is said to be irrelevant to archaeological studies – but as has been discussed for instance in regard to gender, such views tend to be held by people who are in privileged positions and do not need to confront the structures of gender and/or ethnicity.

In the history of archaeology, the Saami have constantly been conceptualized as the 'Others', in Sweden in opposition to the idea of a 'Swedish' prehistory. The Saami became a people without history, an ethnographic object, static and unchangeable, without a potential for development, whereas the Scandinavian peoples were considered to be people with history, dynamic and creative (Schanche & Olsen 1985; Olsen 1986, 1998). From having been seen, in the beginning of the 19th century, as the indigenous population of the greater part or of the whole of Scandinavia, the Saami became, from the middle of the 19th century, perceived as a ‘foreign’ people that had immigrated into Scandinavia from the East (Storli 1993; Zachrisson 1997: 16ff.).

It became important to separate between the Swedish or Norwegian prehistory and that of the ‘Others’, which was considered to have made no significant contribution to Scandinavian history. In this separation of the national from the other, dichotomies were applied, such as between Arctic Stone Age and Nordic Stone Age (cf. Storli 1993; Furset 1994), Arctic/Eastern Bronze Age and Nordic Bronze Age, hunters versus agriculturalists, inland and coast in northern Sweden (cf. Bolin 1999), defining two ‘one-entities’ or two ‘billiard balls’ that ‘shall never meet’. In Swedish national history and prehistory the Saami were uninteresting and were kept outside in the cold.

In the 1980s there was a shift from questions about when and from where the Saami immigrated, to questions about how, when and why Saami ethnicity developed (cf. Zachrisson 1997: 15ff.; Schanche 2000: 84ff.). There was a change in the understanding of the concept of ethnicity, based on Barth’s discussion on ethnic groups and boundaries (Barth 1969), which was discussed firstly by Norwegian archaeologists such as Knut Odner (Odner 1983, 1985) and Bjørnar Olsen (Olsen 1985) and others. This shift in views on Saami ethnicity and history took place in the context of an ‘ethnic revival’ among Saami groups, in which the Alta conflict in northern Norway played an important part.

In recent years, an especially controversial field of study has been the South Saami area in central Sweden, in the provinces of Jämtland, Härjedalen and Dalarna, closer to the Swedish ‘heartland’ than northern Sápmi and therefore closer to the border between what is considered ‘Swedish’ and what is ‘Saami’, an area studied primarily by Inger Zachrisson (Zachrisson 1997, 2004), but also discussed by for instance Neil Price (Price 2000, 2002: 235ff.).

Whereas the history of Saami groups in the Iron Age is generally accepted in the northern areas of Sápmi, the presence of Saami populations in the southern part of Sápmi in the Iron Age and Early Middle Ages has been contested. Some of the controversy involves the so-called ‘insjögravar’, lake graves from the Iron Age, and the Viking Age and Early Medieval settlement site and burial site of Vivallen in Härjedalen (Zachrisson 1997; 2004; cf. also the discussion in the journal *Bebyggelsehistorisk tidskrift* 1987: Baudou 1987; Zachrisson 1987).

In 1990, several hundred corporate and private landowners in Härjedalen sued five Saami villages, arguing that the Saami did not posses traditional rights to reindeer grazing in large areas of the province of Härjedalen, while the Saami groups claimed grazing rights since time immemorial. During the court proceedings, archaeologists appeared as expert witnesses for both sides with archaeological arguments. The landowners won in the District Court in 1996 and later in the Court of Appeal in 2002, and recently the Supreme Court decided not to try the appeal by the Saami villages. The Saami groups are forced to define themselves and their presence in history, but not the Swedish groups. The attempts by Saami groups to assert their cultural heritage and make visible their history are often termed as a 'misuse' of archaeology – the Saami are seen as interest groups, using ethnicity and the past as instruments for economic gains, for instance in the court case. However, the landowners' actions are generally not seen in such a perspective. In this case archaeological discussions about prehistory were brought into legal proceedings concerning land rights; it is an example of how the archaeological past(s) can be used in present-day conflicts.

Challenging Swedish cultural heritage management

There are many black-boxed representations in cultural heritage management in Sweden that need to be questioned and that have been challenged by Saami activists in the last decades, such as the idea of a neutral cultural heritage, and the image of Sweden as mono-ethnic in history and prehistory, along with the image of the Saami as a homogeneous, traditional, unchanged, exotic 'primitive remnant or relic of the past' – which has often been the role assigned to the Saami in Swedish cultural heritage scenarios and in particular in popular and touristic representations (cf. Mulk & Bayliss-Smith 1999; Olsen 2003). For instance, in the popular conceptualization of the Saami, traditional reindeer herding is often viewed as the most important expression of a Saami identity, although only a small minority of the Saami are involved in reindeer herding.

In recent years, demands have been raised for more self-determination and control over cultural heritage issues, by institutions based in the local Saami communities, as has been the case in Norway (cf. Skandfer 2001). Claims, presented for instance at the conference "Who owns the cultural heritage?" at the "Ájtte – Swedish Mountain and Saami Museum" in Jokkmokk in 2000 (Duoddaris 2002), includes repatriation of cultural objects, especially sacred objects such as Saami drums, to Saami communities and institutions, and also in some instances reburial of human remains.

These issues are part of a larger global movement of indigenous populations trying to recover their history and their cultural pride. (There is a rather large body of international literature discussing issues of repatriation, reburial and cultural rights of indigenous populations, mostly concentrating on North America and Australia, e.g. Layton 1989; Swidler et al. 1997; Dongoske et al. 2000). These questions have not been much discussed within Swedish archaeology, although a discussion has started with for instance "the Swedish Archaeological Society's Principles for Good Archaeological Practice" (Broadbent 2004; cf. also Price 2004). It is clear that the Saami claims have challenged and started to open-up some of the black-boxed representations of cultural heritage in Sweden, and that a further discussion about cultural properties and the responsibilities of various national, regional and local cultural heritage institutions should follow.

In the process of rethinking, I believe that it is important to resist the mystification of Saami identity and avoid essentialized understandings of Saami culture; the meanings of being e.g. 'Saami', 'Tornedal Finnish' or 'Swedish' are renegotiated and transformed in changing situations, and have all changed over time. Still, it so remains that the normal – Swedish prehistory – need not be explained, while the not normal – Saami prehistory – constantly must be argued for and defended.

A relational (network) approach to ethnicity?

Here, I would like to express some of my own ideas about ethnicity and very briefly outline what I have called a relational or network approach to ethnicity. These are preliminary thoughts that I hope to develop further in future works. I believe that ethnicity could be described as one way of connecting to others, not as a primordial attachment, but as one set of relationships among many others, which in certain situations becomes more important and is objectified as ethnic essences and differences.

Formation of networks of ethnicity involves both inclusion and exclusion, that is both bonding within the group and exclusion of others. Therefore, the nature of the boundaries of the networks becomes important, what/who is inside and what/who is outside and what/who may cross the boundaries. The representations of ethnicity or ethnic groups are formed within, and at the same time help to shape, relations of power. Representations of ethnicity may be stable or unstable, and may be contested within the network. For instance, ideas about the ethnic representations within an ethnic group might not be shared by all its members.

The sets of relationships are not static, so in the tracing of the networks it is central to emphasize transformations, that the relationships may change over time and in different circumstances, and translations, that the relationships may be understood and performed differently by various individuals.

Networks of ethnicity draw on other networks, such as for instance cultural traditions, language or myths about the past – they are not built out of nothing. Ethnic processes and ethnic representations are related to other forms of identities and modes of difference, such as gender, age, class, religion and so on. Networks of ethnicity involve not necessarily only people, but also for instance material culture, places and landscapes, ancestors and animals. The past is often important, as a resource and a structure, in the creation and re-creation of myths about group identity. But the outcome of the network, and the way that these different sets of relationships will overlap, cannot be determined before-hand. The question of how much importance to assign to ethnic groups or ethnic processes in relation to other identity formations can of course not be answered in any general way, but must be dependent on the specific situation, the questions asked, and the aims and ambitions of the inquiry.

If such an approach were applied in archaeology, the emphasis would be on ethnic processes instead of on the delimiting and defining of ethnic groups, on intersecting and hybrid networks and boundaries instead of on entities. The archaeologist, who is tracing the connections, is him- or herself part of the network – the archaeologist’s interests and values, social and institutional setting and world-views of course influence the way the networks are traced and followed.

Maybe a network perspective could be used in a discussion on complex and dynamic identities, at the same time as a way of following the archaeologists at work, connecting and un-connecting (including and excluding) across space and time, and as a way of discussing how prehistoric sites and finds are used in various social, political and economic contexts in today’s society. Perhaps such a perspective could facilitate the understanding of different configurations of reality, different and changing relationships between humans, animals, things and landscapes – avoiding some of the traditional dichotomies such as between nature-culture, human-nonhuman and local-global (cf. discussions within the so-called Actor-Network Theory, e.g. Murdoch 1997; Latour 1996, 1999).

Anyway, I believe that focusing on the diversity and variation in prehistory would make it more difficult to turn to the past for simple opportune truths that can be used for legitimizing domination and oppression. But an acceptance of variation in the past perhaps requires also an acceptance of diversity in the present, a recognition that there are many voices and different ways of relating to the past.

Conclusion

Issues concerning ethnicity, identity and classification have been discussed quite much in archaeology during the last two decades – some may argue that it has been discussed enough, or even beyond enough, but I believe that these are fundamental questions touching upon the very core of archaeological theory and practice, questions that archaeologists constantly must confront – so in my opinion these issues really should be discussed not less, but more.

In this paper I have suggested the possibility of using ethnicity in a relational, network perspective, avoiding the use of homogeneous 'one-entities' and essentialist 'black-boxes' when discussing people in prehistory. In the specific case discussed here, I believe that a good start would be to stop treating what is Swedish and what is Saami as taken for granted black-boxes or separate one-entities and instead see these spheres as sets of relationships, interwoven into each other and into many other networks stretching over time and space. One promising example could be the recent discussions on the South Saami area, where the relationships between 'Saami' and 'Nordic' in the Iron Age and Early Middle Ages have been reinterpreted and the strict ethnic boundaries of these spheres have been questioned (cf. Price 2000, 2002).

There is a need for a further discussion on the regional imbalances of archaeological research in Sweden, as well as on the relationship between professional archaeologists and minority groups and local populations – in short, a critical discussion about the boundaries and networks of archaeology (cf. Broadbent 2001). Where are the arenas and the spaces for discussions and performances of Saami history and prehistory? Who have access to and shape these arenas? What should be the roles of Saami museums (cf. Olsen 2000)?

Because of the historical circumstances and the ways that 'Swedish' and 'Saami' have been treated and ranked in the writing of history and prehistory, I believe that we as archaeologists should actively work for an archaeology that is open for memories and experiences of the past that which were earlier kept outside, silenced and made invisible. This is a challenge and a great possibility.

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Sámi spoons as artefacts of ethnicity: archaeological reflections on an ethnographic artefact group

Visa Immonen

Abstract. *The concept of ethnicity has been a central concern in the study of Sámi spoons. How is ethnicity presented in research and how has it been inferred from the artefacts themselves? Which characteristics enable scholars to categorize a spoon as a Sámi spoon? Could ethnicity be conceptualized in terms of post-colonial theory and the concept of hybrid, and how might Sámi spoons be seen in that context? This case study uses an archaeological approach to the Sámi spoons in the National Museum of Finland and interprets them as artefacts in which and through which ethnicity has been historically created.*

Keywords*: Sámi spoons, ethnicity, historical archaeology, hybrid, silver*

Introduction

Since priests and scholars like Johannes Schefferus, Samuel Rheen and Knud Leem introduced Sámi spoons into the academic discourse in the 17th and 18th centuries, spoons have remained a part of the descriptions and analyses of the cultural history and everyday life of the Sámi people. In contemporary culture, Sámi antler spoons are considered to have a distinctive ethnic appearance. They are seen as type fossils of indigenous Sámi ethnicity, and their tradition continues in the contemporary versions produced by Sámi artisans and artists. At the same time, scholars have traced the form of the Sámi spoons to the medieval Nordic metal spoons and their ornamentation to Scandinavian Viking or Karelian Iron Age traditions. Moreover, the use of antler spoons was not confined to the Sámi in 16th and 17th-century Norway, but it was also common in non-Sámi populations living among or in the vicinity of the indigenous communities

(Skandfer 1997: 96–107). Also the makers of Sámi silver spoons have been identified as urban, non-Sámi goldsmiths. The ethnic characterisation and origins of the Sámi spoons thus seem to contradict each other.

In this paper, I examine those characteristics which constitute the ethnicity in Sámi spoons, or allow them to be called ethnic, taking a closer look at the antler and silver spoons deposited in the historical and ethnographic collections of the National Museum of Finland in Helsinki. In collecting the material, I have followed a fairly loose definition of Sámi spoons as spoons found or produced north of Kemi. Hence I have studied 102 spoons, one of which is made of tin and one of copper, five of wood, 16 of silver and the remaining 79 of antler or bone. I will attempt to place them in the continuum of Sámi spoon tradition and build a wider historical context for understanding their categorization as ethnic markers with the aid of post-colonial theory and its reinterpreted concepts of culture and ethnicity.

Origins of the Sámi antler spoon

The oldest surviving Sámi spoons are made of antler. Their accurate dating, however, is a complex issue and depends on how the authentic Sámi antler spoon is defined. While the oldest examples are usually dated to the late medieval period, the golden age of antler spoons is thought to have been between the late 17th and 19th centuries (Bertelsen 1989: 248–50). The search for the origins of the Sámi antler spoons, whether in terms of shape or ornamentation, has produced complicated and somewhat ambiguous results. Phebe Fjellström (1952) has divided the ornamentation of Sámi antler artefacts into two main regional styles, southern and northern. The southern region comprises the southern and central areas of Scandinavian Lapland. Here ornamentation is characterised by densely interlaced ribbon ornament and non-figurative geometric motifs which cover the artefacts' surface almost entirely. The origins of this southern style are in Viking and medieval Scandinavian art. Especially the interlaced ribbon ornament has been associated with the Viking Age antler spoons found in Birka and Hedeby, and the medieval spoons of Bergen (Hirviluoto 1990).

The northern style is found in Finnish Lapland as well as the northernmost areas of Scandinavian and Russian Lapland. The style is, in general terms, more loosely composed than the southern one. The motifs which appear most often are floral ornaments and images of reindeer. Undecorated and decorated areas as well as figurative and non-figurative motifs vary on the artefacts' surface. The origins of the northern style have been traced to medieval Karelian metal artefacts (Fjellström 1986: 456).

Another typical characteristic of the Sámi ornamentation in spoons, both in the northern and southern styles, is the use of perforated decorations carved through the handle. These perforations usually have the shape of a triangle or a heart. Parallels can be found in early Iron Age Permian and Russian metal working (Zachrisson 1984: 108–9). In addition to perforated ornaments, line-decorations and knife points following the contours of the artefact are common. Although this manner of decoration may be considered very generic in nature, it has been pointed out that the local Sámi artefacts of the early Iron Age have similar line-decorations as later Sámi antler spoons. The contours of spoons could also be decorated with picots or protrusions projecting from the main body and pierced or marked with a knife point. Often pendants or simple hoops were attached to these picots (Holmqvist 1934: 268–71). Similar attachments are known from Nordic medieval metal spoons, but the date of their adoption to the Sámi spoons is unknown, and the motif may be older in Sámi art than the medieval Scandinavian parallels (Fjellström 1962: 195–206).

As with the ornamentation, the shape of Sámi spoons seems to point to diverse origins. Neither the relatively short handle nor the pear-shaped bowl appear in Nordic Viking Age or medieval bone spoons (Hirviluoto 1990), but instead, they have parallels in the Gothic and Renaissance metal spoons of the 15th and 16th centuries (Fagerström 1983: 41–4). These metal spoons have both drop or pear-shaped bowls and short handles (Skandfer 1997: 9). To complicate the matter, it has also been suggested that the pear-shaped bowl may simply result from the production process of antler spoons (Fjellström 1986: 460). The influence of the Renaissance metal spoons was not limited to the shape of the bowl and the length of the handle. The crown knops of late medieval and Renaissance silver spoons were also imitated in antler spoons, but simple copying of silver forms to antler is impossible due to differences in the material, and new practices had to be devised for antler spoons (Fagerström 2000: 31). In antler spoons, the central petal of the three-petalled lily knop appearing in Renaissance spoons was represented on the front and the other two petals in profile (Klein 1923). The conical form of crown knops was transformed into a flat triangle and attached hoops were moved from the knop to handle picots. Also the ball knop was adopted, but as a circular disc. The most prominent new feature was the spiral handle used especially in northern German spoons, but in many cases, the twisting could be reproduced only on the upper surface of the antler handle.

Silver spoons

The use of Sámi silver spoons is a younger phenomenon than the production of antler spoons. The oldest known silver spoon from the area of Sámi settlement has been dated to the 16th century (Fjellström 1962). Fjellström has identified two Sámi silver spoon periods. The spoons of the earlier period are stylistically identical with Renaissance spoons from southern Scandinavia and have long, twisted handles and ball knops. The closest parallels for the spoon type are found in northern German silver spoons.

The Sámi did not produce silver artefacts themselves but purchased them from merchants who imported silver artefacts from the south, or from urban goldsmiths working in northern towns. Until the end of the 17th century, the most important centre of silver work in northern Scandinavia was Bergen with its German merchants and craftsmen (Fjellström 1962: 11–12, 179–83; Itkonen 1948: 198, 211, 532). After the turn of the 17th century, Swedish silver work became dominant in northern Fennoscandia. Due to these southern origins, it is understandable that the oldest silver artefacts found in northern Scandinavia show close affinities with medieval and Renaissance silver artefacts from Central Europe.

In Lapland, the quantity and quality of silver artefacts increased greatly during the 16th and 17th centuries. The development was due to an economic boom in the northern areas, when the amassed capital was invested in silver artefacts (Fjellström 1962: 243–

92). As a consequence of this situation, a new style in Sámi silver production developed, and Fjellström's second period of silver spoons began. However, the development of the new style was gradual. Fjellström dates its beginnings to the late 17th and early 18th centuries, although the oldest examples of the new Sámi silver spoons are dated by their hallmarks to the mid-18th century, and the spoons of the new type did not become common before the 19th century. The new spoons combined features of Renaissance spoons and Sámi antler spoons in an unprecedented way. Features typical of antler spoons such as interlaced ribbon ornament and the flat handle with picots and pendants were now applied to silver (Holmqvist 1934: 268). Curiously some features transported earlier from Renaissance silver to antler spoons such as flattened twisted handles or the ball knop were transferred back to silver spoons in the style in which they were executed on antler (Klein 1923: 82–8).

The new style appeared as silversmiths made silver spoons following instructions given by Sámi consumers. The Finnmark Sámi are known to have sent antler spoons to goldsmiths as models for similar spoons in silver (Klein 1923: 71; Itkonen 1948: 198, 211, 532). Moreover, there are written records from the 18th century onwards of Tornio burghers acting as intermediaries between Sámi consumers and the silversmiths of the town. This arrangement was long-standing, and silver spoons were continually ordered and bought from towns like Oulu and Tornio, and the towns of northern Norway.

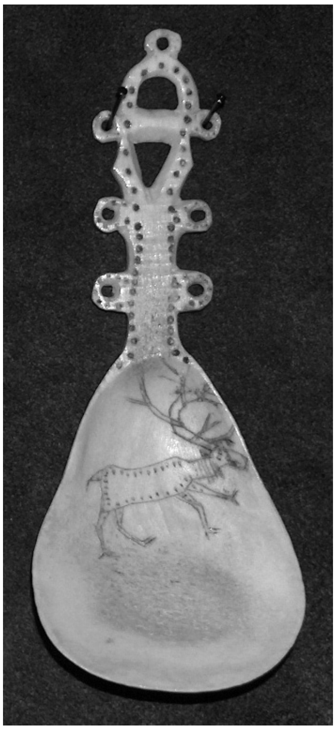

Fig. 1. Antler spoon (FU inv. 5297:85). The spoon was acquired in Enontekiö village during the earlier half of the 20th century. Photo: Visa Immonen.

The Finnish Sámi spoons

As in the other Nordic countries, the oldest surviving Sámi spoons in Finland are made of antler and found in archaeologically excavated Sámi settlement sites which were used during the medieval and early modern period, like Nukkumajoki in Inari or Juikenttä in Sodankylä (Itkonen 1948: 304, 525–6; Carpelan 1975, 2003: 73–5). Their decorations include ribbon ornaments but also motifs whose closest parallels are in Karelian Iron Age ornamentation (Fjellström 1986: 456). Although the oldest spoons are of antler, the earliest spoons in the historical and ethnographic collections of the National Museum of Finland are made of silver. These are purely Renaissance and peasant silver spoons dated to the 16th to 18th centuries. The oldest of them has a ball knop and was produced in the 16th century (NM Hist. inv. 55019), and two spoons with a ball knop and a grape cluster

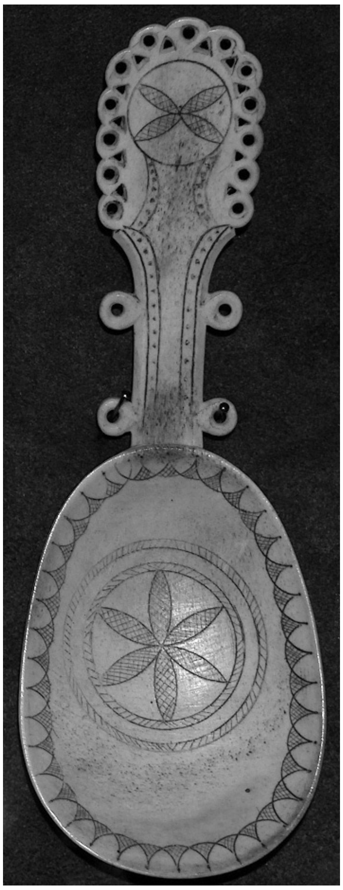

Fig. 2. Antler spoon (FU inv. 4948:2). The spoon was acquired in Lapland and was donated to the NM by Johan Reinhold Aspelin (1842–1915). Photo: Visa Immonen.

knop are from the 17th century (NM Hist. inv. 57081:1–2). The makers of these early spoons remain anonymous, but silver spoons made a century later have hallmarks which can be identified. These are spoons made by Tornio goldsmiths in the local peasant style in the late 18th century. Five spoons (Fig. 1; B inv. 195–9) were made by Sigfrid Carlenius the younger (1765) and one (B inv. 5294) by Henrik Carlenius (1749–1758). Sigfrid Carlenius also made a unique tin spoon which imitates silver spoons (FU inv. 5294). The youngest 18th-century silver spoon was made by Lars Eriksson Stabaeus (1756–78) (NM Hist. inv. 6064:6).

All the remaining Sámi silver spoons are in the new, more ethnic, style; seven of them can be dated to the late 18th or early 19th century (Fig. 2). They all display clear stylistic affinities with antler spoons in their ornamentation, pear-shaped bowls and flat handles pierced with triangles. The bowls are decorated with interlaced ribbon ornament and a band of triangles. The hallmarks of two spoons show them to be products of C. Nils Edelsteen (1881), who worked in Tromsø (B inv. 201; FU inv. 5711:11). Besides Edelsteen, only one maker of the 19th-century Sámi silver spoons can be identified: Johan Olof Degerman (1840–87), who worked in Haaparanta (FU inv. 5080:17). Modern production is represented by two silver spoons made by Petteri J. Laiti in 1993 (FU inv. 5969:3 and 4).

The number of surviving Sámi silver spoons remains relatively low in the light of the Sámi probate inventories, surviving from the late 18th century onwards, in which spoons are listed in great numbers (Itkonen 1948: 307–9). In contrast, the number of antler spoons in the collections of the NM is significantly higher. The 79 antler spoons present a high degree of uniformity in shape with their pear-shaped bowls and handles made slightly longer than the bowl. Another common feature is the sparseness of ornamentation. The handles are often ornamented with knife points, picots and pendants, but otherwise the spoons have usually been left undecorated. Interlaced ribbon ornament is rare. If figurative motifs are present, they are usually either floral motifs or reindeer executed in the northern Sámi style (Figs. 3–4). Most of the spoons were made in the late 19th or early 20th century with very few exceptions of earlier or later date, but nevertheless the name of only one antler spoon maker, Hannu Martinpoika Mattus, has been recorded.

Fig. 3. Silver spoon (B inv. 195). According to the hallmarks the spoon was made by the goldsmith Sigfrid Carlenius the younger in Tornio in 1765. The spoon has the typical form of the late 18th-century silver spoons produced in Tornio. Photo: Visa Immonen.

Creating a distribution map of the spoons is a difficult task since in most cases the accuracy of the provenance information is poor. The few silver spoons with provenance information were found in southern Lapland. The majority of the antler spoons are from westernmost and northernmost Lapland: Enontekiö, Inari, Utsjoki and Kittilä. Examining the provenance information of the antler spoons closely, it is apparent that the spoons have ended up in the museum mainly due to the efforts of scholars like Itkonen or Eliel Lagercrantz, or individual enthusiasts who have donated their personal collections. How they have actually acquired the artefacts is rarely stated, but they seem to have purchased spoons as souvenirs from fairs or other gatherings, or the spoons have been found as stray finds at abandoned settlement sites.

Fig. 4. Silver spoon (B inv. 203). The provenance of the spoon is unknown. Photo: Visa Immonen.

Uses of spoons

According to the ethnographer T.I. Itkonen (1948: 303–4, 502) antler spoons were primarily used in the reindeer-herding Sámi communities, although they were used to a smaller extent in communities based on fishing as well. The Sámi ate meat and fish using their fingers and a knife, while spoons were intended for various porridges, soups and milk-based foods (Klein 1923: 68–9; Itkonen 1948: 304). In other words, spoons were used only for special foods. To go further than this, I would like to widen the meaning of the term *use* to include the use of artefacts for creating social meanings. Hence the emphasis should be more on the social setting where spoons were used, and it becomes important that every member or some members of a Sámi household had a spoon as a personal item which could be recognized by its colour and decoration.

The interpretation of the Sámi spoons as socially embedded artefacts focuses on their role in how members of a Sámi community saw themselves and others (Skandfer 1997: 73–88). In artefacts, variation and uniformity of style may be pivotal in the process of creating continuities and discontinuities between groups and their members. Uniformity of style may denote membership in a community, and variation, in contrast, individuality and difference. As noted earlier, the form of the early Sámi spoons seems to be very standardized, but the amount of decoration varies significantly between individual spoons. Skandfer interprets this peculiar combination of similarity and dissimilarity in Sámi spoons as an indication of differences and similarities between their users in communities. The spoon, used only in special meals and gatherings, indicated a person's status within his or her family both to other family members and to members of other families.

The popularity of the Norwegian Sámi spoons between the late Middle Ages and the mid-18th century was, according to Skandfer, a symptom of material culture sustaining social relations between different interest groups. In this period, the subsistence base of the Sámi communities was transformed drastically when Norwegian populations settled more and more into the coastal areas, and both the church and the crown increased their control. During the 16th and 17th centuries, antler spoons can be found both in areas inhabited by the Sámi and those inhabited by Norwegian populations. When both populations used spoons in everyday practices, artefacts offered one way of making the relationships between the two populations intelligible and renewing social relations within and between families and communities. Skandfer (1997: 96–107) argues that in the early modern period the appearance of the antler spoons probably did not denote ethnic differences but the stability of traditional life-styles. After the Norwegian settlers had populated most of the coastal areas, antler spoons disappeared from Norwegian contexts, and antler spoon finds concentrated in the inland reindeer Sámi communities, becoming more ethnically significant. Consequently, antler spoons were first a material way of masking or softening the wider economic and social transformations from a fully nomadic into a semi-nomadic subsistence system. Secondly, in this process, antler spoons were transformed into an ethnic symbol.

Silver spoons were purchased for a different use from, but also they show significant similarities with so-called peasant silver. Like peasant silver, the Sámi silver spoons had a conservative style and were used to preserve capital (Fagerström 2000: 31). The use of peasant silver was in stark contrast with the use of high-status silver artefacts produced for the aristocracy and bourgeoisie. Although the silver content of the artefacts was also of importance, the primary function of high-status silver was to follow fashion trends and express distinction. Peasant silver was more a way of preserving economic value. On the one hand, peasants usually did not have the resources to follow changing fashions, and on the other hand, they did not consider fashion an essential requirement. Style thus served the function of indicating stability (Vainio-Korhonen 1994).

The criteria for valuing the Sámi silver spoons were similar to those for peasant silver. Silver spoons produced for Sámi consumers before the mid-19th century conform to contemporary weight units, and they often are stylistically indistinguishable from peasant silver. When the primary role of the silver spoons as currency for economic transactions diminished, the importance of their stylistic appearance increased until it finally became the primary issue. This stylistic standardisation of silver spoons at the expense of their weight standardisation was a result of the same process which affected the antler spoons. In the late 19th-century Sámi spoons, the conformity with weight units disappears as their ethnic appearance becomes more striking (Klein 1923).

Hybrid ethnicity

When the priest Johannes Körning made his journey to Swedish Lapland in 1659–60, he noted that spoons, knife handles and items of tin thread were the most beautiful of all Sámi artefacts (Fjellström 1986: 448). It is not surprising that the interest of scholars has been drawn to the Sámi spoons, as in the early modern period the market was often the only direct contact between the Sámi and other Scandinavians, and in the market situation, spoons had a prominent role in indicating social relations. Since these early observers, spoons in particular have been seen as visual tokens of ethnicity. However, their ethnicity as well as their style has a history.

In order to understand the relationship of material culture and ethnicity, the simple correlation between origin, or authenticity, and ethnicity should be problematised. In this perspective, ethnicity could be defined simply as habitual ways of doing things and making differences. However, certain historical situations, like colonialism, competition over resources, or economic differentiation, may provide a context where tradition is objectified into a coherent body of knowledge and practice, or in a word, an Ethnicity (Jones 1997, 95). Ethnicity in the Sámi spoons cannot be pointed to as a single feature or even a combination of features. Instead, ethnicity understood as a process lies in the changing practices in which the Sámi spoons have played a part in the Sámi communities and their relationship with non-Sámi communities.

Randall McGuire (1982) argues that in historical archaeology it is often easier to find correlations between ethnicity and material culture than to know what exactly the connection between them was. This seems to be the case with the Sámi spoons, which are an example of highly creolised material culture (Gosden 2002, 2004). I find the concept of *hybrid* introduced by the post-colonial theoretician Homi Bhabha (1994; cf. Young 1995) crucial for understanding the ethnic character of Sámi spoons. Bhabha argues that colonialism should not be understood as a distinct cultural form or the colonizer meeting another cultural form or the colonized, but as a construction of hybrid cultures through complex, partly contradictory, sets of negotiations and mutualities. The concept of hybrid implies that indigenous cultures should not be seen as original cultures infected by alien powers.

The Sámi spoons are hybrid artefacts *par excellence*. In Finnish Lapland, the earliest silver spoons were made in conformity with Renaissance style and were probably transported from the south, whereas the late 18th-century items were produced by goldsmiths working in northern towns and following the conservative peasant style. The primary function of the silver was to indicate stability rather than ethnicity. A change occurred during the 19th century when the style of Sámi antler spoons was adopted to silver. The most recent transformation has been the production of Sámi silver by Sámi artisans which coincides with the redefinition of the ethnic Sámi design as a high-status style.

In contrast with the silver spoons and a few spoons found in archaeological excavations of Sámi settlement sites, the antler spoons from Finnish Lapland are of a relatively recent date. They were collected by ethnographers and amateurs and often bought as souvenirs and ethnic artefacts. The process which transformed spoons from devices for sustaining social relations into artefacts representing ethnic identity could be described as a change from habitual material variation to active self-conscious ethnic symbolism (Jones 1997: 126). This is manifested, for instance, in the 20th-century ethnic pattern books or the high-status works of art labelled as ethnic.

Abbreviations

B	Bergman collection, NM.
FU	Finno-Ugric collection, NM.
NM	National Museum of Finland, Helsinki.

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Research of the Báišduottar–Paistunturi project in northern Finnish Lapland 1997–2004

Mikael A. Manninen & Taarna Valtonen

Abstract. *The Báišduottar–Paistunturi project studies the prehistory and history as well as the building and hunting traditions, the cultural and linguistic character and local folklore of the Báišduottar–Paistunturi wilderness area in Northern Finnish Lapland. The time span for this project reaches from the Mesolithic till the present-day. Three studies have been completed in the project. The first one deals with meat caches used in the area during the late prehistoric and early modern times. The second study involved an exploration of the operational sequence at a quartz knapping floor. In the third study the relationships between place names, landscape, and the people of the area were analysed to find out the way in which place names carry cultural information from one generation to another. This paper reports on the results achieved in these studies as well as surveys and excavations conducted during the field seasons 1997–2004. The project's on-going research is also shortly described.*

Keywords: *Lapland, Báišduottar–Paistunturi, Ohcejohka–Utsjoki, meat caches, lithics, place names*

Introduction

The Báišduottar–Paistunturi project was launched in 1997 to study the prehistory and history as well as the cultural and linguistic character of the Paistunturi (North Saami: *Báišduottar*) area. This project is an independent, multidisciplinary project that has members from the universities of Oulu and Helsinki. Both archaeological and ethnological surveys, as well as archaeological excavations, have been conducted in the study area by the project members, alongside the gathering of place names and local folklore.

This project evolved from personal interests of the participants to the area, to its nature and cultures. The main aim of the project is to increase knowledge about the area, its history and culture on all levels as an independent entity. The main guiding line has been to respect the local knowledge in its own terms. The project is also the first survey project in Finland confined to a fell area.

The study area

Paistunturi is a highland wilderness area in northern Finnish Lapland, in the borough of Utsjoki (*Ohcejohka*) (Fig. 1). The borders of the study area are the Teno (*Deatnu*) River, the Utsjoki River, the Kevo (*Geavvu*) River and the road from Kaamanen (*Gámas*) to Karigasniemi (*Gáregasnjárga*). A large portion of the study area belongs to the Kevo Strict Nature Reserve.

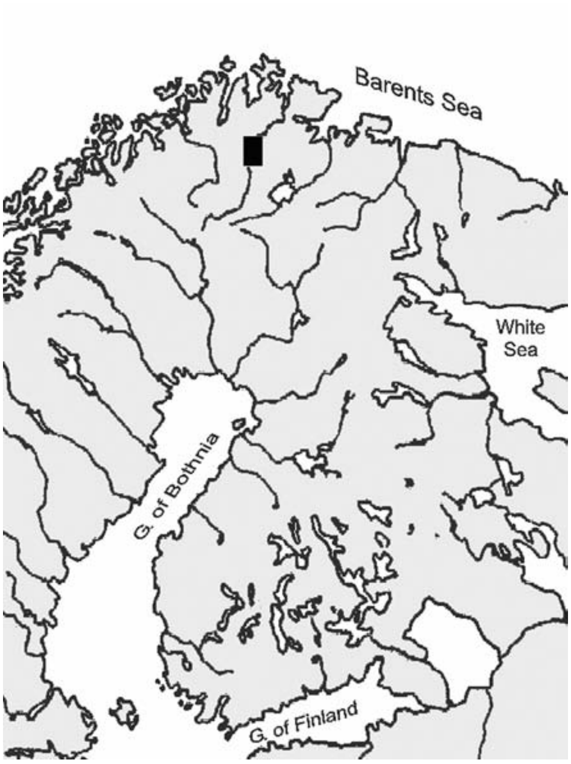

Fig. 1. Location of the study area.

The area is mainly barren highland with the altitude dropping steeply into the surrounding river valleys. The landscape is characterised by treeless fells rounded by the Ice Age, small rivers, and large areas of peatland currently serving as reindeer pasture. Only the Teno and Utsjoki river valleys are nowadays inhabited. The vegetation of the Paistunturi highland has undergone considerable changes since the Ice Age (Rankama 1996; Hicks & Hyvärinen 1997). It has fluctuated between pine forest vegetation and the present plant regime that consists mostly of dwarf shrubs and lichens at the higher elevations, with added mountain birches in the river valleys. Fieldwork in the Paistunturi area has mainly been conducted at altitudes above the present tree line.

Surveys

Ethnological surveys were conducted by the project during the summers of 1997 and 1998 (Valtonen 1997). The aim of the surveys was to document the Saami turf buildings and building traditions in the study area (Fig. 2**;** see also Fig. 9 in Hertell & Manninen, this volume). Also the traditional use of the fell areas was studied. During these summers, twenty sites were found and recorded. A comprehensive publication of the results is underway.

Fig. 2. Remains of a turf covered horse shed at Liŋgin – a major peatland area in Paistunturi.

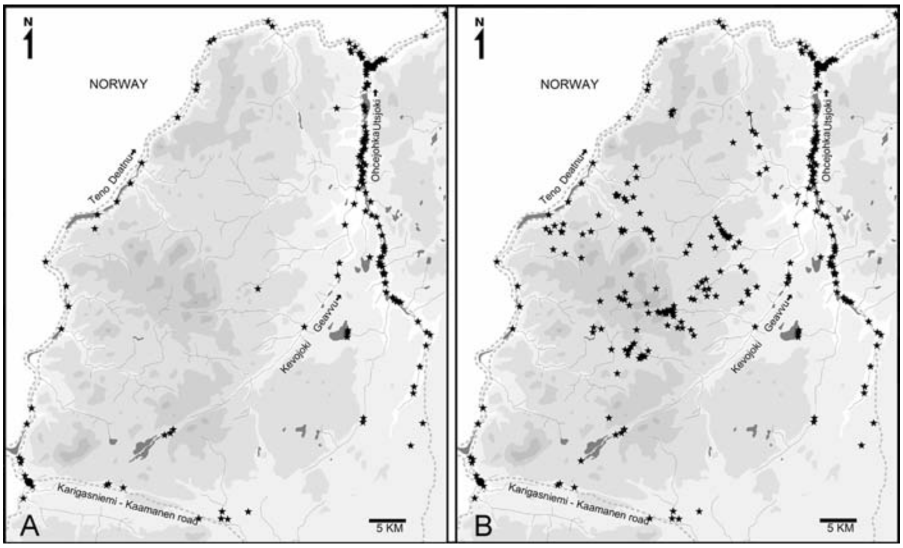

Fig. 3. Map B shows the known archaeological sites in and around the Paistunturi area. In map A the sites found by the Báišduottar–Paistunturi project have been removed.

The project has made archaeological surveys in the Paistunturi area in the years 1999–2003. In 1999 two months were used to conduct an intensive survey in the middle parts of the wilderness area (Valtonen 1999, 2000a). During the years 2000–2003 additional shorter surveys were conducted to cover some of the areas that were not visited in the year 1999 survey (Valtonen 2000c, 2001, 2002, 2003c, in press).

Altogether nearly 350 individual structures or natural formations have been visited and documented in these surveys, including sacred sites such as antler deposits, sacred springs and fells, dwelling remains such as different kinds of hearths, turf hut foundations, storehouse foundations and house sites, lithic sites such as quartz scatters and quarries, and different kinds of stone settings and man-made pits such as hunting pits, meat caches, reindeer corrals and storage pits.

In the 1999–2003 surveys, 136 previously unknown archaeological sites were located by the project. When this number is compared with the total of 214 archaeological sites located in other surveys in the borough of Utsjoki (Kankaanpää 1986; Kotivuori 1987; Rankama 1989a, 1989b, 1990; Kankaanpää & Rankama 1999; Kotivuori & Halinen 2000; Rankama & Kankaanpää 2003; Karjalainen 2004, 2005; NBA 2005) the importance of the fell areas to the past inhabitants of northern Lapland becomes clear (Fig. 3).

Lithic raw materials and technology

The Stone-Age lithic technology of the Paistunturi area has been investigated in the surveys (Manninen & Valtonen 2002; Manninen in press) and by analyses of the assemblages excavated in the Mávdnaávži 2 and Leakšagoađejohka 3 sites (see below). The availability of different lithic raw materials in the research area has also been studied.

Fig. 4. T. Valtonen at the Lisačomat quartz quarrying area. The quartz boulder field covers an area of approximately 200 m² and is surrounded by numerous knapping floors.

Fig. 5. One of the several knapping floors at the Lisačomat quartz quarrying area. The sparse vegetation facilitates archaeological reconnaissance in the area. Photo: Mikael A. Manninen.

Thirty-eight sites with lithics have been located. All of these sites lie at elevations between 110 and 412 meters above the present sea level. The most common lithic raw material used at the sites is vein quartz. Twenty-eight sites with quartz knapping floors or quartz scatters, seven quartz quarries/quarry areas (Figs. 4-5), two stray finds of quartz tools, and a quartz/quartzite cache have been recorded. Only three of the sites have raw materials other than vein quartz or quartz crystal, namely chert, quartzite and pumice. Quartz, quartz crystal and coarse grained white quartzite are the only raw materials available locally.

Cultural landscape

Because of the intensive recording of sites and related features, the Paistunturi area is a good study area for analyses of Saami cultural landscape. There is a multitude of Saami cultural heritage in the area, starting from the visually observable buildings, camping sites (Fig. 6), paths, etc. and ending with an enormous amount of invisible material, such as place-names, sacred sites (Fig. 7**)**, folklore associated with some special sites, ecological and economical traditions and so forth.

The area is inhabited by two Saami groups: large scale reindeer herders and the so-called river Saami, who rely mainly on fishing and small scale farming. Large-scale reindeer herding, as well as the small-scale farming are both relatively new means of livelihood in the area. The first reindeer herders moved into the area in the late 17th century. The first farmers were Norwegian Finns or *Kvenes* whom around the middle of the 18th century moved to the area of the present day Kárášjohka–Karasjok situated south-west of the study area. During the late 18th and early 19th centuries, the local

Saami population also started to raise cows and sheep. Especially before the introduction of large scale reindeer herding in the area, hunting of wild reindeer and fur animals was also important.

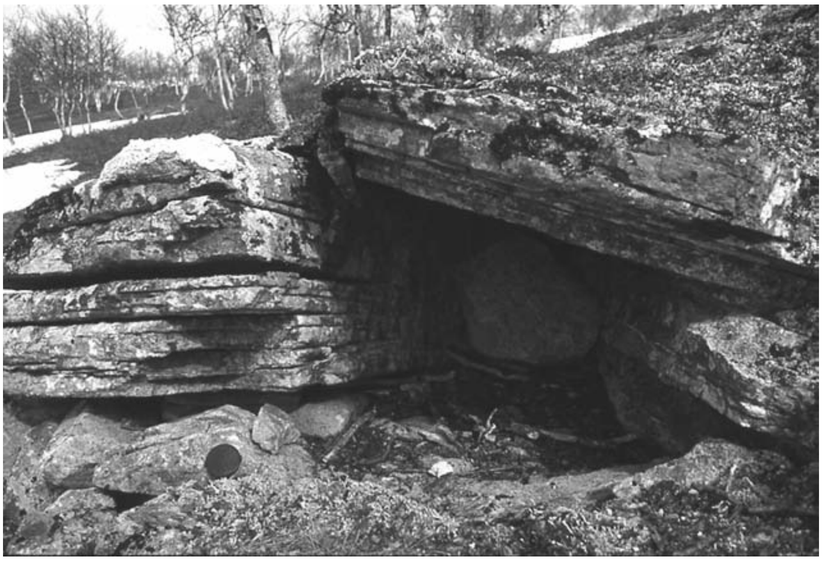

Fig. 6. A storage room built of stones at the Saami camp site Ulláváráš.

Fig. 7. The Vulležiid girku (*The Vullešes church*). A sacrificial site mentioned for instance in Samuli Paulaharju´s classic book *Taka-Lappia* (1927: 304).

One of the aims of the Báišduottar–Paistunturi project has been to collect and analyse the traditional knowledge of sites and means of livelihood in the area. Since the area has been and still is used by two Saami groups with their own subsistence models and totally different views of the mountain area, the task is very demanding. The starting point of the project has been to focus as much as possible on the traditional knowledge of the local people. Another task has been to combine information gathered into archives and books by earlier researchers with the actual sites in the research area. This work also includes the returning of knowledge to the society from which it has been collected.

The MA-thesis of Taarna Valtonen (2003a) deals with the river Saami cultural landscape and traditional knowledge from the point of view of place names. By analysing the place names and place name systems with the help of semiotic theory, she tries to describe relationships between Saami place names, landscape, and the people in the area, and also the way in which place names can carry cultural information from one generation to another (see Valtonen 2004).

Excavations 1999–2004

Saami meat caches and excavations at the Gamajohka P 3 site

In 2000, the historical Saami meat cache site Gamajohka P3 was partly excavated (Valtonen 2000b, 2003b, this volume). The site was found in the 1999 survey. The main aim of the excavations was to get information about both the inner and outer structure of the caches, but also the age of the caches was studied.

The results were good: enough material was found to make a reconstruction of a cache as it was when used. Also the hypotheses concerning the outer structure of the caches were validated. The age of the caches is still quite uncertain since reindeer and reindeer hunters and, consequently, a need to preserve meat, have existed since early prehistoric times. However, the well preserved structure of the caches, preserved birch bark remains, and lichenometric analyses conducted at the site indicate that the site was used in modern times. The caches at the site Gamajohka P3 were probably used during a period between AD 1600-1850, but this does not mean that meat caches, in general, might not have been used in other times as well. Taarna Valtonen’s study on the meat caches of the Paistunturi area is published as a separate paper in this volume.

The Leakšagoađejohka 3 site

The Leakšagoađejohka 3 site is a small knapping floor that was found in 2000 and excavated in 2002 (Manninen 2002). The aims of the excavations were twofold. Firstly, it was hoped that the excavations would yield new information on the quartz procurement and reduction strategies in the research area, and secondly, the character of quartz as a lithic raw material was studied.

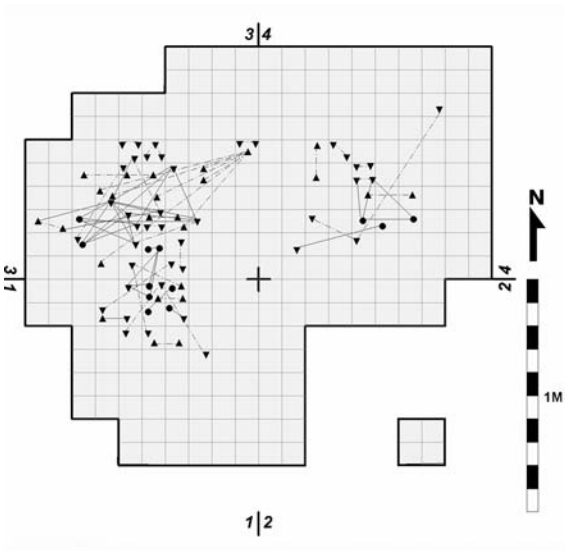

Fig. 8. Refit-map showing the locations of the refitted quartz artefacts in the excavated area. Leakšagoađejohka 3.

The size of the whole knapping floor was less than three square meters and most probably the result of only one or two knapping events (Fig. 8). The obtained quartz assemblage, however, is altogether 8190 artefacts. Several different aggregate, fracture and attribute analyses were conducted on the assemblage and seventy-eight artefacts were refitted (Fig. 9). As a result technological and behavioural aspects of the quartz reduction were revealed and a partial chaîne opératoire was reconstructed (Manninen 2004).

Fig. 9. Refitted knapping sequence with the platform facing the viewer. Leakšagoađejohka 3.

The Mávdnaávži 2 site

The Mesolithic Mávdnaávži 2 site was found in 1999 and excavated in 2004 (Fig. 10). Two separate lithic scatters were detected. The first scatter was concentrated around a small fireplace and consisted of scrapers and debitage of quartz and several kinds of white and green quarzites. The second scatter was also concentrated around a fireplace, but inside the remains of a small dwelling (Fig. 11). It consisted of chert debitage, backed pieces and points. A number of burnt bones were also found, in a small pit directly associated with the fireplace in the dwelling. In the osteological analysis conducted on the material (Lahti 2004) all the identifiable fragments were defined as reindeer (*Rangifer tarandus*). An AMS-dating obtained from the burnt bone material gave a date of 6455±50BP (Hela-963).

The distribution of artefacts, the clearly defined lithic scatters, exotic lithic raw materials deriving from the Barents Sea coast, and the small size of the site indicate that the finds represent a single occupation hunting camp most probably used by a mobile group coming from the coastal area (see Manninen in press).

Fig. 10. Excavations at the Mávdnaávži 2 site in June 2004. Esa Hertell, Hanna Suisto and Meri Varonen.

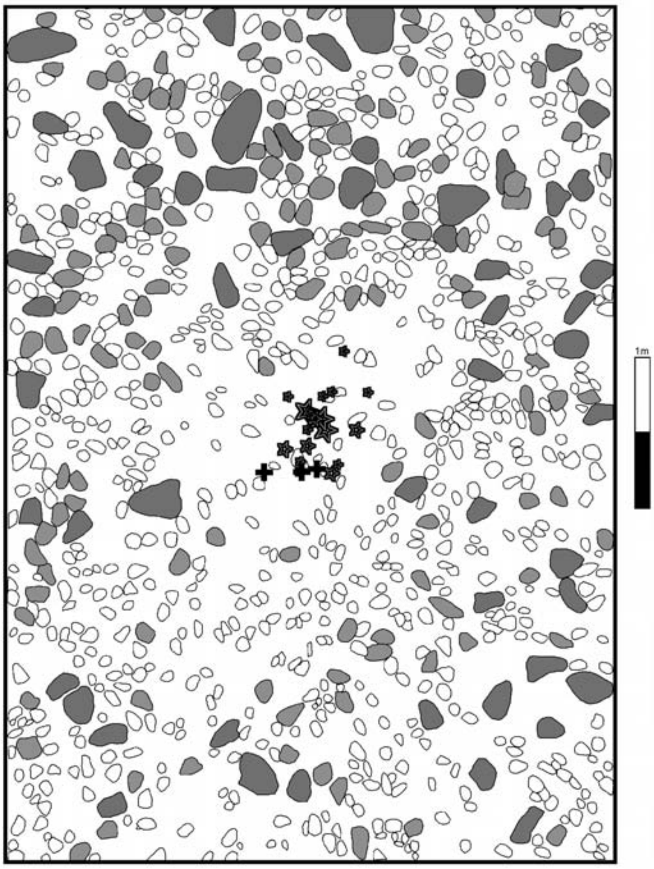

Fig. 11. Map showing the small cleared dwelling area at Mávdnaávži 2. Stones over 100 cm² in area have been marked with grey colour. The stars and crosses in the middle mark concentrations of charcoal and burnt bone and indicate the position of a fireplace. Chert artefacts (not presented in the map) were concentrated around the fireplace and inside the arc of stones visible in the upper part of the picture.

Conclusion

In this paper, surveys and excavations conducted in the Paistunturi wilderness area during the field seasons 1997–2004 as well as studies based on this field-work have been shortly described. The results achieved so far have revealed an area rich with signs of human activity. The results also show that a multidisciplinary approach is essential in obtaining a comprehensive picture of the use of wilderness areas during different times of history and prehistory.

The knowledge so far acquired indicates that the area was taken into use in the Late Mesolithic period at the latest. The clearly prehistoric sites found in the area, however, are mainly undated quartz quarries and scatters of quartz artefacts. Therefore it is not possible to determine whether the area was in continuous use during the Stone Age and earlier prehistoric times or if the use has been periodical. On the other hand, there are no clear discontinuances in the material either. It is safe to say, however, that a continuous use of the area started not later than in the Saami Iron Age (AD 800–1400/1600).

In Northern Lapland the fell areas have traditionally been important, a fact confirmed by the survey results presented here. Most of the sites in the Paistunturi area are related directly to hunting, reindeer herding, and food gathering. Other site types, such as raw material extraction sites and sacred sites, are fewer in number. Because of the earlier research in the borough of Utsjoki there is also a relatively large amount of collected oral tradition that can be connected to the younger sites. This information makes it possible to gain a deeper understanding of many of the surveyed sites. At the same time the information acquired in the surveys and excavations is in many aspects complementary to the oral tradition.

The fell area has also many advantages when compared to the river valleys and lake shores traditionally surveyed in Northern Lapland. The single occupation hunting stations and knapping floors, for instance, offer possibilities for Stone Age research rarely obtainable in areas where human occupation has been more intensive and many sites have been in use for centuries. It is also clear that the sites in the fell area fill the gaps that otherwise existed in the understanding of past means of livelihood in the north-eastern part of the borough of Utsjoki. On the whole, the material obtained in the surveys and excavations offers an extensive amount of possibilities for further research, and serves, at least at the moment, as a unique example of an intensively surveyed fell area in Finnish Lapland.

Acknowledgments

The excavation at the Gamajohka P3 site was financed by the Nordenskiöld-samfundet i Finland rf. The excavation at the Mávdnaávži 2 site was financed by the Finnish Cultural Foundation. The following people are thanked for their participation in the project: Kati Heinonen, Esa Hertell, Marja Montonen, Hanna Suisto, Miikka Tallavaara and Meri Varonen. Isak Hj. Guttorm, Säde Guttorm, Eeva K. Lahti, Marjatta Montonen, Martti Montonen and Tuulikki Timonen are also thanked for their help. The National Board of Antiquities of Finland, the Regional Museum of Lapland, the Universities of Oulu and

Helsinki and the Finnish Forest and Park Service have also helped in many ways in organising the surveys and excavations. Fig. 9 courtesy of Henrik Kettunen, all other maps and photographs by Mikael A. Manninen.

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Saami food caches in the Báišduottar–Paistunturi area, northern Finnish Lapland

Taarna Valtonen

Abctract. *In this article North Saami food caches, a traditional way of conserving meat and other food stuffs, are discussed. A case study dealing with the Gamajohka P 3 cache site in the Báišduottar–Paistunturi area in northern Finnish Lapland is also presented. The outer and inner structure of North Saami food caches, the landscape context of the food cache sites, their connection to the other sites, possible use, users, and age of the caches, are also discussed. A reconstruction of a cache based on information gathered in excavations and from ethnographical sources is also presented.*

Keywords: *food cache, storage, Saami people, northern Finnish Lapland*

The research area and data

This paper deals with a traditional way of conserving meat and other foodstuffs, namely the North Saami food caches. A case study from the Báišduottar–Paistunturi area, situated in the municipality of Ohcejohka–Utsjoki in northern Finnish Lapland (Fig. 1; see also Manninen & Valtonen Fig. 1 in this volume) is used as an example. The paper is based on an unpublished thesis written by the author (Valtonen 2003).

One of the aims in the study was to describe the food cache types found in the Báišduottar–Paistunturi area alongside with a reconstruction of an excavated cache. A second important aim was to see if the original users of these caches could be detected. In order to achieve these aims, several different analyses were conducted. The most important ones were a lichenometric analysis for dating the food caches and a nearest neighbour analysis used to study possible connections between the food cache sites and other site types. Some visual landscape analyses were also conducted.

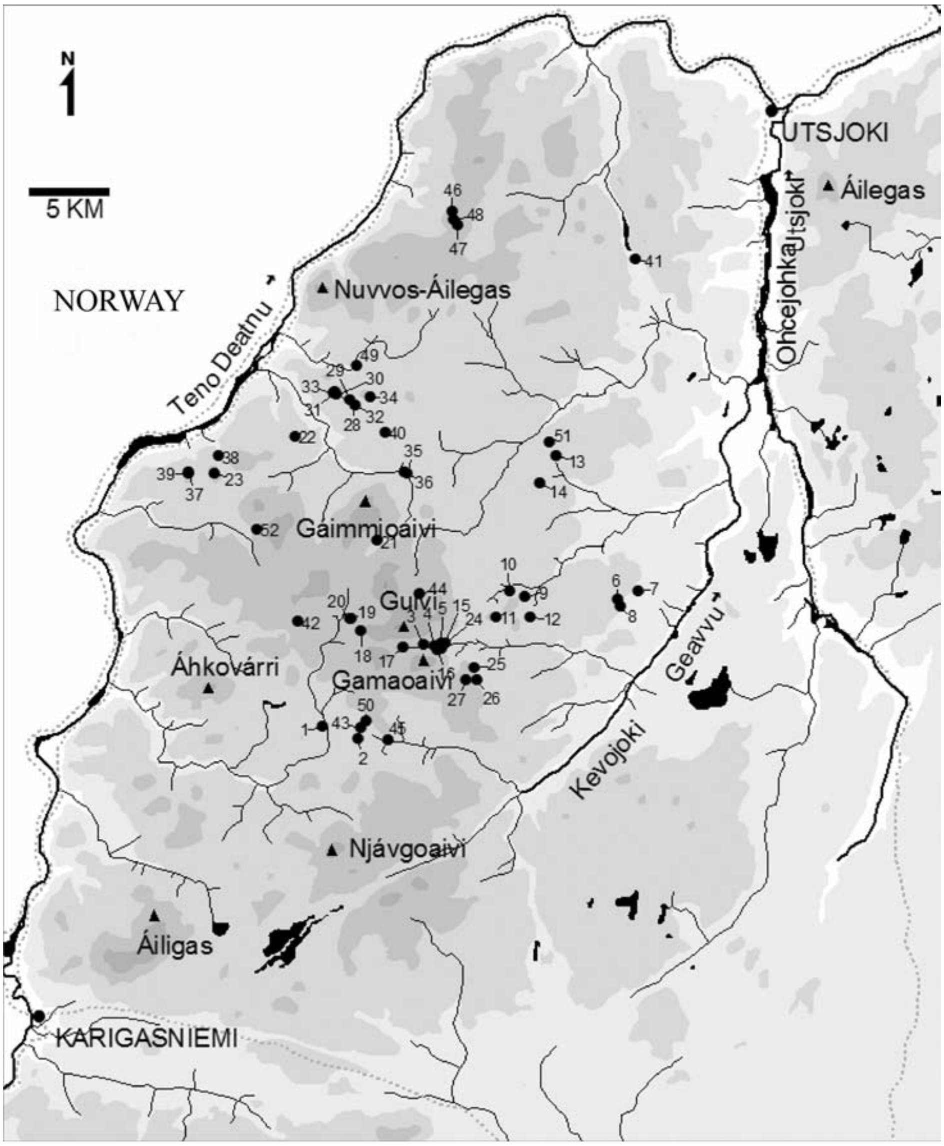

Fig. 1. The research area in the municipality of Ohcejohka–Utsjoki in northern Finnish Lapland. For the exact location in Fennoscandia see Manninen & Valtonen in this volume.

Fig. 2. A food cache in the *Čeavrresgielas 1* site. This cache is a typical large food cache built in the high mountains. Around this type of caches there is always a clear embankment. (Photo: T. Valtonen)

The archaeological data used in this paper and in the Laudatur-thesis was collected in surveys during the years 1999–2003 and in an excavation carried out in the food cache site *Gamajohka P 3* in 2000 (see Manninen & Valtonen in this volume). All the documented food caches had a clear structure and they were recognized to be of the food cache type that local Saami people traditionally used (e.g. Itkonen 1948 I: 216) (Fig. 2). Ambiguous pits in boulder fields were not documented, although some of them may be old worn out food caches.

In the Báišduottar–Paistunturi area there are 52 known sites with food caches (Fig. 1). The total amount of caches is 96. Most of the food caches in the area are situated in treeless tundra – only some 30 % of the food caches are situated in the tree line zone. A typical place for a food cache is a gentle windy slope with a small boulder field or an easily accessible larger boulder field. All of the food caches lie at elevations between 283–478 meters above present sea level and 50 % between 360–400 meters above sea level. One of the reasons for building caches at these elevations was probably the fact that there are abundant boulder fields in these heights. In addition it is worth noting that the microclimate in these elevations is good for food preservation and that reindeer prefer these areas during late autumn.

What is a Saami food cache?

Caching food is common in northern circumpolar areas where the temperature is low most of the year. Food caches are normally used by peoples who have access to large amounts of food, but only a couple of times during the year. For these peoples caches are a means of storing food for the time of the year when fresh food is not available. (Binford 1978: 91–3; Stopp 2002: 313–16.)

Meat, milk and/or fish caches are used in the whole area inhabited by the Saami. There is also a historical common word for a food cache in all the Saami languages (Lehtiranta 1989: 1002). The food cache types used by different Saami groups differ slightly (e.g. Itkonen 1948 I: 216–17; Wennstedt Edvinger 2002: 124). These differences seem mainly to be caused by differences in sources of livelihood and in the natural environments that these groups inhabit.

North Saami food caches are rooms or pits dug into boulder fields or into the ground. They were used to store meat, reindeer milk products, fish and occasionally also some other food stuffs. The use as meat cellars was the most popular one, but during the period of intensive reindeer herding it was common to use caches to store reindeer milk, butter and cheese. The purpose of food caches is to preserve the food unspoiled and prevent animals from getting to the stored food. (Itkonen 1921: 110, 1948: 216–7.)

The structure of food caches in the Báišduottar–Paistunturi area

Outer structure

There is a lot of ethnographical information about Saami food caches, especially about the outer structure. Most of the data is in agreement with the results of the surveys and excavations in the Báišduottar–Paistunturi area. However, judging from the documented caches, the shape and size of the food caches varies a great deal, which is a fact not mentioned in the ethnographical sources. The variation in shape and size is most probably caused partly by differences in the natural environment and partly by different storage needs.

Most of the food caches in the area are built in boulder fields, but there are also three sites where the cache is just a room built on top of the ground using large cobbles. This manner of building caches is also known in the ethnographical sources (e.g. Itkonen 1921: 110) and it is probable that it was used when one needed a food cache in hurry and for a short time. Some times a cache was built next to a large boulder that functions as one part of the cache wall and at the same time supports the other parts of the cache walls (Fig. 3).

The food caches built in boulder fields seem to follow the same basic building model. First, a large pit was dug into the boulder field till the ground level was reached. Then big stones were collected and the walls were built. Finally, the ditch surrounding the cache was filled with stones that support the wall. This interpretation of the building process is supported by the fact that stones in the immediate vicinity of food caches are in average bigger than stones elsewhere on the surface of the boulder field.

Most of the food caches in the study area are somewhat rectangular in shape, but there are also some that are round or oval. The walls of the food caches are normally straight and upright and made with care. In over 70 % of the sites there is a clear embankment around the food caches. An embankment widens the storage room and makes the food cache very visible (Fig. 2). Sometimes there are large lid-stones lying on top of the embankment. These stones have been used to cover the food cache (Fig. 4). The average size of a food cache in the Báišduottar–Paistunturi area is: length 125 cm, width 90 cm and depth 59 cm.

Fig. 3. On the left a food cache that is built on top of the ground (Photo: T. Valtonen). On the right a food cache built next to a large boulder stone. (Photo: M. A. Manninen)

Fig. 4. Cache covered with a lid-stone. (Photo: M. A. Manninen)

Inner structure: reconstruction based on the ethnographical information and the excavation carried out in the Gamajohka P 3 site

The site *Gamajohka P 3* is situated in a wide river valley in the high fells of Báišduottar–Paistunturi. The excavation of three caches in the site *Gamajohka P 3* in 2000 gave a lot of information about the inner structure of the local food caches. In addition, there is also ethnographical information describing the inner structure of North Saami food caches. It is important to keep in mind that the inner structure most probably varied a lot depending on the materials at hand and the intended use of the cache.

According to ethnographical sources, in most known cases cached meat was piled on top of a layer of branches and birch bark. After this the meat was covered with leaves and branches, sometimes even sand. Finally, big stones were placed on the top of the pile. (e.g. Itkonen 1948 I: 216–17.) Sometimes food caches have been partly filled with water so that when the water froze it was almost impossible for animals to get in (Johansson 1952: 12).

During the excavation at the site *Gamajohka P 3* some very well preserved inner structures were found. Moss, lichens, and in some cases even grass, were growing on the bottom of the food caches. In this layer remains of birch bark, birch and juniper branches, and probably crowberry (*Empetrum nigrum*) twigs, were found. These were interpreted as remains of the inner lining of the food cache, used right next to the stored foodstuffs. Under these remains there were some layers of flat stones. Between the stone layers there were also remains of organic material. Underneath the last stones there was bare ground. (Fig. 5)

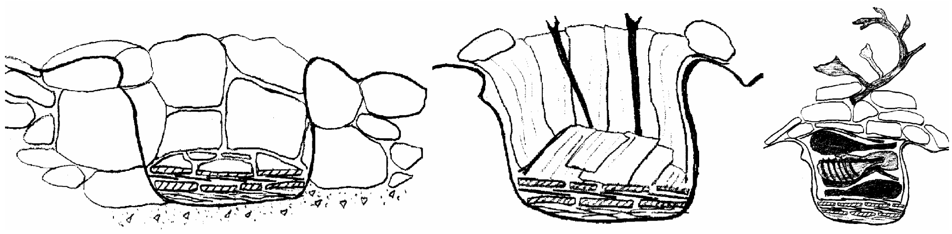

Fig. 5. Reconstruction of a food cache in the *Gamajohka P 3* site.

Spatial aspects

Landscape context

A visual landscape analysis based on the method presented by Gansum et al. (1997) was done in the *Gamajohka* river valley in the middle of the Báišduottar–Paistunturi area. The aim of the analysis was to study whether the food cache sites have a special landscape context or if the context is accidental.

Since the food caches are normally situated on sloping boulder fields, and they have large embankments around them, they are very visible. It would have been quite possible to build caches also in a way that they would not be so visible. It seems that the caches were meant to be visible. The reason for this may have been, for example, that visible caches were easier to find when the foodstuffs were needed. At least it seems that there were not any good reasons to hide these caches. It is also possible that these caches had a function as signs indicating that the area was in use.

The food caches in the analysed area are often situated near the borders of the landscape rooms. One obvious reason for this is the fact that most of the boulder fields are also near the borders. When one looks at the situation more generally, food caches are actually situated close to natural pathways and are very easily accessible. Even though food caches are situated near the pathways, there is no clear correlation between food caches and crossroad areas or food caches and special landmarks.

To me it seems obvious that the reasons for the selection of places for food caches are mainly functional. There are no known ideological or religious reasons that would have affected the selection of these locations. The point of the compass and the local geology do not seem to have any major significance either. It seems that all boulder fields with easy access and a stone layer thick enough to fit a food cache have been used. Of the boulder fields that meet these requirements, only those were avoided that are situated near large swamps or deep valleys, where the air doe not move and often large snow banks are formed during the winter.

Very little information exists on how the social connections among the members of the local society have affected the selection of locations or the spatial distribution of the sites. However, there is no reason to assume that the same borders that were generally acknowledged would not have been acknowledged also in this connection. This means that the distribution of the cache sites most probably followed the distribution of the family resource areas of the time of their use.

Nearest neighbour analysis

I also carried out a nearest neighbour analysis on the food cache sites in Báišduottar–Paistunturi. The aim of the analysis was to find out whether there are site types associated especially with food caches. Such sites might help in attempts of dating the food caches and connecting them with specific cultural phenomena.

All late prehistoric and early modern sites located less than one kilometre from a food cache site were included in the analysis and taken as nearest neighbours. This means that one site can have more than one ‘nearest neighbour’. The analysis revealed that the nearest neighbour of 98 % of the food cache sites is another food cache site. 51 % of the sites have as their nearest neighbour a special Saami camp site that is best identified by a special fireplace type called *bearpmetárran* (Fig. 6). Other site types are marginal in number as nearest neighbours for food caches.

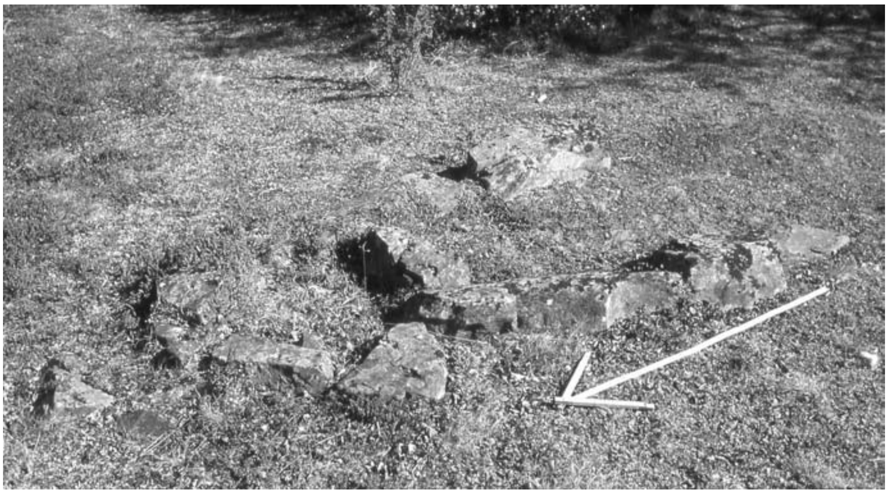

Fig. 6. A Bearpmetárran hearth.

Assumed use, users and using period

Dating

The dating of late prehistoric and early modern stone structures, such as Saami food caches is not an easy task. The end of the use of this kind of cache is easily defined, since there is ethnographical material and interviews of old Saami people, in which it is clearly stated that the use was continued as a rare phenomenon till the early 20th century (e.g. Jokinen 1996: 5, 18). The only radiocarbon dated Saami food cache I have been able to find in the literature is a meat cache in the Sirkas Saami village in Northern Sweden, dated to AD 1280 (1411) 1450 (Mulk 1994: 159). The beginning of the use of this kind of food caches is impossible to define. It is quite possible that similar caches were used already in the Stone Age.

I have used lichenometry to study the age of the food caches in Báišduottar–Paistunturi area. Lichenometry is a dating method based on the regular growth of lichens of the family *Rhizocarpon*. These lichens grow as circular populations on bare stone surfaces. From the size of the circle, the time when the stone surface became exposed to the sun and air can be estimated. (Broadbent 1987: 4.)

I have measured lichens from eight food cache sites in the Báišduottar–Paistunturi area. According to these measurements, the lichenometric dating of the caches is AD 1659–1865. Most measurements give a date between AD 1700–1850. Because of the nature of the lichenometric method, and because the growth curves that I used were originally made for areas much more southerly, this dating can only be considered to be a minimum age for the caches. It is also worth noting that the material that I used is quite small.

Use and users

Defining the users of the food caches in the Báišduottar–Paistunturi area, and what foodstuffs were stored, is quite complicated. During late prehistoric and early modern times, the area was solely used by the local Saami community. In this community there are two groups, with differing subsistence strategies, which might have used the food caches in the high mountain area: the hunters of wild reindeer and the intensive reindeer herders.

Hunting of wild reindeer was the main source of livelihood in the area until the 18th century. Reindeer herding started in the area during the 17th century, but it developed into pastoralism only during the 18th century. (Itkonen 1948 II: 5–6, 115–18.) Because both means of livelihood include storing meat, and reindeer herding also storing milk products, it is impossible to say whether the food caches were made by hunters or herders or by both.

However, as was mentioned before, according to the nearest neighbour analysis an important neighbour site type for the food caches is a Saami camping place with *bearpmetárran* fireplaces. These fireplaces are known to have been used by the early reindeer herders. For example, in her PhD dissertation Inga-Maria Mulk states that these fireplaces reflect the invasion of the intensive reindeer herding economy, and have been used intensively since the 17th century (Mulk 1994: 149–50).

The connection between food caches and *bearpmetárran* sites is evident. There is a food cache close to every *bearpmetárran* site in the research area. All caches, however, are not connected to these fireplaces. Food caches close to *bearpmetárran* sites are normally smaller than the ones without a clear connection to these sites. This is interesting since according to Karen Marie Eira Buljo these kinds of small food caches, for preserving meat, milk and butter, were built next to summer camping places of the reindeer herding Saami. These camping places also include a *bearpmetárran* fireplace. (Eira Buljo 2002: 140, 144.)

There is very little clear evidence of hunting of wild reindeer in the Báišduottar–Paistunturi area. There are some hunting pit sites, but only one of the food caches is located close to hunting pits. According to ethnographical sources, the hunt of wild reindeer took place mainly in the high mountain area (Itkonen et al. 1978: 378–81). In the Báišduottar–Paistunturi area there are no sites in the high mountain that would clearly indicate reindeer hunting, except for the large food caches. This may indicate that the reindeer were hunted with bow and arrow or, in later times, with rifles. The meat was then stored in the large caches. It is also possible that the larger food caches with extensive embankments were used as hunting blinds.

The food caches in the Báišduottar–Paistunturi area were most probably used for conserving meat and to some degree also milk products. Even though other Saami groups used caches also for storing fish, there are no indications of this in the Báišduottar–Paistunturi area or in the ethnographical literature dealing with the area. One reason for the lack of fish caches in the area is probably the large amount of fish stored in the fish cellars built in the sandy banks of the Deatnu River (cf. Jokinen 1996).

Summary

In this paper I have discussed North Saami food caches in the Báišduottar–Paistunturi area. I have described the outer and inner structure of caches documented during field surveys and excavations in 1999–2003. The results coincide very well with ethnographical data. I have also presented a reconstruction of a food cache based on ethnographical sources and information gathered in excavations.

Using a visual landscape analysis I studied whether the building of food caches followed a special spatial pattern. As a result of the analysis, I concluded that the spatial distribution of caches was determined by functional needs. However, it is also possible that food caches were used as signs. Neither clear connections to other landscape elements than boulder fields, nor connections to religion, ideologies, geology or the points of compass, were found. The only obvious fact is that the food caches are always in places that are easily accessible.

I studied the age of the food caches with the help of lichenometry and concluded that the results indicate a minimum age of circa 300 to 150 years. However, it is not possible to state when the use of this kind of food caches started in the area. From ethnographical sources it is known that the use ended in the early 20th century.

A nearest neighbour analysis showed clear connection of approximately half of the sites with a Saami fireplace type called *bearpmetárran*. I interpreted this to show that some of the food caches are connected with reindeer pastoralism. This is supported by the fact that the food caches near the *bearpmetárran* sites are in average smaller than the other caches in the area. Based on this evidence I stated that the other food caches, i.e., the large food caches situated high in the mountain area, were built by the hunters of wild reindeer.

Acknowledgments

I want to thank especially MA Mikael A. Manninen who surveyed and excavated most of the sites in the Báišduottar–Paistunturi area with me. My thanks go also to the local people that have helped me with this project. I also like to thank the Universities of Oulu and Helsinki for support and the Nordenskiöd-samfundet i Finland r.f. for funding.

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Etnicitet, identitet, ursprung? Exemplet samerna

Christian Carpelan

En resolution som antogs vid den 11. nordiska samekonferensen i Tromsö 1980 definierade samerna som ett särskilt folk med en egen historia och egna traditioner, en egen kultur och ett eget spårk. De samiska ledamöterna som formulerade denna karakteristik ansåg att dessa fyra element utgör basen för den samiska etniciteten. En kulturforskare, åter, förstår att inte enbart samerna utan också andra ‘folk’ baserar sin etnicitet på precis dessa fyra element – variabler – som från fall till fall får en meningsfull innebörd utifrån rådande förhållanden, lokala och tidsbundna. Folken får således sin etniska egenart genom anpassningarnas mångfald.

Jag skall inleda denna framställning av samisk etnohistoria med att tolka innebörden i de fyra variablerna som etniciteten enligt Tromsö-konferensens definition baserar sig på – historia, traditioner, kultur, språk. Bland dessa variabler som är delvis överlappande kan historia och språk avgränsas tydligast.

Med historia bör naturligtvis först och främst avses den period, det förlopp, som blivit skriftligt dokumenterat. Även om ett antal medeltida och vikingatida (t o m några ännu äldre) dokument kan anses hänvisa till samer och deras förhållanden och därmed berättiga till att tala om ett slags ‘Frühgeschichte’ är det först fr o m 1500-talet som man på allvar kan tala om historia.

Man kan inte utgå från att de äldsta dokumenten skulle antyda samernas uppkomst som ett folk, en etnisk grupp, det måste man försöka klarlägga med hjälp av annat källmaterial. Därvid riktar sig uppmärksamheten till arkeologin och dess möjligheter till att skapa ett historiskt perspektiv i den anda som Evert Baudou (1995) skisserade i sin bok om “Norrlands forntid”. Något sådant var kanske vad de samiska ledamöterna hade i tankarna då de formulerade sin definition. Detta är också den huvudsakliga linjen som jag som arkeolog skall följa vid mitt försök att belysa samisk etnohistoria.

Variablerna tradition ock kultur överlappar. Båda kategorierna kan avse både materiell och andlig verksamhet och produktion, kanske så att tradition skulle omfatta ett tidsperspektiv medan kultur skulle avse nutida företeelser. Alternativt kan tradition avse immateriell och kultur materiell substans. I vilket fall som helst omfattar dessa variabler också en arkeologisk aspekt med samhällsvetenskaplig inriktning, varvid det är fråga om att identifiera samisk tradition och kultur i det arkeologiska materialet.

Studiet av arkeologiskt materialet bygger primärt på typologi, kronologi, korologi vilka svarar på frågorna vad, när, var. På grund av källmaterialets konkreta natur har man kunnat ta fram dugliga metoder som gör det möjligt att utarbeta relativt tillförlitliga ramverk till stöd för olika slags fördjupande studier. Man kan t ex observera, följa och datera interregionala rörelsemönster, 'kulturströmmar', kontakter.

Språket, modersmålet, anses av allmänheten liksom av många forskare vara den viktigaste etniska markören enligt principen 'samer talar samiska' respektive 'den som talar samiska är same'. Det är samhällets språk, individens modersmål, som avses. Med vissa modifikationer tillämpas denna princip då människor idag identifieras som medlemmar av den etnopolitiska samiska gemenskapen. På grund av språkets viktiga ställning inom studiet av bl a samisk etnohistoria skall jag behandla detta element litet grundligare än de övriga.

Praktiskt taget alla idag talade språk tillhör någon grupp av besläktade språk, någon språkstamm och språkfamilj, inom vilken man med hjälp av den jämförande lingvistikens metoder retrospektivt kan härleda utvecklingslinjer till ett gemensamt forntida urspråk. Det är fråga om sekvenser som omfattar olika utvecklingsstadier och lånade främmande element antyder vilka kontakter emellan olika språkfamiljer som förekommit i tid och rum. Sålunda får språken sina koordinater i ett lingvistiskt system där emellertid den kronologiska skalan är relativ emedan förutsättningar för absoluta dateringar oftast fattas (oavsett detta har uppkomsten av det rekonstruerade uralska urspråket uppskattats till mellan 6000 och 4000 f Kr; detta skulle också motsvara tidpunkten för det indoeuropeiska urspråkets uppkomst; Janhunen 2001; Koivulehto 1999). Samma gäller för den rumsliga dimensionen med undantag av tillfällen då ortnamn kan utnyttjas. Ortnamnsforskning är en specialgren inom språkforskningen med en speciell problematik och en speciell metodik.

Samiska är inte alls besläktat med t ex svenska och norska vilka tillhör den indoeuropeiska språkstammen. Samiska tillhör istället den uralska språkstammen, ofta också kallad den finsk-ugriska. Uralska språk talas inom ett område som sträcker sig från Skandinavien till mellersta Sibirien och med en separat förekomst i Ungern och Rumenien. Inom de uralska språken är samiska närmast besläktat med den östersjöfinska språkgruppen, sammanlagt 9 språk av vilka finska och estniska är de numerärt viktigaste. I själva verket är samiska också en motsvarande språkgrupp. Också den består av 9 olika språk av vilka nordsamiska är det numerärt viktigaste. Flera samespråk är hotade och några har redan dött ut. I stället för ett, borde man kanske tala om 9 olika samiska folk såsom man talar om 9 olika östersjöfinska folk. Men till skillnad från de östersjöfinska språken har de samiska bevarat en gemensam etnonym, sabme.

De samiska språken har differentierats ur en gemensam ursamisk språkform. Denna har i sin tur differentierats ur en tidigurfinsk språkform, som har varit den östersjöfinska och den samiska utvecklingslinjens gemensamma urspråk. Tidigurfinska kan retrospektivt genom utveklingsstadier härledas ur det uralska urspråket som är hela den uralska språkstammens gemensamma urspråk. För nu levande ter sig alla dessa forna språkformer som främmande språk. Ursamiska har varit en språkform som våra dagars samer inte skulle kunna förstå och samma gäller naturligtvis i ännu högre grad det tidigurfinska språket. En språkform är ett tidsbegränsat fenomen inom en kontinuitet. Därav följer att även en språkligt definierad etnicitet, i detta fall den samiska, är ett tidsbegränsat fenomen, också det inom en kontinuitet. 'Kontinuitet' hänvisar till den ofta uppställda, icke tidsbegränsade frågan om s k 'ursprung' i vare sig språklig eller annan bemärkelse.

Detta leder tillbaka till variablerna tradition och kultur och frågan om det är möjligt att identifiera samisk tradition och kultur i det arkeologiska materialet, och att i ett historiskt perspektiv, uptäcka och datera bildandet av en samisk etnicitet vid något visst skede av en kontinuitet? Frågan uppstår, i vilken mån en sådan övergång i tradition och kultur kan ha sammanfallit med t ex övergången från en ursamisk till en samisk språkform.

Jag uppfattar etnohistoria som en holistiskt integrerad och därmed tvärvetenskaplig procedur som bl a förutsätter att man försöker parallellisera strukturer även om de baseras på i grunden avvikande vetenskapliga system. Är det t ex möjligt att parallellisera ett språkhistoriskt ramverk med ett arkeologiskt ramverk?

Studiet av låneord och arkeologiskt observerade interregionala rörelser erbjuder en möjlighet om man antar att (1) arkeologiskt observerade rörelser har förmedlat också språkligt material och att (2) språkligt material har förmedlats av rörelser som kan observeras arkeologiskt (Carpelan 2000). Jag försöker följa denna princip som gör det möjligt att på en pragmatisk basis bygga upp ett logiskt helhetsmönster eller skenarium (Carpelan & Parpola 2001).

Tromsø-resolutionen baserade definitionen av etnicitet på variablerna historia, traditioner, kultur och språk. Många forskare skulle gärna ha kompletterat listan med en bioantropologisk variabel. Det är klart att samekonferensens ledamöter varken kunde eller ville inkludera detta element i sitt resonemang på grund av dess traditionellt rasistiska och därmed politiskt brännande innebörd. Numera är det möjligt att förhålla sig neutralt till både fysisk och molekulär antropologi emedan den seriösa forskningen inte längre betraktar mänskligheten genom ras-begreppet. Jag skall emellertid inte utvidga denna framställning med en bioantropologisk utblick även om t ex populationsgenetisk evidens till en viss grad kan belysa populationers spridning och kontakter och därmed gagna klarläggandet av 'ursprung'.

Efter detta kortfattade principiella resonemang skall jag övergå till att lika kortfattat presentera en praktisk tillämpning, alltså ett skenarium om hur samerna blev samer.

Det var den tidigpostglaciala pionjärkolonisationen som lade ramarna för den fortsatta utvecklingen av bosättningen i Fennoskandia. Skandinaviska halvön koloniserades av människor vilkas förfäder hade levat i västra Europa under Veichsel-glacialen. Detta skedde i två rörelser. Den första, som ägde rum omkring 10000 f Kr, berörde den norska kusträmsan ända upp till Varanger och vidare till Fiskarhalvön inom nuvarande ryskt territorium (Bjerck 1994). Den andra strömmen av pionjärer strövade norrut genom Sverige och etablerade sig i Norrbotten mer än 3000 år senare (Forsberg 1996; Knutssson 1993). I östra Fennoskandia (Finland, Ryska Karelen) hade pionjärkolonisterna ett helt annat ursprung. De hade inlett sin vandring mot norr från en linje som sträckte sig från övre Volga till södra Baltikum omkring 9500 f Kr och nådde Enare i nordligaste Finland ca 7300 f Kr (Carpelan 1999, 2001).

Dessa folkströmmar möttes på Nordkalotten – i Nord-Finland och Finnmarken och kanske också i Norrbotten men man kan ännu inte närmare beskriva hur det gick till.

Grupperna hade inte mycket gemensamt och de måste ha talat olika språk. De sydvästliga kolonisterna talade sannolikt något sedermera försvunnet ‘forneuropeiskt’ språk vars spår lingvister sedan K. B. Wiklunds (1896) dagar har funnit bland norra Fennoskandias ortnamn (Aikio 2004). Dessa namnformer passar inte in i varken det uralska eller det indoeuropeiska systemet. De sydöstliga kolonisterna från Volga har möjligen talat en språkform ur vilket det uralska urspråket senare utvecklades. Emellertid har man också i Finland noterat ortnamn som förefaller representera något främmande system. Det är icke omöjligt att Kunda-kulturen i Baltikum, därifrån en del av pionjärkolonisterna sannolikt härstammade, representerade ett avvikande språkligt system.

Pionjärkolonisterna är anfäder till Fennoskandias sentida befolkning. Diversiteten som med tiden kan observeras i befolkningens fysiska egenskaper och kultur och som har delat befolkningen i etniska grupper beror huvudsakligen på tre omständigheter: (1) pionjärkolonisationens delade ursprung, (2) olika genetiska element (olika slag av immigration) och kulturpåverkan av olika slag som vid olika tidpunkter och från olika håll trängt in i Fennokandias olika delar samt (3) en fysisk, materiell och social anpassning till de olika naturförhållanden som har rått och råder i Fennoskandias olika delar. Om detta accepteras, kan man, till exempel, inte anse den arkeologiska Komsakulturen som uppburen av forna samer, vilket ofta har hävdats. Istället representerar den en tidig komponent i ett utvecklingsförlopp som långt senare ledde till bildandet av etniska gruppen samerna.

Den tidigmesolitiska pionjärfasen följdes av en stabilisering varvid regionala mesolitiska grupper konsoliderades. På Nordkalotten bildades en etnisk gränszon mellan ett västligt och ett östligt block. I finska Lappmarken kan man i det arkeologiska materialet urskilja faser då påverkan riktades västerut och faser då riktningen var den motsatta. Särdeles tydligt framträder nämnda gräns vid spridningen av den tidigaste keramiken, s k Säräisniemi 1, ca 4650 f Kr (Carpelan 2003, 2004). Rörelsen mot nordväst avstannade vid en linje som på kartan kan dras från mynningen av Kemi älv till Utsjoki vid Tana älv och vidare till Varangerfjorden. Ett fynd från Överkalix antyder att denna annars täta gräns läckt något vid den forna kustlinjen. Norrlands befolkning som hade kontakt med keramikbrukande samhällen även i söder kring Dalälven accepterade inte bruket av keramik förrän omkring 3000 år senare. Dikitomin keramik/icke keramik utgör här en definitiv etnisk markör.

Bruket av Sär1 keramik bör ha upphört omkring 4000 f Kr och en lång keramiklös period följde. Detta var sannolikt en följd av en rörelse som från väster överskred nämnda gräns och expanderade mot öster. En ny kulturgräns stabiliserades vid linjen Rovaniemi–Kandalaksha–Murmansk. Norr och väster om gränsen upphörde alltså bruket av keramik och den arkeologiska kulturbilden fick tydliga norrländska inslag. En ny etnicitet hade antagits i området. (Carpelan 2003)

Senare ändrades situationen igen, men redan dessa exempel antyder hur det historiska sameområdet under stenåldern delats i två etniska block, ett västligt och ett östligt. I det västliga talade man något nu okänt språk som inte kan ha gett upphov till den historiskt kända samiska språkfamiljen. I det östliga blocket talade man också något nu okänt språk: eventuellt någon språkform besläktad med det egentliga uralska urspråket som bör ha utvecklats någonstans i vad som nu är centrala Ryssland. Eftersom samiska utgör en gren av den uralska/finsk-ugriska språkstammen är det klart att det är den östliga riktningen som är av vikt vid studiet av den huvudsakligen språkligt definierade samiska etniciteten.

I Finlands arkeologiska material kan man urskilja flera skeenden med betydelse för utvecklingen fram emot en samisk etnos. De tidigaste av dem lokaliseras till Finlands södra hälft. Omkring 3900 f Kr expanderade en ny kulturform kännetecknad av kamkeramik stil 2 (s k typisk kamkeramik) snabbt från sydöst över Ryska Karelen och Finland ända upp till polcirkeln i norr, alltså till den nyss nämnda kulturgränsen. Det var sannolikt fråga om immigration av ett nytt folkelement som antas ha talat en finsk-ugrisk språkform ur vilken både urfinska och ursamiska senare divergerade och utvecklades.

Omkring 3200 f Kr uppenbarade sig snörkeramiska eller båtyxekulturen i södra och västra Finland medförd från Baltikum av ett nytt folkelement som representerade en agrar-pastoral socio-ekonomisk tradition och sannolikt talade vad av lingvisterna kallas nordväst-indo-europeiska (Carpelan & Parpola 2001: 68). Vid integreringen med lokalbefolkningen påverkade nykomlingarna starkt kulturbilden. I och med detta inleddes en utveckling som i sydvästra Finland ledde till bildandet av ett agrart samhälle som upprätthöll kontakter med Östersjöområdet. I inre, östra och norra Finland söder om polcirkeln fortgick livsföringen i fångstsamhällena som förr inklusive de traditionella kontakterna med östra Europa. Sålunda hade det bildats en ny etnisk gränslinje inom östra Fennoskandien och mycket talar för att detta gav upphov till en begynnande språklig differentiering som i sydväst ledde till urfinska och i övriga delar av området till ursamiska. Denna gränslinje skulle visa sig mycket seglivad – den suddades ut mer en 2500 år senare under merovingertiden (som i Sverige kallas vendeltiden).

Anslutningen till en agrar tradition är ett starkt etniskt ställningstagande och skiljande faktor. Denna faktor verkade också i närheten av Norrlands-gränsen i nuvarande Sverige efter 3900 f Kr då odlande grupper representerade av en variant av trattbägar-kulturen expanderade mot norr och stannade upp där. Också denna gräns var mycket seglivad etnisk gräns. Bl a hindrade den bruket av keramik från att spridas till Norrland.

I inre, östra och norra Finland söder om polcirkeln hade den mellanneolitiska asbestkeramiken (Kierikki, Pöljä, Jysmä) konsoliderats och traditionen fortsatte under äldre tidig metalltid under den arkeologiska benämningen Palajguba 2 efter en fyndplats i Ryska Karelen. Samtidigt, i början av äldre metalltid (eller epineolitikum såsom Evert Baudou kallar perioden för Norrlands del), ca 1900 f Kr spreds en arkeologisk kontext kännetecknad av s k lovozerokeramik över norra Fennoskandia från Uleträsk (ca 65°N) till Ishavet och från Kolahalvön till Jämtland (Carpelan 2003, 2004). Keramiken (som Roger Jørgensen och Bjørnar Olsen 1987 föredrog att dela i två varianter: Lovozero och Pasvik) representerar den asbesteramiska traditionen som jag nyss sammanlänkade med utvecklingslinjen som senare ledde till att den ursamiska enheten uppstod.

Expansionen som kännetecknas av Lovozerokeramiken, det första keramikslaget som fick fotfäste i norra Skandinavien, företrädde troligen en spridning till områdets olika delar av relativt fåtaliga små samhällen vilka etablerade ett distributionsnätverk för bl a pilspetsar med bred (tvär) bas, koppar-/bronsspetsar och asbest. Lovozero-expansionen förenhetligade områdets kulturbild för en tid men snart uppenbarade sig jämsides ett annat slag av keramik som kännetecknas av avtryck på ytan som liknar avtryck av grov vävnad (riktiga textilavtryck är det emellertid inte fråga om, alltså imiterad textilkeramik). Möjligen är det urbefolkningen som nu antar bruket av keramik och höjer sin profil gentemot ‘lovozero-folket’. (Carpelan 2003, 2004.)

Lovozerorörelsen kan ha utlösts av en annan rörelse som kännetecknas av den s k textilkeramiken (med riktiga vävnadsavtryck; Lavento 2001). Tekstilkeramiska kulturen hade omkring 2000 f Kr uppstått i Volga–Oka-området ur ett substrat av lokal Volosovokultur och invandrad snörkeramisk Fat’janovokultur under påverkan av två steppkulturer, först Abashevo och sedan Pozdnjakovo. Den textilkeramiska rörelsen som från övre Volga riktades mot nordväst och nådde ryska Karelen och Finland upp till ca 65°N och i viss mån ända upp till polcirkeln följdes åt av Sejma–Turbino nätverkets (Chernykh 1992) bronsinventar. Den textilkeramiska kulturen, som också den representerade en elementär agrar tradition, verkade i området med en styrka jämförbar med den som den snörkeramiska kulturen i tiden hade påverkat lokalkulturen med i sydvästra Finland. Ur språklig synpunkt är det möjligt att anta att textilkeramikerna talade tidig volga-finska som innehöll lånade inslag från Fat’janovokulturens urbaltiska samt Abashevokulturens och Pozdnjakovokulturens tidiga indoariska och indoiranska. Motsvarande låne-element förekommer både i urfinska och ursamiska och det är endast den textilkeramiska rörelsen som kan tänkas ha förmedlat dem.

I östra Fennoskandia utanför den sydvästliga kulturkretsen uppstod med tiden (fr o m ca 1000 f Kr) några nya asbestkeramiska former som till sin formgivning och ornering baserade sig på textilkeramiken. En av dem är Sirnihta-typen som kännetecknas av ett vågrätt band med geometriska mönster under randen; bottnen kan vara ornerad. På 600-talet f Kr uppstår en snarlik typ, Kjelmøy-keramiken, i norr i kontakt med Sirnihta-typen, Den spred sig snabbt över samma område och troligen på samma sätt som Lovozero-keramiken tidigare. Sirnihta- och Kjelmøy-keramiken följs åt av bronsyxor av Anan’ino-typ samt av kännedom om järnet. I norra Fennoskandia har områdets urbefolkning, ‘lovozerofolket’ och de nya invandrarna sannolikt integrerats och därvid gett upphov till formandet av en ny etnicitet och en ny relativt enhetlig kulturbild.

Jag finner det sannolikt att det är under Kjelmøy-periodens tid (ca 700 f Kr–300 e Kr) som en ursamisk språkform och identitet konsolideras i norra Fennoskandia. Detta kan ha skett så att ursamiskan har blivit en lingua franca som med tiden ersatte urbefolkningens ‘forneuropeiska’ och ‘lovozerofolkets’ ‘paleo- eller förursamiska’ språk (terminologin är svår). Vid processen har den expansiva ursamiska språkformen absorberat substratelement från urbefolkningens språk. För mer än ett sekel sedan formulerade lingvisten K. B. Wiklund (1896) en hypotes om samernas språkbyte. Under årens lopp har flera forskare intagit en skeptisk hållning men numera tas hypotesen om samernas språkbyte på allvar (Aikio 2004).

I östra Fennoskandia söder om polcirkeln var situationen en annan. Det var där som den ursamiska utvecklingen fick sin början och därifrån som det ursamiska elementet expanderade till norra Fennoskandia. Där skedde inget språkbyte med åtföljande absorbering av substratelement men språket bör istället ha mottagit stark påverkan från Volga–Oka-området. Analogt med skillnaderna i den arkeologiska kulturbilden finner jag det troligt att det tidigt uppstått skillnader mellan en primär ursamiska i söder och en sekundär ursamiska i norr. Lingvisten Mikko Korhonen (1981) formulerade för 25 år sedan en hypotes om delningen av ursamiska i två block: ett primärt sydligt och ett sekundärt nordligt block. Hypotesen har kritiserats (Aikio 2004 muntligen) men ja finner det vara en mycket realistisk tanke att (ur)samiskan i det sekundära området i norr i en avvikande språklig, social och naturmiljö utvecklades i en riktning som avvek sig från utvecklingen i det primära området.

Omkring 300 e Kr ändrades kulturbilden i hela det antagna ursamiska området radikalt. Bruket av keramik avtog och likaså produktionen av järn. Följde en period som inte har lämnat efter sig typiska fornlämningar. Spridda fynd och C14-dateringar visar emellertid att området inte blev avfolkat. Med hänvisning till Ante Aikio (2004) förefaller det möjligt att parallellisera fullbordandet av urbefolkningens språkbyte med slutet av Kjelmøy-kulturen och delningen av den ursamiska språkformen med den fyndfattiga perioden.

I norra Fennoskandia blir samernas förfäder arkeologiskt synliga igen på 700-talet. Fyndens antal stiger starkt och en ny karakteristisk fornlämningstyp, den mer eller mindre rektangulära stensatta härden, uppstår. Samtidigt får kontakten med det norska, svenska och finska samhället en ny dimension vars påverkan kan avläsas i samernas historia och traditioner, kultur och språk. Och språket är samiska med märkbar dialektal delning. Det är fr o m denna tidpunkt som jag ansr att man kan börja tala om bildandet av en en samisk etnicitet, en samisk identitet såsom den kan identifieras i ett historiskt perspektiv. Man bör minnas att alla kända etniciteter är/har varit tidsbegränsade episoder.

I östra Fennoskandia fortsätter fyndfattigdomen fram till den historiska nya tiden. Detta beror til stor del på frånvaron av målinriktad arkeologisk forskning. Emellertid har samer ännu under medeltiden och början av nya tiden bott i stora delar av Finland och ryska Karelen förutom Kolahalvön samt norra Skandinavien. För många – både lekmän och forskare – har det varit och är det svårt att förstå att samerna inom detta område har sammansatts av två skilda ursprungliga populationer som sammanträffat på Nordkalotten. Man glömmer att samerna i östra Fennoskandia under den historiska nya tiden, efter ca 1500, har assimilerats av den expanderande finska och karelska befolkningen och på så sätt försvunnit. Följaktligen baserar sig alla kända sentida samiska språk och dialekter på den av Korhonen postulerade sekundära nordursamiska språkformen. Samma gäller för andliga och materiella kulturföreteelser – traditioner och kultur.

Till slut. Det följande är ett sammandrag av ett avsnitt som jag vid sessionen lämnade oläst för att spara tid. (1) Skandinaviens urbefolkning, som härstammade från västra Europa, talade ett språk som sedermera dog ut och således blev okänt för oss nu levande. (2) Senare rörelser som förvandlade ekonomin och kulturbilden i södra Sverige till neolitisk nådde upp ungefär till Dalälven. Denna gräns fortlevde till järnåldern. (3) Både Lovozero och Kjelmøy-rörelsen nådde i söder till mellersta Jämtland. Också denna gräns fortlevde till järnåldern. (4) Med undantag för havskusten förblev området mellan dessa två gränser, vilka motsvarar dem som Baudou dragit bl a i Norrlands forntid (1995: fig. 32), ett reliktområde där den skandinaviska urbefolkningen med sitt ‘forneuropeiska’ språk och sitt motstånd mot produktion och användning av keramik framhärdade tills de slutgiltigt assimilerades av expanderande svenskar och sydsamer så sent som vikingatid eller tidig medeltid. Detta är en frågeställning som borde intressera och inspirera i synnerhet svenska arkeologer, lingvister/ortnamnsforskare, etnohistoriker.

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The invisible identities: cultural identity and archaeology

Bozena Werbart

My interest in discussions about cultural identity came up from a previous project on cultural interactions in Iron Age societies around the Baltic Sea. I have an unpleasant feeling that the thin level, left after the ‘iron curtain’, destroyed in the beginning of the 1990s, was transformed into ‘mini Berlin walls’ regarding the interpretation of prehistoric societies. The unwritten taboo concerning questions of ethnicity in Scandinavian archaeology and this increasing and unrestrained interest in questions of ethnicity in archaeology in the former Soviet Union as well as in the old Eastern block, led me to question the very idea of ‘ethnicity’.

The social anthropological view on cultural identity is useful for understanding cultural identity in the past. At the same time different ethnic conflicts around Europe and in the former Yugoslavia deeply shook the European continent during the middle of the 1990s, and nationalistic demons were again operating in different countries. This only confirmed that debates on questions of ethnicity in the past are a compromising, if not impossible, act. This pessimistic view was consequently transformed to an aspiration to try to reflect on the problem of in which archaeological contexts cultural identities *can* be studied. Based on my recent efforts to examine age relations, gender relations, and relations associated with identity problems, at least in the form of symbolic meanings in the material culture, I decided to study two different expressions of cultural identity in this paper:

– cultural identities in the Baltic Sea area during 400-900 AD

– the Middle Ages identities in steppe territories of the Khazarian world

The literature on the subject of *cultural identity/ethnicity* within both archaeology and social anthropology since the 1990s is constantly increasing. Topics of culture heritage, nationalism, politics, human meetings, and globalism are often bounded with discussions about cultural identity. *Ethnicity* or *ethnic identity* has been more and more replaced by the notion of *cultural identity*. Dynamics, variability, multiplicity, and ambiguity are pointed out in last year's publications on archaeology and cultural identity. My ambition was not to sum up and say what ethnicity or cultural identity really *is*, but rather to express a way of thinking, and to try to contextually understand cultural identity. These topics are illustrated by studies on cultural identity in material culture and in the meanings of symbols, by studies on identity and nationalism, identity and politics, and by studies on cultural identity as archaeological context.

The intensive research on the interplay between different ethnic groups and different cultural manifestations during the 1990s became to a tendency to search for diversified cultural changes, the multicultural and multiethnic in historical and prehistorical societies. Ethnicity in archaeology can mean many different identities and group thinking. Ethnic/cultural belonging is inseparably connected with identity, integration and intercultural relations. An important basis is, that *identity is not a static condition, but it can change when the external circumstances are changed.* Ethnic/cultural belonging can possibly consist of different elements in material and non-material culture: symbols, valuations, collective rituals, memories, things, objects.

But is it possible to discern ethnic affiliation in the past? It is a very difficult, if not impossible and unfeasible task to study *ethnicity* in archaeological material. Different expressions of cultural identity are associated with different identities topics, as gender, social and age relations. The role of archaeology in the construction and establishment of collective identities became and maybe will be one of the most important issues in archaeological theory and practice. Cultural identity seems to be a social, diversified and dynamic phenomenon, which includes social and cultural interrelations. Attempts at interpretations of multidimensional *culture identity* and the criticism of 'ethnicity' has been illustrated by a couple of examples: intercultural relations in northeastern and northern Europe during the younger Iron Age in the Baltic Sea area as well as Middle Age identities in Euro-Asiatic steppe territories within the Khazar state. A large-scale perspective was necessary in this study on cultural identity and cultural pluralism. Relations between culture and identity are especially interesting in multi-social systems.

Cultural identities in the Baltic Sea area during 400-900 AD – Scandinavia and the southern coast of the Baltic Sea

An *ethnic group* like 'Slavs', Balts or 'Germans' is not an archaeological culture. There is no relation between ethic group and archaeological culture. These conceptions can either be changeable expressions of power, politics, identity, and gender or of more complex phenomena. Cultural identity can also be interpreted as a conglomerate of different cultural manifestations in different societies. Medieval-period historians often began with this misleading comprehension that ethnicity or identity of various ethnic groups was the same as in the past. The Baltic Sea area manifested during the 5th-9th centuries traits of multiculturalism and pluralism. Cultures around the Baltic Sea were of multiethnic and multilateral character.

Ethnicity was during the European Migration Period a political organization, integrated around the traditional community (identity) defined by leading political families (Geary 1983: 14ff.). Ethnic identity during the Migration Period was a kind of situational construction, when specific situations and special reasons, particularly in a political context, forced it. The people defined themselves as Visigoths, Franks, Romans, Vandals or Slavs to be associated with distinct political groupings (Harrisson 1994: 6f.). They could undoubtedly belong to many different ethnic groups at the same time. Consequently, ethnicity does not create political conflicts; on the contrary, *identities* were created as a result of conflicts.

The reason to avoid the very idea of *archaeological cultures* is that the variations depended on distinct factors: different peoples in different places had different ideas about how things should be produced and used. In this way ‘ethnicity’ was a situational construction in Early Medieval Europe, and for instance the ethnicity of Lombard’s during the 8th century was equal with the land owning and territorial organization (Geary op.cit: 16; James 1989; Shennan 1994: 12). The people chose however their own cultural *identity/ethnicity* depending on the situation. After all, we do not know what was considered as an ethnic term in various kingdoms.

The so-called ‘Migration Period’ in Europe produced different identity problems: political, cultural, and economical. Migrations theories did not consist any more of simplified discussions on *peoples’ migrations* (see Härke 1998).

Michaels Gebürh’s latest research results show us that the very strict chronology of the Migrations Periods objects, especially ornaments, as for example fibulas, are sometimes totally useless. In graves on Funen and in Schleswig-Holstein, the occurrence of both ‘old’ and ‘new’ forms can be interpreted as that these were used by various generations, for instance by mother and daughter (Gebühr 1997: 114f.). The refined chronology of Migration Period phases D and E, and typology of the so-called West Baltic fibulae, as Anna Bitner-Wróblewska created in Poland during the 1990s (Bitner-Wróblewska 1991: 225ff.) left, in my opinion, no margins for interpretations of the social changes or multiplicity in cultural manifestations.

Different types of objects and ornaments can demonstrate various changes of fashion and not necessarily ethnical differences. The ritual center and power concentration in Gudme-Lundeborg, Denmark, as an example of huge areas of between-group contacts between the north and central Europe, is directly related to the European origin of states, with the multiplicity of objects of status and other expressions of power, prestige, and ritual human sacrifices, boat sacrifices, gold objects and ornaments in an interactive context (Fabech 1994).

To discuss Lombards and Goths in Europe with references to written sources (as Hedeager 1990) is a fully acceptable archaeological method and way of thinking. On the other hand, to ascribe specific groupings such as Goths, Visigoths or Vandals to such artificial archaeological cultures as Oksywie or Przeworsk, is in my opinion, not a meaningful way to work with the material culture (see Martens 1994: 63). Neither migration theories nor ethnical terms can be used when discussing such phenomena as Przeworsk and Oksywie ‘cultures’ or Vandals. These ‘cultures’ can be regarded instead as expression of local regionalism and variation during the Roman Iron Age, and thus can be equal with cultural identity or ‘ethnicity’.

It is not so difficult to produce more modulate and multidimensional picture of different Iron Age societies around the Baltic Sea and its mutual contacts, cultural identity, mobility and gender relations, all of which issues have been discussed during the last seven years about the contacts across the Baltic Sea.

To study interactions between the southern, eastern and northern Baltic Sea can be associated with the ideas of the Baltic Sea as a united link between various areas: northern Europe without borders. It is easy to stare blindly on the nowadays-political borders (Wyszomirska 1984; Werbart 1999). The southern coast of the Baltic shows important similarities during the 5th-9th centuries with southern Scandinavia, but is strongly marked by conditions of both Central European and East European character. Southern Scandinavia and Pomerania, northeastern Poland and the West Baltic territory can be regarded as *one* part of the Baltic Sea area.

Two cultural landscapes can be visible in northern Europe during the 5th-8th centuries:

1. southwestern Scandinavia with the Danish islands of Zealand and Funen (Gudme), and
2. Baltic Sea landscape with Bornholm, Scania, Öland, Gotlland, landscape of Mälaren, Middle Norrland and the so-called West Baltic zone.

Historians have regarded 6th century Scandinavia as a place from which waves of groups of people continuously immigrated to the European continent. The special mythology about the *Migration Period* functioned as an ideological instrument of power; mythology which has its roots in 17th century ‘Geaticism’, where Sweden was presented as a place with concentration of all the European ‘civilization’ (Duczko 1997: 191, Fig.1).

Discussions on trade/exchange involved the most popular models of interpretations, but trade cannot explain everything; some categories of artifacts, such as medallions, gold rings, etc., have never been in the trade circulation. Their symbolic value, as a part of the social language, could only be understand by the people who created this language:

> The objects of this kind found very seldom their way outside the user society and when they appear in the foreign context we should look rather for people than for the articles of trade (Duczko 1997:201).

Interactions in the Baltic Sea area can nowadays be understand as obvious in Swedish, Polish and Baltic countries archaeology. This obviousness on the Scandinavian side was, however, of more oscillated character. It was of comprehensive interest in Sweden during the 1960s, thanks to professor Holger Arbman in Lund; from this period until 1989 it was considered rather insignificance. Since the 1990s, the interest was awaked again, especially in Sweden and Denmark. Connections, parallels, and interactions have been studied mostly in the ‘Scandinavian’ types of objects from 5th-6th centuries, and in the grave ritual with ‘Scandinavian’ character from the younger Iron Age from northern Poland – western, middle and eastern Pomerania, as well as Mazuria and Suwalki Lake district and western Lithuania.

The Slavonic and ‘West Balt’ artifacts were found in the southern Scandinavian area, Scania and eastern Denmark, as well as in landscape of Mälaren, and on Öland and Gotland. The so-called Baltic *impulses* can be observed most distinctly in the shape of crossbow, and star-footed as well as spade-shaped fibulae, *Sternscheibenfibeln*, known from Samland and western Lithuania (Bitner-Wróblewska 1991). Both on Gotland and in western Lithuania, identical collections of characteristic objects in graves occur:

crossbow fibulae with a long and narrow foot, and also bronze mounts of drinking horns. These broad and band-shaped, richly decorated bindings of drinking horns had actually a bifurcated center: on Gotland and in the West Balt culture areas. In the Plinkaigalis cemetery in Lithuania, from the 5th-6th centuries, with 364 skeleton graves and three horse graves, details of horse-trappings with stamp ornamentation of the Sösdala type, with concentric rings, half-circles, triangles and stylized stars can be noticed. Beads of glass, amber, clay and bronze, necklaces, silver amulets and hair rings occurs in the female graves; drinking horns and fragments of horse-trappings of Sösdala style in the male graves (Wyszomirska-Werbart 1992: 64).

The *ethnical* labeling in the archaeological context of the West Baltic area is of old provenance: *West Balt culture, Balts*, etc. (Nesselman 1845; Åberg 1919; Scukin 1991). The term *Balts*, from the Latin name of the Baltic Sea (*Mare Balticum*), was introduced for the first time in the 1850s by G.H.F. Nesselman to define the groups of people from the eastern part of the Baltic Sea who spoke the *Baltic* languages, such as Lithuanian, Latvian, and Curonian (from the *Kurische Nehrung*).

The name *Prussia* in a historical-geographical meaning comprises specifically the territories on the coast of the Baltic Sea, between the Vistula and Niemen. The very concept of *Prussians* is diffuse; in the written sources from the early Iron Age until the Medieval Age it was associated with horse raising. It is possible that this name implies a *groom*: in the old Slavonic dialect *Prussian* means a mare (Okulicz 1972: 14).

The so-called Migration Period (400-500 AD) on the southern coast of the Baltic Sea is characterized in part by *Scandinavian* objects, such as for instance bracteats with runic inscriptions from Wapno near Pila, and Karlino. The ornaments, mostly fibulae imitating the southern Scandinavian Sösdala style, occurred particularly on the Sambia peninsula, but also tongue-shaped belt mounds, with a spreading from Samland Peninsula to Scania, Öland and Gotland (Bitner-Wróblewska 1991).

Pomerania became during the 6th century a part of the interactive culture sphere around the Baltic Sea: gold hoards containing coins, bracteats and gold necklaces from the 6th/7th centuries of Scandinavian character, one foundry hoard from the 450s from Frombork, with crossbow fibulae, gold *solidi* of Theodosius II from 430, silver coins and cast rests, bronze scrap, and beads. Contacts are especially obvious near the mouth of the Vistula, for instance on the fortified settlement in Pasym.

The interactive trade connections were managed especially intensively from 6th century between Gotland, Middle Sweden, *Prussia*, Vistula mouth, and Denmark (Okulicz op. cit.). Expansion of the West Balt material culture towards the mouth of the Vistula and Elblag, based on the exploitation of amber, had left behind a large multicultural trade activity center near the town Elblag–Janów Pomorski (Truso), on the Samland Peninsula–Wiskiauty, and on the *Kurische Nehrung*–Grobin. In a letter to Aestii (Hester/Esther?) from 523-526 the Ostrogothian King Theodorik expressed thanks for amber (Labuda 1961: 107ff.; Okulicz 1973: 493ff.). It can be read in Wulfstan’s chronicle and in the chronicle of Adam of Bremen that Sambian merchant ships visited Birka and that the Scandinavian ones visited Truso (Adam av Bremen 1984; Wyszomirska-Werbart 1992: 62ff.).

The commercial market from the 5th-8th centuries around the Baltic Sea was maybe only a short parenthesis, but it was repeated a few centuries later. Superordinated centers of the Migration Period no doubt existed during the European pre-urban times.

But how does one define Scandinavian finds? The material culture and the grave rituals not necessarily were produced and made *in* Scandinavia or *by* Scandinavians, but perhaps *with* Scandinavian traditions. The similarities need not always mean the same things; they are dependent on, for instance, different workshops, diversified traditions or distinct *modus vivendi*.

Ports of trade from 8th-9th centuries played an important role in economic contacts and trade connections between Scandinavia and Kiev, through Dvina, Ladoga and Volga. The earliest commercial and workshop center was Ribe in Denmark and early Wolin in northwestern Poland (later the largest town in this region), and Janów Pomorski near the lake Druzno, probably Truso, according to Wulfstan. Janów Pomorski, a 8th-9th century *port of trade* and a multicultural trade center, was investigated near the town Elblag from 1983-1991 by Marek Jagodzinski (Jagodzinski 1988: 3ff.; Jagodzinski & Kasprzycka 1990).

The term *Truso* as well as other terms like Drus, Trus, Druzno, often occur in the Baltic territories, and they mean ‘salt’. It can be probably noted, that where salt is found the coasts of the Baltic Sea a concentration of the ‘Scandinavian’ import objects can be observed as well. Cultural interactions were visible between the ‘West Balts’ region and Scandinavia from the early 5th century until the 7th century, consequently until the earliest settlement phase in Truso (Kowalski 1987; Bitner-Wróblewska 1991: 222ff.).

Economic contacts and trade connections were established during the 8th-9th centuries thanks to the so-called Viking Road from Scandinavia through Dvina, Ladoga, Volga to Kiev. Truso near Elblag played an important role in this commercial contact, not only as a supply-port, but also primarily as a significant trade- and handicraft place.

Truso is mentioned in Wulfstan’s chronicle: ‘the place is a seven days’ sail trip from Hedeby’, and ‘between Hedeby and Truso the Vendians country was all the time to the right of starboard; to the left Lolland, Falster and Scania’. Truso is also mentioned in other written sources, for example in the *chorographia* (a short geographical description) of Paul Orosius from the 5th century, in the Anglo-Saxon translation by King Alfred the Great (872-899): *Historia adversum paganos*. The work of Orisius was a prototype for the European world maps until the 13th century (Jagodzinski 1988: 3ff.; M.G. Larsson 1990: 110; Werbart 1996b).

Scandinavian types of objects and some other finds from Gotland, Middle Sweden and Denmark appeared during investigations of Janów Pomorski in the trench K, i.e. equal-armed brooches, cornelian beads, rock crystal ornaments, weights and leaden means of payment, goldsmiths implements with scissors and punches, as well as 49 fragments of post-Sasanian dirhams. All these finds were investigated at a wreck site: boat contours of 12 plank boats with iron rivets, piled on each other (Jagodzinski 1988; Wyszomirska-Werbart 1991: Fig. 7.). The large workshops from the beginning of the 9th century with preserved combs; raw amber, glass beads, imported glass, and unfinished products indicate a developed amber, glass and antler handicraft (Ambrosiani 1981: 62ff.; Jagodzinski 1988). In the amber workshops, appeared pendants in the shape of Thor axes and hammers, amber play pieces of *hnefi* (a game known both in Scandinavia and in the West Slavonic region of the Baltic Sea. Bone skates and iron picks for walking on ice, shows the possibility that the exchange/trade existed as well during the winter.

A coin hoard with eleven whole and five fragmentary dirhams, iron key and one in Poland very uncommon occurring silver coin from 825 from Hedeby, an imitation of the coin from Dorestad of the Charles the Great, appeared in another trench in Janów Pomorski.

The multidimensional material culture indicates long-distance trade and interactive contacts in the Baltic Sea region between Scandinavian, North Russian, Slavonic, and West Baltic societies. Truso, just as Birka, Staraja Ladoga or Wiskiauten, served as a cosmopolitan, densely populated town/trade place (*port of trade*) of polyethnic character in the same way as the oldest West Pomeranian centra: Wolin, Kolobrzeg, Gdansk, Ralswiek, and Menzlin (Jagodzinski 1988; Jagodzinski et al. 1990; Werbart 1996c).

> People inhabiting sites like Janów and Grobin procured whole groups of artifacts of south Scandinavian, Gotlandic and mid-Swedish origin (Duczko 1997: 204).

Swielubie was already during the late 8th century, when the first imports of silver streamed into the southern Baltic Sea area, ‘chosen by Scandinavians’ and was established as a port of trade .The Baltic Sea has during the 9th century been the main route of communication in the contacts between different multicultural trade- and workshops places, such as Birka, Hedeby, Menzlin, Ralswiek, Swielubie, Wolin, Truso, Grobin, Staraja Ladoga and Novgorod-Gorodischche.

However, can we really see in the archaeological and historical material evidence that is possible to reconcile with *ethnicity*?

Around the Baltic Sea, as we know, there were during the younger Iron Age international, multicultural and multi-religious ports of trade, but also around the Caspian Sea and Don – Sarkel in the Khazarian (Davidan 1986; Wyszomirska-Werbart 1992:2 43; Werbart 2002: 112).

Polish archaeologists have earlier mainly discussed the so-called Scandinavian settlements in the southern area of the Baltic Sea. During the 1980s a tendency crystallized to emphasize the active Scandinavian elements during the 8th-10th centuries in connection with the analysis of settlements, burial customs, social structure and geographical/territorial circumstances. Spreading of the Scandinavian imports was regarded as ‘authentic Scandinavian objects’: brooches and other ornaments, drinking horns, posaments, slate objects, soapstone, bone/antler combs, play pieces (Zoll-Adamikowa 1981: 1ff.). In the *ports of trade* on the southern coasts of the Baltic Sea these products were spread through the trade centers in the Scandinavian and Baltic countries from West Europe (as glass vessels and weapons) or from the Orient (textiles, dirhams, beads).

A specific burial zone in the southern coast of the Baltic Sea, in the very northwestern Poland and in the Szczecin area, called the G zone, consists of around ten cemeteries with common eschatological phenomena (Zoll-Adamikowa 1990). The oldest of these are from the 9th century: Swielubie, Ralswiek, Skronie, Menzlin and the younger are from the middle of the 10th to the 11th centuries: Wolin and the most of the barrows of Ralswiek. Some of the cemeteries are biritual with an intense predominance of cremation burials: Ralswiek, Wolin, Swielubie, Kamien Pomorski; while some consist only of cremation burials: Menzlin, Stezyca.

Another common characteristic is the large number of male graves (65%), the use of coffins, carriage-baskets or whole boats, which were placed on the stakes, as in Stargard. Most cemeteries are barrow grave fields. In 10% of the cases the barrows were constructed directly on the remains of the stake; a small part of the graves were cenotaphs. A large variation of the grave forms is characteristic: in Ralswiek a burial grave with a burnt boat; in Orzeszkowo – pyramid-shaped, quadrangular stone settings, and in Menzlin – round and boat-shaped stone settings (Zoll-Adamikowa op. cit.).

Among the grave goods of the 9th-century burials a great part of the non-ceramic finds can be noted, an infinitesimal number of weapons and riding equipment, and a conspicuous dominance of objects of 'Scandinavian' provenance, mainly from Gotland, Mälardalen and southern Scandinavia: game pieces (*hnefi)* and dice, details of dresses of luxurious nature, the ornaments, attributes of the merchants (Hägg 1984, 1986). In Swielubie, among grave goods from the 9th century occurred: oval brooches, trefoil fibulae, rectangular strap mounts, and the posaments of silver thread (Wyszomirska-Werbart 1991: 88f.).

Objects found outside their "usual" geographical context and spreading, lose their significance, value and gender indicating symbols and signs, and may denote something quite different or something similar; they rarely have the same meaning, however.

Oval brooches from this area as well as other ornaments indicate that these objects cannot always be regarded as gender-indicating signs. In the Scandinavian region they occurred only in the female graves. But in some parts of northern Poland and in Russia they occur also in the male burials (Werbart 1995): oval brooches in a male burials, as in barrow 21 in Swielubie; rectangular strap mounts in female graves, which usually occurs in Scandinavia in male burials. Posaments of silver thread, mostly known from Sweden from the male graves, occurred in the female graves in Swielubie. A male burial from Vivallen (grave no 9) was equipped with silver ornaments and bronze mounts and his dress was ornamented with silver bands (Zachrisson 1987: 36). Similar luxurious dress, which indicate contacts with southeastern Europe, occur in high status burial graves in Birka (in 130 female graves and in 50 male graves), and has been called by Swedish archaeologists as 'Oriental' costumes. Silver posaments occurred on the other hand in the female graves in Birka: no 537, 624 and 886 (Hägg 1984). Belt mounts were, however, not quite unusual in female graves in Birka.

The burial rituals reflected the international milieu in these *ports of trade* on both sides of the Baltic Sea: biritualism, cenotaphs, boat-shaped stone settings, boats and carriage-baskets. Population in this area was buried in agreement with the Scandinavian traditions or with traditions in the cosmopolitan and international trade centra. This population also dressed, played and lived in accordance with those traditions: Viking Age brooches, posaments, pin boxes, tins, drinking horns, dice and game pieces (*hnefi*), scales, weights, coins, etc. (Zoll-Adamikowa 1990: 3ff.).

The Scandinavian mode which occurred in Swielubie during the 8th-century was probably not such a strong gender indicator as in Scandinavia itself. Interpretations of interregional contacts between southern and eastern Scandinavia and Pomerania during the 8th-9th centuries means sometimes very considerable conclusions that these Scandinavian finds in the female graves were gifts from Scandinavian trade men to women from Swielubie or that these women came from Scandinavia and got married in Swielubie. But is must be emphasized that it was not only trade *men*, but trade *women* as well, who were active in the international trade in southern Scandinavia, southern Baltic Sea, and eastern Volga region in Russia as well (Stalsberg 1991; Werbart 1995: 126). These trade women were identified by female graves with weights, known from Russia from Ladoga, the upper Volga and the eastern Volga regions. Graves with ‘Scandinavian’ finds need not to contain ‘Scandinavians’. Both male and female graves with the ‘Scandinavian’ objects occurred in the same grave fields and sometimes in the same grave barrows (Werbart op. cit.). One of the paradoxes of the archeological writing is for instance the term ‘female trademen’ instead of tradewomen. *And why should we not accept that women take part in trade?* (Stalberg 1991).

It is thus always implicitly taken for granted that the men were responsible for the exchange of goods and trade. The fact that women also played an active part in trading links is clear from both Scandinavian, Russian and Volga-Bulgarian finds (Stalsberg 1991: 50). The interpretation that Scandinavian tradeswomen did not travel to the Islamic countries is relevant, since only male graves containing weights and scales were found in Volga-Bulgaria, unlike the Kiev area.

There is also no mention of tradeswomen or traveled women in the oldest Christian or Muslim written sources, written by men. No Scandinavian female grave finds have thus been made in Volga-Bulgaria, where Scandinavians and Volga-Bulgarians met on the silver markets. Trade was the most eminent activity of the Scandinavians in the Kiev and East Volga regions; the possibility of direct family contacts, including marriage alliances, cannot be excluded.

‘Scandinavians’ traveled to Rus’ as *tradesmen*, pilgrims, and important visitors in the three different stages: during the 9th, 10th, and 11th centuries. ‘Scandinavian’ women were buried in the same way as men on the Plakun grave field near Ladoga: the remains of cremation graves in boats (Lebedev et al. 1973: 6ff.). The grave contents from Grobin exhibit a characteristic mixture of Scandinavian and eastern Baltic objects.

But who were actually these *Scandinavians*? Must the Scandinavian types of ornaments, mounts, brooches, etc. mean that one was a *Scandinavian*? People who inhabited coasts of the Baltic Sea, both in the north, east, and south, have possibly common cultural expressions in both objects and rituals. Therefore it is maybe pointless to discuss Baltic or Scandinavian objects in the usual, archaeologically conventional way.

These 8th-9th centuries *ports of trade* had a specific location in the landscape, from Hedeby in the west to Staraja Ladoga in the east: milieus of the lowland areas, often on the first terraces, however different than on the Slavonic settlements, ca 20-30 km from the sea shore, near the river-mouths, lakes or bays. In the West Slavonic Baltic Sea region, the mixed Scandinavian and multi-ethnic population, residing in the larger Slavonic or multi-ethnic port- or castle centra, was mainly occupied with trade and handicraft. Material traces of this permanent residence are visible at the settlements and in the cemeteries in the G zone.

Wolin was during the early Medieval time (8th-10th centuries) one of the greatest port- and trade centers for the pagan cult with a wooden temple from 10th-12th century, dedicated to Svjatovit (Sventovit), the god with four heads (Werbart 1996c). The comprehensive archaeological finds and monuments from the excavations carried in different parts of the town, can be dated from the 8th to the 13th century. Jus as Wolin, the other trade and administrative centers, such as Gniezno, Szczecin, Kolobrzeg and Wologoszcz, were also centra for the pagan cult. These places are regarded by the Polish archaeologists as urban or pre-urban phenomena. The multiplicity in the handicraft in Wolin can be exemplified by rich comb workshops, smiths, and amber, pottery and leather workshops (Werbart 1996c).

A large part of the archaeological finds from Wolin consist of imports from Kievan Rus'. Byzantium or from the 'Orient': among other finds, ornaments and German, Arabic, Polish and Byzantine coins.

In discussions on the commercial/archaeological aspects, it was emphasized that trade is not the only explanation of the spread of artifacts and that exchange of wares also took place in other forms, without market economy (Ringstedt 1989; Wyszomirska-Werbart 1992: 244). Already during the 5th-8th centuries these multicultural trade centers were indicated by boat graves in Vendel, Valsgärde and Helgö – centers for the long distance and active trade in the Baltic Sea. It is commonly known that Slavonic pottery occurs in a large quantity in the trade centers on Gotland, in Birka, Sigtuna, and Lund as well. Most of the silver hoards from Zealand, Denmark were kept in Slavonic vessels. Pottery was often used in order to preserve other wares during transport, as a kind of packaging. Pottery trade probably occurred to the same extent as trade with the contents of the vessels.

Existence of a common *Scandinavian* culture around the Baltic Sea and without larger differences in the trade centra from Hedeby, Wolin, Birka to Truso and Staraja Ladoga, can be emphasized during the Early European Medieval Period (6th-10th centuries): material culture, settlements, and burial rituals.

International contacts together with social structure, the cultural interactions and bilateral contacts on a socio-political niveau between the West Baltic landscape and southern Scandinavia, Gotland, Öland and Middle Sweden suggest the possible existence of a few small kingdoms or socio-political constellations around the Baltic Sea during the 5th-8th centuries (Wyszomirska-Werbart 1991: 69, Fig. 8).

But is it, however, clearly evident, that it was one common *Scandinavian* culture, with a common or equivalent cultural identity? Perhaps, but in my opinion, not during the whole later Iron Age and not in all of the areas. The chronological and cultural variations between Scandinavia, Middle Sweden Pomerania, the Baltic, northeastern Poland and northwestern Russia are too comprehensive for such categorical declarations.

Wasn't it rather an expression of a multi-cultural melting pot of different identities, ideas, and notions of the world?

Middle Age identities in steppe territories of the Khazarian world

The almost 150-year old debate on the Khazar khaganate – or a clearly delimited archaeological culture from the 8th-9th centuries – the Saltovo-Majaki culture, has been transformed recently into discussions on the concepts of archaeological *cultures*, on meanings of cultural identity, as a new understanding of material culture, and the pluralism of social structures.

Two archaeological sites gave their names to the Saltovo-Majaki culture, which was regarded by the former Soviet scholars as nomadic/semi-nomadic culture in the boundary zone between the forest and the steppe near the river Don and the Sea of Azov: the cemetery and the hillfort Verchneje Saltovo on the eastern bank of the river Donets, about 40 km to the east of the town Charkov in Ukraine, and the Majatskoje *gorodishche* near the river Don.

From the 7th to the 10th century, in, in the early European Middle Ages, the Khazars inhabited regions between the Black Sea and the Caspian Sea, south of the Volga Bulgaria. The Khazarian khaganate, with its multiple ethnic groups, was bordered to the west by Petjenegs, to the south by the Abbasid Caliphate. During the 950s the Khazarian khaganate could no longer defend itself against the Russian princes of Kiev. The great Khazar khaganate was annihilated in 965-66 AD by Svjatoslav Igorevich, prince of Kiev, and his *druzjina* which also harried the Volga Bulgaria, and which finally plundered the cities of Sarkel and Tmutarakan.

The Khazarian state consisted of a multiplicity of different ethnic and languages groups; it was a sovereign mosaic of societies and a diversified union of different multilingual groups of people, a whole gamut of different Caucasian and Caspian tribes: Turkic, Greek, Magyar, Slavonic, Caucasian, Arabic, and Jewish societies, which arrived there, escaping the persecution from the Caliphate, Byzantium and Spain, between the years 786 and 809 AD (Werbart 1998: 241ff.).

In the 8th century, the new social and economic conditions called for a state, a common trading and administrative language, as well as homogenous religion. A kind of a common neutral language, *lingua commerca*, consisting of many influences from different groups, had already developed. That the Khazars 'chose' the third religion, Judaism, meant an independent position between two parties – Christianity and Islam: Byzantium and the Caliphate. The choice made by Khazars was well thought-over and diplomatic: they rejected neither Christianity nor Islam, but choose another option, a political action of high prudence (Artamonov 1962; Werbart op. cit.). Judaism as the official state religion, since the beginning of the 9th century, proclaimed Khazaria's political and equality with both the Byzantine Empire and the Caliphate. The problems connected with the 'Khazars' ethnicity' are very complex. The Khazars are today regarded as a conglomerate of different societies of Altaic/Turkic and Alanic origin, perhaps with Hunnish elements, a sovereign mosaic of societies and diversified union of different groups of people in the steppe and forest/steppe zones of southeastern Europe. According to historical sources, the Khazars considered themselves to be a conglomerate of groups of societies related to the Avars, Ugrers, Onogurs, Volga Bulgars and Savirs (Ya'ari 1995: 26). The greatest controversies about the Khazars identities were inspired by the comprehensive book by Arthur Koestler, which caused much confusion in discussions on cultural identity and religion (Koestler 1976).

The previous Soviet struggle against 'cosmopolitism' was similarly reflected in the archaeological research, i.a. other things in the view on the 'Varjags' and 'Khazars'; some of the archaeologists called the remains of the Khazarian material culture the 'Saltovo-Majaki culture', others called them the 'Khazarian culture'. They deliberately hid certain facts about the Khazars and their Judaism due to Stalinist doctrine. Various kinds of maps were presented with extreme differences in the territorial delimitations. During the last 20 years the role of Khazars was either exaggerated or underestimated (Petrukhin 1993; Werbart 1998: 243). The study of the earlier as well as the current debates about the Khazars, in the archaeological literature reveals that the ethnic and religious aspects are often neglected, omitted, or treated with prejudice. Discussions are heated, but 'ethnicity' or cultural identity is a subjective and variable phenomenon, and for that reason we do not know what was considered an ethnic term in the Khazar state or in Visigotic Spain.

Prejudices about ethnicity and archaeology have recently been exemplified by the debate on the Khazar khaganate (Werbart 1998), and still Khazar history is misinterpreted due to ethnocentrism, and sometimes propagandistic falsifying. The search for the treasures, objects and traces of this lost culture has been deliberately blocked in many countries, haunted by the specter of the Khazars as skeletons in their national closets (Ya'ari op.cit.).

There is still a certain neglect of Khazars in the early history of Russia, the focus being on the Viking-perspective; the situation in the former Soviet Union was an extreme example of that. The western archaeologists, on the other hand, regarded certain objects as 'Khazar, Magyar or Alan'. The south to north interpretation of the trade and 'colonization' of Viking Age Russia, in the light of the new dating of chamber graves in Birka and Russia of the 9th and 10th centuries, is not only one of the possible factors. According to these new ways of looking at Birka material, most of the chamber graves with ornaments (about 120), dated to the 10th century, can be interpreted as pagan Rus with Khazar objects or, as pagan Khazar with Rus features, and often interpreted as *eastern* ornaments.

But where and how far is the East? Staraja Ladoga? Kiev? Khazaria? The chamber graves indicate to some degree a permanent residency: there is a certain number of women and children in the graves. About 20 of the chamber graves in Birka include horses, often on platforms. It is possible that these chamber graves are the graves of foreigners with *eastern* (or *oriental*) objects: Khazar and Kievan Rus. The interaction with the Rus, polarization within the Khazar society, formation of trading posts along the river systems between Kiev, Khazaria, northern Russia, and part of Scandinavia (Middle Sweden with Birka) caused much closer contacts with other societies, and played a more significant role in Europe.

The Birka and Kievan chamber graves (like in Sezdovitsy in Chernigov) yielded very similar objects, of Khazar character. The older official interpretation was that the Chernigov chamber graves were of Scythian, Magyar or Alan origin. The so-called imitations of coins show mages of horses, a yurt, sun symbols and Viking ships, and are interpreted as Scandinavian imitations of Germano-Roman coins. Arbman identified two graves as Khazaric burials. The latest excavations in Birka suggested a foreign eastern, Kievan Rus-Khazar residence with eastern types of ornaments, a button, and *bird-of-prey* mountings, as well as a ceramic jar, representing Khazaric pottery, a fragment of well-fired ware (Arbman 1940; Bäck 1995: Fig. 4).

The images of Turkic runes, a Khazar metal disc with an engraving of the Star of David, Khazar amulets from Saltovo, a depiction of an epic motif of the Khazarian tradition of two kings, have been debated in the current publications about Khazars (Petrukhin 1995: 475). The belt mounts with stylized plant ornaments, as well as the heart-shaped silver amulets with a loop and plant decoration, often with animal and human figures, have been interpreted by S.A. Pletnjeva as Khazarian or Saltovo-Majaki (Pletnjeva 1967). This kind of silver ornament and the belt mounts from the 9th-10th centuries, found in Birka, was usually called *oriental*, and interpreted as Khazarian only by H. Arbman (Arbman 1942: 303ff; 1940-1943: tab. 95f.; Werbart 1996a: 216, fig. 7).

The key question is who those easterners, living among other foreigners in Birka, wearing eastern clothing, and using eastern burial customs were? Archaeologists often suggested that these graves could be the burial of "merchant-warrior clan of Swedish nobles". But Birka was the centre of international trade, world-wide contacts, commerce and diplomacy, with a lot of foreign merchants and emissaries, and the local nobles were not located in Birka, but in the area of King Court on Adelsö, the island across the water, opposite the island of Björkö. Nowadays it is suggested that the chamber graves are the burial of foreigners, containing a large number of eastern objects, both Khazar and Kievan Rus. This interpretation is probably still contrary to that of the archaeological majority (information from Björn Ambrosiani and Mats Philip, Stockholm). The old debate on the meanings of Khazars is nowadays re-discovered, and a new archaeological, international excavations, and theories are now in focus (Petrukhin 1993, 1995; Belinsky & Härke 1995).

The common denominator for the Khazar khagante is the pluralism of the social structures and economy, and the multi-dimensional character of cultural identity. The interpretation of Khazarian material culture has often been made in terms of ethnicity, and yet the cultural identity, the multiplicity of the society, and the multi-dimensional character of social structures, and social identities, are not translated into the material culture. The social, cultural, economic, and religious changes are the most significant phenomena within the khaganate: the transition from one economic formation, nomadism and semi-nomadism, to sedentism; the transformation of the tribal aristocracy into hierarchic feudalism; and the transition to monotheistic religion. The high mobility of the populations in the large areas, the complicated character of their cultural consciousness, the mixed and complex territorial organization of societies and cultural groups, and the formation of diversified complexes of cultural identities common to the whole of steppe and forest/steppe areas, do not allow speculation of connections between a specific archaeological material and a specific *ethnic* group of the past or of modern times.

The large, archaeological identified, cultural mosaic existed during the end of the 8th century in the enormous steppe territories between the Don River and the Caucasus, with different nomadic societies, which were later included in the Khazar union. From the end of the 8^{th} until the 10th century the multiple, large nomad pot was transformed into a homogenous image of the state and cultures. The well-organized trade and diplomatic interrelations, the multitude of finds, the transition and prosperity of the economy, architecture, art, handicrafts, coinage, and the knowledge of writing, all indicated pluralism, multi-culturalism, influences and contacts across large territories.

Since 1996, archaeologists and historians in the United States and Russia have been working on a comprehensive archival and documentary project, the Khazar archaeology project, involving also the history of medieval people of the Ukraine, Crimea and southern Russia. A team of researchers at the University of Chicago, Rutgers University, Russian scholars from Moscow and Kiev, and the Archaeological Institute of the Russian Academy of Science, among others Norman Golb and Omeljan Pritsak from Kiev, Svetlana Pletnjeva and Vladimir Petrukhin from Moscow, examined several sites in Kerch on the Crimean peninsula, between the Sea of Azov and the Black Sea, and Krasnodar in the north Caucasus. One of the most important issues is to explore the possibility of interpretations of Khazarian capital of Sarkel. The Russian historians have planned an interactive cooperation with the researchers of the United States, and the resulting work will be catalogued on CD-ROM as well as in printed form.

According to O. Pritsak, the post-modernistic nationalist movement in the former Soviet Union considered it shameful to admit there were other, polyethnic and multi-religious states *before* the earliest Russian princes. The two-century life span of the Khazar khaganate has never been satisfactorily investigated. The capital of Itil, located in the outlet of Volga into the Caspian Sea, still called the Sea of the Khazars by the Iranians, has not been identified so far; excavations in this area have never been sanctioned (Ya'ari 1995: 26). Different objects, gold and silver jewelry, coins mirrors, etc. are kept in collections in the former Soviet Union, as the heritage of Russians, and often hidden in stores in Moscow, after being unearthed during the 1950-1952 construction of the Volga-Don Canal. Nowadays, Russian archaeologists from the new generation wish to discover traces of the Khazar khaganate. Photographs taken from the Russian space observation satellites of the bed of the Caspian Sea have been studied and declassified. Archaeologists at the University of Elitsa in Kalmyki identify Itil with a hillfort in the old river bed of the Volga; others supposed it was covered by the rising Caspian Sea, near Astrakhan (Ya'ari 1995: 26).

Both the pottery and some of the other finds, such as jewelry, amulets, mounts, coins, etc., cannot only be attributed to the Khazarian culture or Saltovo-Majaki culture. They are not *ethnospecific*, because the great diversity in decoration and form indicates rather the multiplicity of different influences from various territories both from the Khhazar towns, the Caucasus, the Black Sea, Byzantium, Crimea, the steppes in the east, and the region of Kiev. The archaeological boundaries consisted of circa 300 sites – *gorodischche* – at the Donets, Volga and eastern Cirmea, but also of larger towns with the significant buildings in the fortification constructed of white mortar in Sarkel, Semender, Balandjar, Cherson, Chufut-Kale, Tmuthorakan, Olbija, Feodosia. Verchneje Tchijurtovskije *gorodischche*, Semikarakovskoje *gorodischche*, among other places. Some of them played the role of Khazar capital, like Sarkel, itil and Balandjat (Pletnjeva 1967: 44; Werbart 1996: Fig. 4:209). Mirrors, the Hebrew inscriptions, the pictures of menorah, the images of Turkish runes, amulets from Saltovo, a depiction of epic motif of the Khazarian tradition of two kings, have been, om the other hand, discussed in the current publications as objects of Khazars.

The material culture indicated that the people constantly renewed and improved their knowledge; therefore material culture can contribute to a continuous redefining of the cultural identities.

Some conclusions

Can cultural identity parallel the notion of culture and social relations be read in material remnants? To compare different types of material culture is unavoidable. It is the relation between the material culture and the cultural identity, which is important. What we perhaps must to do is to make sure that the ideas of 'ethnicity' and 'ethnic identity' do not become perceived as hereditary, permanent, and unalterable, but remain fluid forms of identity.

Understanding and attempts at re-interpretations of ethnicity/cultural identity are like the re-interpretation of notions of the idea 'archaeological culture'. Understanding cultural identity in archaeology as a social, changeable and dynamic phenomenon, with both social and cultural interrelations is one of the most fascinating and manifold issues in archaeology.

The effort that archaeological research can just 'cross' modern reality without influence and that the mediation of this science is and will remain politically and ethically neutral, is an unrealistic dream. There are namely interactions between studies of history and prehistory and political ideologies. The interpretation of the past can never be unpolitical. It is also important which image of the past others create with the help of archaeology and history. The methods of our mediation of the past are instead reflected images of our modern ethical, ideological and political values.

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Culture and society

Survey and excavation at Lake Vetsijärvi, Lapland

Tuija Rankama & Jarmo Kankaanpää

Abstract. *This paper is concerned with a survey carried out in 2002 and a test excavation carried out in 2004 at Lake Vetsijärvi in Utsjoki borough, northernmost Finnish Lapland. The authors discovered about a dozen Stone Age sites near the lake in 2002. One of the sites, called Sujala, produced evidence of a core-and-blade industry that used a raw material typical of the arctic coast. A test excavation of this site in 2004 revealed two clusters of blades and related artefacts, including two cores and a tanged point. The closest parallels to the finds can be found on the Varangerfjord coast and belong to Phase I of the Komsa culture (ca. 10 000–9000 BP). This would make Sujala the first known inland site of the early Komsa culture, which has previously been considered purely maritime in nature. However, there are also indications of a possible eastern connection in the assemblage. It should be stressed that the finds have not yet been fully analysed and the interpretations presented are preliminary.*

Keywords: *Early Mesolithic, Lapland, core-and-blade industry, Komsa culture, Post-Swiderian*

The setting

Utsjoki borough in northernmost Finnish Lapland is known for its rivers, particularly the Teno or Tana, which forms the border with Norway, but also the Utsjoki, which is actually a chain of lakes connected by short stretches of river (Fig. 1). There are few roads, the main ones running along the Teno and Utsjoki rivers with a third connecting Karigasniemi and the village of Kaamanen in neighbouring Inari borough. Much of western Utsjoki borough is fell country, but the regions around Lake Vetsijärvi and the Pulmankijoki River Valley in the east are flatter.

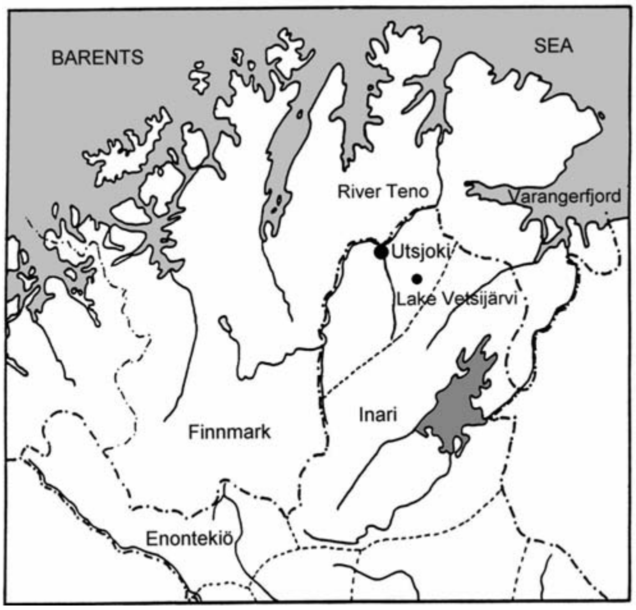

Fig. 1. Location of Lake Vetsijärvi. Drawing by T. Rankama.

Lake Vetsijärvi lies ca. 30 km southeast of Utsjoki Village and 60 km inland from the Barents Sea coast, in the middle of an undulating tundra plateau surrounded by chains of fells. The present outlet is north through the Vetsijoki River into the Teno. The distance to the nearest road in the Utsjoki River Valley is 20 km along a dirt track only traversable by cross-country vehicles. Previous to the survey of 2002, the area had not been studied archaeologically. The authors decided to do a survey at Lake Vetsijärvi because it is the largest lake in the area and has good stocks of fish, which led us to expect that it should have offered good conditions for prehistoric habitation (Rankama 1996; Rankama & Kankaanpää 2003; Rankama 2005).

The survey

Vetsijärvi lies at an elevation of ca. 274 m above sea level. The shores are mainly low and swampy. It has been suggested that the level of the lake might have risen during the more humid phase that followed the postglacial Climatic Optimum (Rankama 1996: 377-8, 490; cf. e.g. Hyvärinen & Alhonen 1994). Consequently, we expected to find shore sites that were partly inundated and covered by peat, which would offer a chance of organic preservation. In order to be able to inspect the shallow water near the shore, we decided to use a collapsible kayak, which would allow us to traverse the lake and also to inspect the islands.

In three days, we were able to cover most of the lake. Much of the area that was not inspected closely was determined from a distance to be unprofitable, usually rocky. We also found two interesting natural formations, a moundlike point covered with palsas and a long, very narrow and high peninsula called *Buolžanjarga*, which – in spite of its steep and narrow shape and dry moraine core – was covered with a layer of peat more than 50 cm thick. The base of both the palsas and the peat was more than 5 meters higher than the present water level.

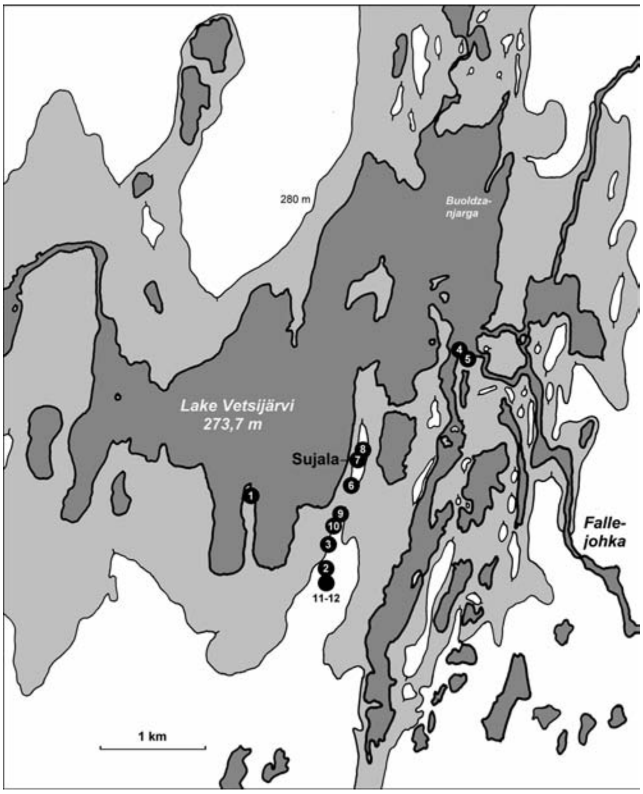

Fig. 2. Lake Vetsijärvi and the sites found during the survey. Drawing by J. Kankaanpää.

As it turned out, our kayak surveys were not very productive and we found only three sites: one rather water-worn collection of quartzes from Vudneluokta on the southern shore and a number of schist fragments and quartzes from two locations near the mouth of the *Fállejohka* River on the eastern shore of the lake. A better result was achieved when we began surveying the dirt track that connected the lake with the outside world. These surveys produced nine out of our total of twelve new sites (Fig. 2).

All of the sites on the track lay on a ridge above the 280-metre elevation curve shown on the map, in other words, about six metres higher than the present level of the lake. Horizontally, the sites lay a minimum of ninety metres from the shore and in many cases much farther. Though a large part of the area is swampy, it is unlikely that people would have been forced to camp far away from the shore just to avoid wet ground since there are several areas where both steep and shallow dry shore sites are available. The large number of high-lying sites together with our observations of the palsas and the thick sod at *Buolžanjarga,* which were both at roughly the same elevation, suggested to us that instead of rising, the water level of the lake had actually fallen at some point, having originally been higher than today.

Compared with the present situation, the 280-metre curve shows a much larger lake with possible outlets both north and south (Fig. 3). The map also shows how plateau-like the regions surrounding Lake Vetsijärvi really are. Since land upheaval in this area has been stronger in the southwest than in the northeast (e.g. Eronen 1979: Fig. 10), it is conceivable that the original outlet was towards the Utsjoki River in the southwest and the present northern outlet was formed by the tilting of the basin. The tilting also means that the shape of the original basin would have been quite different from what the present elevation curves indicate. More geological research into these questions is required.

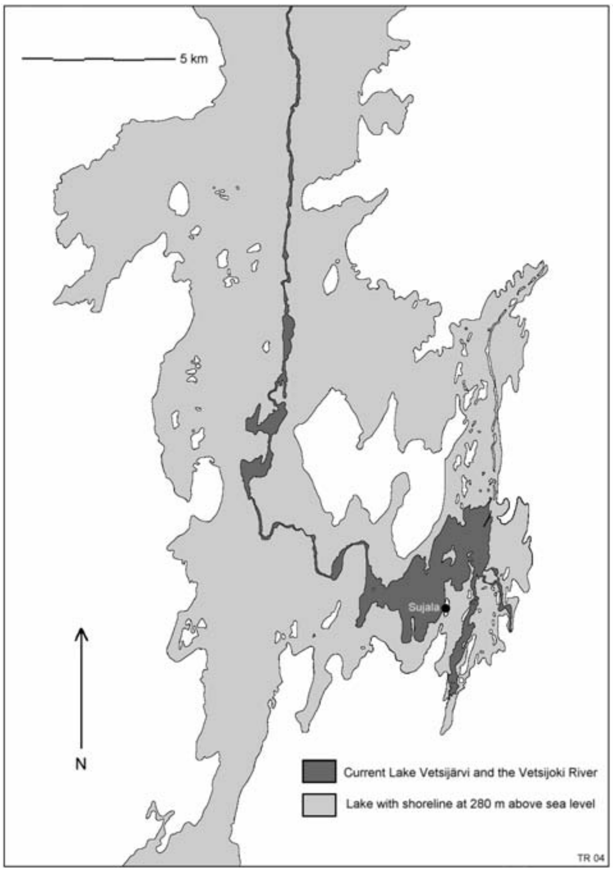

Fig. 3. Current Lake Vetsijärvi and the Vetsijoki River, and area covered by lake with the shoreline at 280 m above the present sea level. Drawing by T. Rankama.

The Sujala site

Though most of the sites that we found at Lake Vetsijärvi produced typical Finnish Stone Age material, primarily quartz, there was one site that differed from the others. We named it the Sujala site after Eero Sujala, who transported us to the lake in his ancient ATV and who also owns the cabin behind which the site is located. The Sujala site lay on what would originally have been an island. As with the other high sites, our finds came from the dirt track where the original ground surface lay bare.

The first finds from the site awoke our curiosity because they represented raw materials that were not native to the region, including quartzite, chert, and flint. Then, we also began to find pieces of a cherty material typically found on the northern Norwegian coast and previously often referred to as ‘dolomite’ but now called ‘tuffaceous chert’ (Simonsen 1961: 14; Hood 1992: 91-3). Looking at these finds more closely back home, we noticed that several of the ‘dolomite’ pieces actually looked like fragments of large blades. The combination of a coastal raw material and a lithic technique typical of the Late Palaeolithic and very early Mesolithic industries of northern Europe suggested that what we had at the Sujala site was something that was previously unknown from Finland and from the inland area in general: a site representing Phase 1 of the Norwegian Finnmark Mesolithic, or what is also known as Komsa proper, dating to between 9 000 and 10 000 BP in uncalibrated radiocarbon years (Woodman 1993; Olsen 1994).

The test excavation

The possibility of digging up an actual Komsa site in Finland is something that had been living in the dreams of many of us who have worked in northern Lapland for years, and now that there was a chance of actually finding one, the opportunity was too good to lose. Our finds were too few and our data too insecure to apply for a major grant, and one or two minor applications for logistics support fell through. Nevertheless, with the help of a few friends from several institutions around Scandinavia we were able to arrange a small test excavation at the site in June 2004 (Kankaanpää & Rankama 2004).

We were only able to allow one week for the excavation. The main aim of the work was to ascertain whether the site really was as old as the survey finds seemed to indicate. We also wanted to get more information about the size of the site to be better able to plan future excavations, if it really turned out to be as interesting as it seemed.

Since the track was the only area where the vegetation cover was disturbed and the mineral soil was exposed, the work began with a thorough inspection of the track surface some hundreds of metres north and south of the 2002 find area. The result was the discovery of two main artefact clusters about 200 m apart — Area 1 (the 'original' find area) in the north and Area 2 (Fig. 4) in the south. Both consisted of the same kind of material as the 2002 survey finds: blade and flake fragments and core tablets of tuffaceous chert. Some fragments of other raw materials were also discovered in a separate cluster some 20 m south of the main find concentration of Area 1. Area 2 also produced two abandoned blade cores of tuffaceous chert.

Eight 1 x 1 metre test squares were excavated around each cluster of surface finds. To locate the edges of the find areas, the squares were placed on both sides of the track at varying distances from the main clusters. The track itself was left unexcavated to avoid the formation of new tracks in the area.

The soil consisted of hard moraine sand with an abundance of fist-sized and slightly larger, rounded rocks. Due to the absence of a visible cultural layer, the squares were excavated in artificial layers with a maximum thickness of 5 cm until no more finds were encountered. One or two layers were usually sufficient. The finds were plotted individually or in palm-size units, and separately for each excavation layer. The soil was also sieved with a 4 mm mesh screen. The surface finds on the track were all collected and plotted three-dimensionally.

Fig. 4. The dirt track at Area 2 before excavation, as seen from the north. Photo by J. Kankaanpää.

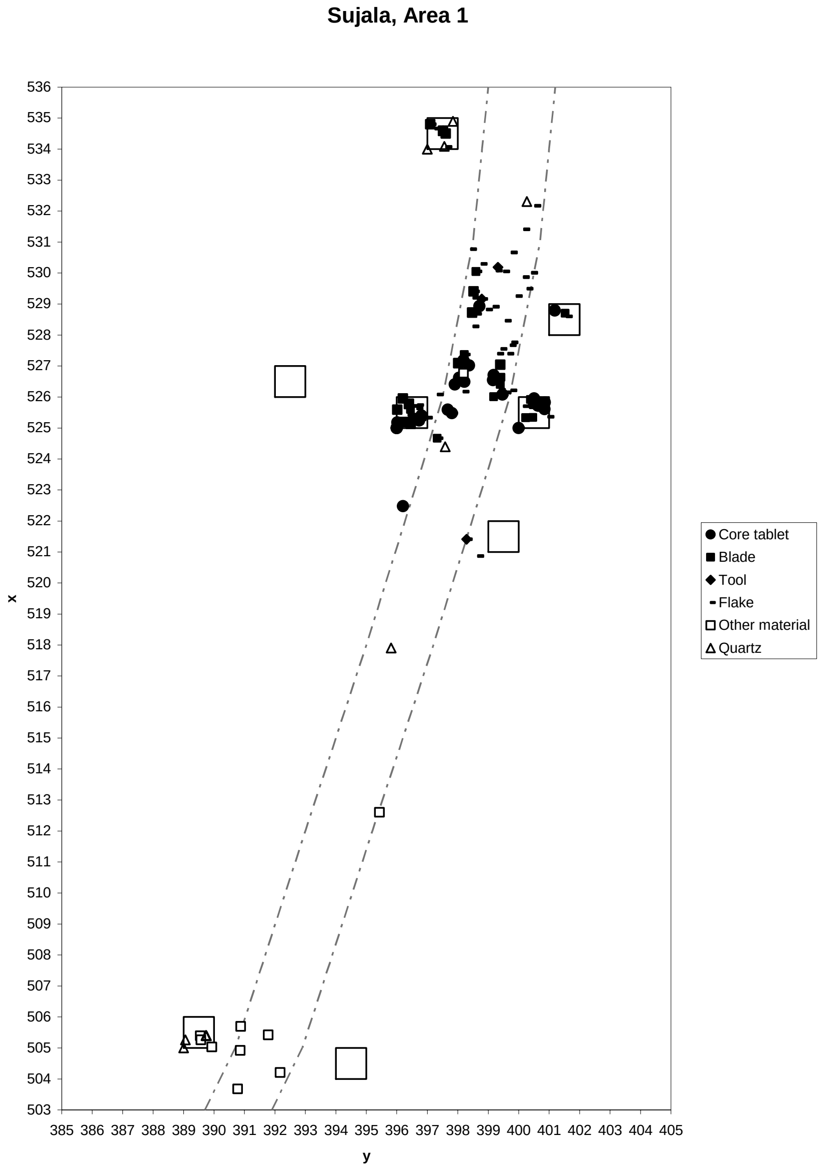

Fig. 5. The distribution of finds in Area 1 at the Sujala site. Filled symbols = tuffaceous chert; open symbols = other raw materials .

The distribution map of finds from the track and the test squares in Area 1 (Fig. 5) shows a tight cluster of tuffaceous chert in the north and a smaller cluster of other raw materials in the south. The number of surface finds on the track was high, but the pieces were very fragmentary and, consequently, mainly not designated as blades, although most of them may have been. The test squares yielded more intact material and, as a consequence, more unequivocal blades or blade fragments.

The length of the northern cluster (north to south) in Area 1 is some 15 m, while the width (west to east) may be only about 6–7 m, although the eastern edge was not found. The occupation area appears to have stretched along the north–south oriented shoreline of the former island, facing the lake in the west. The find area seems to be strictly circumscribed: beyond its edges, the artefacts come to an abrupt end.

The southern cluster in Area 1 appears to be only about 4 m in diameter — unless it represents the mere margins of a find concentration actually located more to the west. It consists of quartzite, grey flint, and chert that differs from the tuffaceous chert dominating the other find areas. The knapping technique of the quartzite seems also to be different, with less trimming of the platform edge and wider platform remnants than in the dominating blade technique. The few fragments of quartz were found mainly in the northernmost test square, as well as in the southern part of Area 1.

In Area 2, the finds were also tightly clustered on the track and in the test squares closest to it (Fig. 6). The number of blade fragments was very high, especially in the squares west of the track, while the track itself again showed a larger abundance of small fragments catalogued as flakes. The two blade cores were found on the western edge of the track less than 2 m apart. The diameter of the cluster in Area 2 is about 12 m. Practically all of the finds are tuffaceous chert — most of the 'dark chert' on the distribution plan represents less weathered pieces, some of which are small, recent fragments.

The artefact-containing layer was very thin: most of the finds were within the first five centimetres beneath the sod layer. In addition to the artefacts, there was very little other evidence of human activity. No actual fireplaces were found, and the small patches of pink burnt sand and flecks of charcoal under the sod are more likely to be remains from ancient forest fires than from campfires. Both the small size of the artefact clusters and the thinness of the find-bearing layer suggest that what we have is evidence of short-term visits by a fairly small group of people.

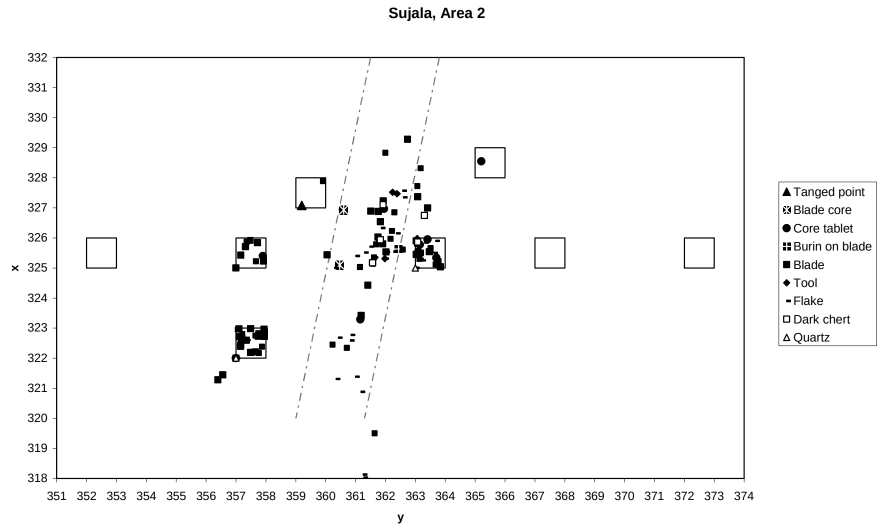

Fig. 6. The distribution of finds in Area 2 at the Sujala site. Filled symbols = tuffaceous chert; open symbols = other raw materials.

The finds

The number and raw material distribution of the finds can be seen in Table 1.

Table 1. The distribution of raw materials in the artefact assemblage from the 2004 excavation.

	pcs	**%**	**g**	**%**
Tuffaceous chert	330	87,07	466,1	88,03
Other cherts	10	2,64	13,5	2,55
Grey flint	3	0,79	0,4	0,08
Quartz	31	8,18	38,6	7,29
Quartzite	4	1,06	10,5	1,98
Other	1	0,26	0,4	0,08
Total	**379**	**100**	**529,5**	**100**

Since almost 90% of the assemblage consists of tuffaceous chert, the following discussion will concentrate on this raw material. Tuffaceous chert has been fairly commonly used on Stone Age sites in the Varangerfjord area, North Norway, but is extremely rare in the inland region – the few artefacts known so far appear to be imports from the coast (Kankaanpää & Rankama 2005).

The rock is hard and dark greyish green when freshly knapped, but its surface weathers to a green or light brown colour when exposed to the elements. The weathering also makes the rock brittle and erases any signs of use wear. The Sujala assemblage includes pieces with different degrees of weathering; it is unknown exactly what factors have affected the process.

The tuffaceous chert assemblage from Sujala is technologically very homogeneous. It is dominated by a sophisticated blade technology and includes two exhausted blade cores. Core 1 (KM 34574:204; Fig. 7:1) is conical in shape. It has one striking platform and three of its faces appear to have been used for producing blades. The platform has been formed by several blows from different directions, and there is evidence of trimming at the platform edge. In its exhausted state, the core is only about 5 cm long. One of its faces could still have been usable, but one of the last removals of a core tablet has destroyed the platform edge. After this, the core has apparently been considered beyond repair and discarded.

Core 2 (KM 34574:172; Fig. 7:2) is of a different type: a one-sided blade core with two opposing platforms and an acute platform angle. One of the platforms has been partly destroyed by a frost fracture. In its present form the core is about 6 cm long. The last blades produced from these cores — apart from the two short ones from the other face of Core 2 — have been only 5–9 mm wide, but the rest of the assemblage shows that we are dealing with a macroblade, not a microblade technology.

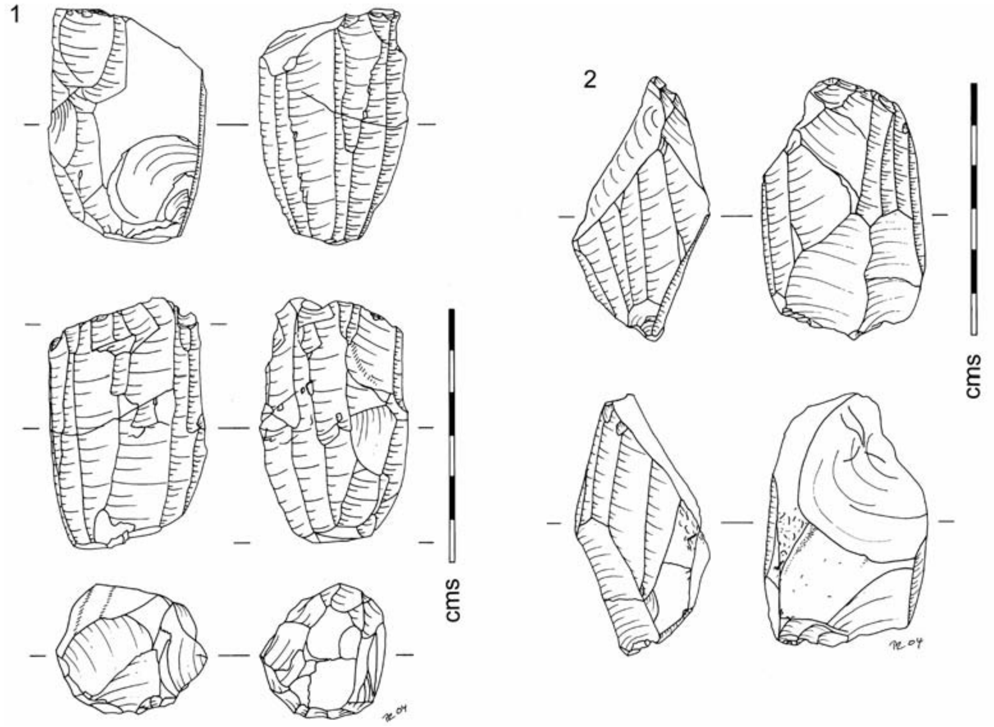

Fig. 7. The blade cores from the Sujala site. Drawings by T. Rankama.
1) KM 34574:204; 2) KM 34574:172.

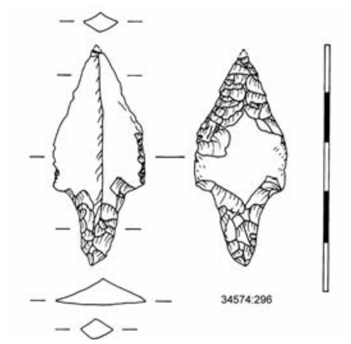

Fig. 8. The tanged point (KM 34574:296) from the Sujala site. Drawing by T. Rankama.

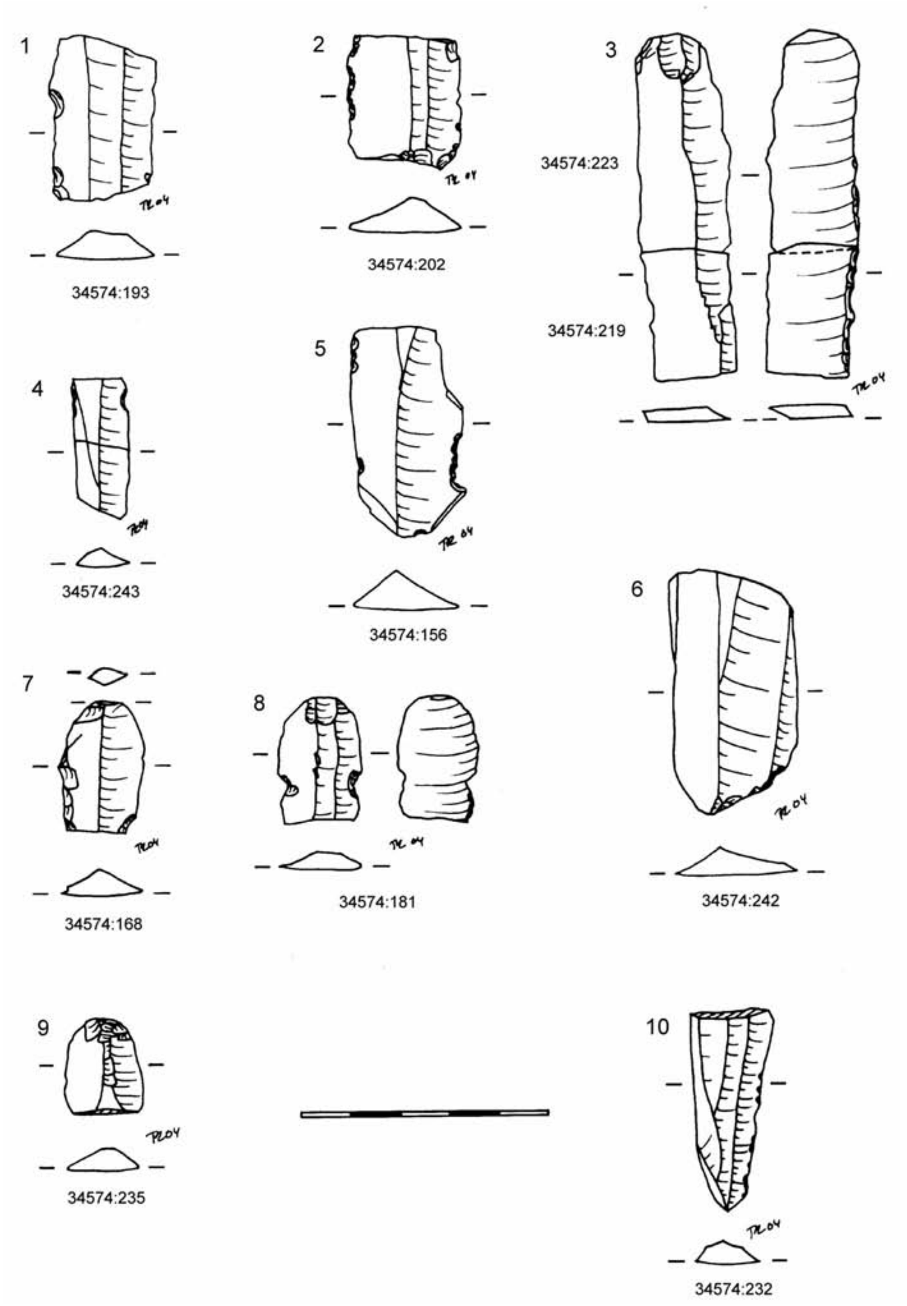

Fig. 9. Blade fragments from the Sujala site. Drawings by T. Rankama.

One indication of this is the tanged point (KM 34574:296; Fig. 8), which was discovered in test square x327/y359 of Area 2, only about a metre and a half from Core 2. It is made from a large blade so that the central ridge of the blade runs along the centre of its long axis. The tang is bifacially flaked and has a diamond-shaped cross section. The tip has invasive retouch on the ventral side, so that its cross-section is also diamond-shaped. The right side of the blade is also retouched to achieve the symmetry the maker of this point seems to have striven for. The width of the point is 17.5 mm, but the original blade has been slightly wider. The thickness is 5 mm and so even that it is impossible to judge from it which end has been the bulbar end of the original blade. However, the surface features next to the central ridge indicate that the bulb has been at the tang end. The length of the point is 42.1 mm, but one or two millimetres of the tip have been broken off, possibly during excavation.

More evidence of the large format of the blades in general can be seen in Fig. 9, which includes several fragments more than 20 mm wide. The minimum blade width in the tuffaceous chert assemblage is 3.2 mm; the maximum is 25.2 mm, with the average at 13.2 mm and the median at 14.2 mm. In total, 68% of the blades where the width is intact are more than 10 mm wide, while 32% are less. Since most of the blades are fragmentary, these figures are naturally affected by which part of the blade the fragments are from and cannot be taken as absolutes.

The preserved proximal ends display a small platform remnant and trimming of the platform edge (e.g. Fig. 9:7-9). A typical feature is also the abundance of notches on the blade edges (e.g. Fig. 9:1, 2, 4, 5, 8). Since many of them occur at the breaking points of the blade fragments (Fig. 9:2), we may be dealing with a deliberate blade snapping method, which differs from the obliquely breaking microburin technique. On the other hand, breakage at the notches may be accidental and have nothing to do with deliberate tool manufacture.

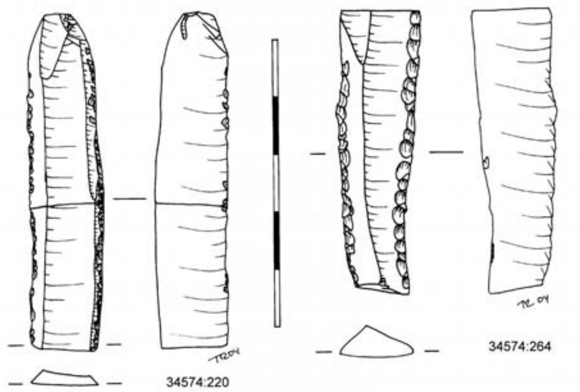

Fig. 10. Retouched blades from the Sujala site. Drawings by T. Rankama.

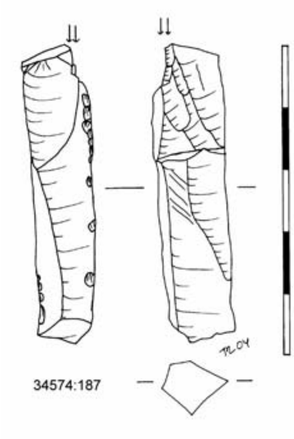

Fig. 11. The burin (KM 34574:187) from the Sujala site. Drawing by T. Rankama.

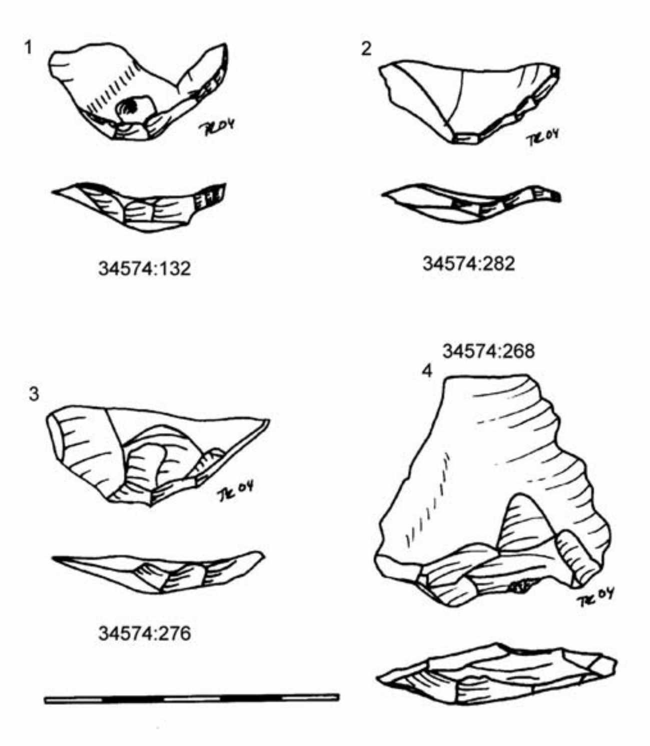

Fig. 12. Core tablets from the Sujala site. Drawings by T. Rankama.

A characteristic feature of the blades is retouch or backing along the edges, either just one of them or both (Fig. 9:3; Fig. 10). On the other hand, retouch at the snapped surfaces has not so far been observed, and scrapers are completely absent.

The assemblage includes one clear burin (KM 34574:187; Fig. 11). It is made from a large oddly shaped blade fragment with a diamond-shaped/pentagonal cross section. One of the ends displays the scars of two consecutive burin blows. A third blow from the same end along another face may not have been intended as a burin blow.

In addition to the cores and blades, the assemblage also includes a number of platform rejuvenation flakes or 'core tablets' (Fig. 12). These are flakes that result from the necessary reshaping of the striking platform of a core during blade production. The flakes are irregular in shape and their platform remnant shows the scars of the blade face of the core.

The presence of core tablets is the clearest indication that the production of the blades took place on this site. The blades could have been brought in ready-made, as the blade cores obviously were — since there was no core preparation debitage — but core tablets are pure waste and there would have been no reason to carry them around. The combination of blade cores, blades, and core tablets indicates that what we have at the Sujala site is evidence of a complete lithic technology. We are not dealing with odd fragments of a production sequence, but with the whole process. This shows that the people who left these artefacts behind knew the whole technological procedure and were obviously experts in its performance.

Table 2 shows the artefact count from the 2004 excavation.

Table 2. The artefacts recovered during the fieldwork at the Sujala site in 2004.

Artefacts	**tuff. chert**	**other**	**total**
Tanged point	1	-	1
Burin	1	-	1
Other implement	8	1	9
Blade core	2	-	2
Core tablet	31	1	32
Core tablet?	7	-	7
Blade/ blade fragment	116	7	123
(of which retouched 44)			
Flake	159	40	199
Fragment	5	-	5
Total	**330**	**49**	**379**

As can be seen, identified blades and blade fragments form more than a third of the assemblage. In addition to this, the blade cores, core tablets and tanged point are, naturally, also parts of the blade industry. As mentioned before, most of the pieces classified as flakes are very small and many of them are very probably also fragments of blades, although not identifiable as such. It seems, thus, that the Sujala assemblage was produced almost exclusively by a core-and-blade technology.

The date and affiliation of the assemblage

The combination of finds from the Sujala site is alien to Finnish archaeology. Since the site lies in the inland region and has never been part of the coastal sphere, it cannot be dated through shore displacement chronology. The radiocarbon samples collected so far are too equivocal for reliable analysis. Therefore the only option is typological dating.

Since no comparable sites have been found in the inland region (e.g. Kankaanpää & Rankama 2005; Olsen 1994), the most logical place to look for counterparts for the material is on the North Norwegian coast. Here, a large blade technology is considered part of the repertoire of Phase I of the Mesolithic, dated to the Preboreal period, between 10 000 and 9 000 BP (Woodman 1992, 1999; Olsen 1994). Tuffaceous chert is a commonly used raw material on the earliest sites on the coast, although it does not seem to be the dominant one (Hood 1992: 93; Grydeland 2000). A typical element of the early assemblages is the tanged point (Bøe & Nummedal 1936; Woodman 1992, 1999). The Sujala finds fit well into this artefact combination.

The commonly held view today is that the earliest settlement of the North Norwegian coast originated on the western and southwestern coast of Norway and ultimately in the final Palaeolithic Ahrensburg Culture of northwestern Europe (e.g. Grydeland 2005). The blade technology at Sujala has close parallels among the earliest Mesolithic finds in southern Norway. One-sided blade cores with two opposing platforms are part of, for example, the Rörmyr II assemblage at Högnipen, southeastern Norway (Skar & Coulson 1985: Fig 8:2). The earliest South-Norwegian sites also include small tanged points (e.g. Bang-Andersen 1990; Prøsch-Danielsen & Høgestøl 1995), as well as single-platform blade cores of the same type as the Sujala specimen (Skar & Coulson 1985: Fig. 4:2). Some of these sites have been dated as early as the few centuries before and after 10 000 BP (Fuglestvedt 2001; Bang-Andersen 2003). If the Sujala site can be reliably dated to Phase I of the Finnmark Mesolithic by radiocarbon analysis, it will be the earliest site in Finnish Lapland (cf. Kankaanpää & Rankama 2005); if it is closely related to the earliest South Norwegian sites, as has been suggested (I. Fuglestvedt, pers. comm.), it may be the earliest in all of Finland.

The shape of the tanged point from Sujala, however, is problematic. Points with a bifacially shaped tang and ventral retouch on the tip are rare or absent in Ahrensburgian contexts, but very characteristic of the so-called Post-Swiderian cultures of northwestern Russia (e.g. Zhilin 1996; see also Sorokin 1984: Fig. 3:11). Counterparts of the Sujala cores can also be found among the Northwest Russian complexes (e.g. Sorokin 2002: Fig. 18). As the name suggests, these cultures may be derived from the Final Palaeolithic Swiderian complexes in Poland and the surrounding areas, and thus represent a decidedly eastern aspect of the Early Mesolithic. If the Sujala assemblage can be linked with these eastern cultures, and if the group camping at the site was of coastal origin, the whole picture of the colonization of the Barents Sea coast may need adjusting. This question, however, must be left open until more thorough analyses have been carried out, preferably after additional excavations have produced a more complete range of artefacts.

Given the current distribution of early occupation, as well as the parallels in both blade technology and raw material, it seems likely that the early Mesolithic visitors of the Sujala site were associated with coastal populations. What we have at Sujala, thus, is a glimpse of a small group of hunters probably from the Finnmark coast making a foray or forays into the inland. They brought with them ready-shaped blade cores. They came to the shores of the Ancient Lake Vetsijärvi and chose the southern and western shores of a small island to camp on. They stayed for a while, worked on their cores, produced tools, and finally discarded the exhausted cores on the campsite. Then they, presumably, returned to the coast.

The next question is, what were they seeking in this inland fell region?

The distribution of the earliest occupation of the north so far has been completely coastal, and this has suggested that the adaptation of the people has also been maritime – according to Norwegian researchers, a maritime adaptation with boat technology has been necessary for even reaching the area (e.g. Bjerck 1994, 1995; Grydeland 2005). Now, however, we suddenly have a potentially equally early site that lies 60 kilometres to the inland. This means that we have to start adjusting our ideas about the way of life of the early inhabitants of the north. It seems that the coastal distribution of the first colonisers of the region is more an artefact of research history that an actual fact.

Since fish are abundant in the ocean, the most likely resource to look for in the inland would seem to be reindeer, which would have been needed both for their meat and their skins and antlers. Inland reindeer hunting sites of the Preboreal period have already been found and excavated in southern Norway (Bang-Andersen 1990, 2003), and it seems probable that reindeer hunting was part of the adaptation of the early colonisers of Norway all along. The maritime technology combined with it allowed the rapid move north along the coast, and the lack of inland sites of this age may be due simply to the fact that they have not been very actively searched for. Alternatively, it may be hypothesized that a more inland-oriented adaptation was part of the eastern influence that the Sujala tanged point seems to represent.

The precise answer to the question of what exactly the hunters were looking for when they camped on the shores of the Sujala island must, of course, be left open until we have organic material to complement the lithics found so far. In any case, the Sujala site has already managed to shake some of the most fundamental premises of our ideas of the colonization of the north. It appears that the settling or at least use of the inland region began much earlier than hitherto suspected. In conjunction with this, it appears that the adaptation of the earliest settlers was not quite so exclusively maritime as we have thought. And finally, it appears that we might have to start looking towards the east, as well as the west, when searching for the origin of the earliest populations. The implications of this for possible encounters between different populations in the northernmost regions of Europe are mind-boggling.

Acknowledgments

The excavation at the Sujala site would not have been possible without of the help of our friends from the different Scandinavian countries: Kjel and Helena Knutsson from Uppsala, Ericka Engelstad from Tromsø, Lise Sand from Oslo, and Mikael Manninen and Taarna Valtonen from Helsinki and Oulu, respectively. We wish to thank all of them for taking part in the fieldwork and for their comments about the finds both during the excavation and afterwards. We would also like to thank several other colleagues for valuable comments concerning the assemblage and the raw material: Ingrid Fuglestvedt, Sven-Erik Grydeland and Morten Ramstad from Norway, Aleksandr Volokitin and Mikhail Zhilin from Russia, and Reino Kesola from the Geological Survey of Finland. A grant from the Finnish Cultural Foundation financed the writing of Tuija Rankama's part of this paper.

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Subsistence strategies and changes of communities between 9000–1 calBC: an archaeological intensive-investigation in the western part of Lake Ladoga, Karelian Isthmus, Russia

Mika Lavento, Petri Halinen & Teemu Mökkönen

Abstract. *The objective of this paper is to present the Kaukola-Räisälä survey, cast light on its questions and methodology and briefly characterise the results obtained during the first field season in 2004. The project 'Subsistence strategies and changes of communities between 9000–1 calBC: an archaeological intensive-investigation in the western part of Lake Ladoga, on the Karelian Isthmus' (hence Kaukola-Räisälä project) comprises an intensive survey and small-scale excavations mainly in the parishes of Kaukola (Sevastjanovo) and Räisälä (Melnikovo) in Russia during 2004–2006. This area was archaeologically well known as early as the late 19th century and several large Stone Age and Early Metal Age sites were excavated there. It was surveyed in 1999 with good results, but still the most recent survey in 2004 yielded over 60 new sites.*

Keywords: *Stone Age, Early Metal Age, Karelian Isthmus, intensive-investigation, survey, shore displacement, dwelling depressions*

Introduction

Even the first generation of Finnish archaeologists realised that the Karelian Isthmus had a key role in understanding the prehistory of Finland. Finnish archaeologists carried out successful archaeological investigations on the isthmus between the late 1800s and the Second World War. Despite the excellent work by Theodor Schvindt, Julius Ailio, Sakari Pälsi and many others it is evident from the perspective of the 21st century that the results presented by these pioneers are incomplete and in some respects out-dated. However, many of these interpretations still play an important role in building the picture of the prehistory of Finland. Therefore also new information, data collected in the field and their interpretations are needed.

The objective of this paper is to briefly present the archaeological investigations conducted on the western side of Lake Ladoga, which concern the era between the withdrawal of the ice belt and the beginning of the Common Era. This is done by presenting the starting points and preliminary results of the Kaukola-Räisälä project (2004–2006). The results of the 2004 season are briefly discussed at the end of the paper. Because work on the 2004 survey is still continuing, we are restricted to suggesting only very tentative results here. More detailed papers will be published soon.

The 2004 survey comprised mainly the former parishes of Kaukola (Sevastjanovo) and Räisälä (Melnikovo), but in some cases it covered parts of Kirvu (Svobodnoe), Vuoksenranta (Ozërskoe) and Pyhäjärvi (Plodovoe) parishes (Fig. 1).

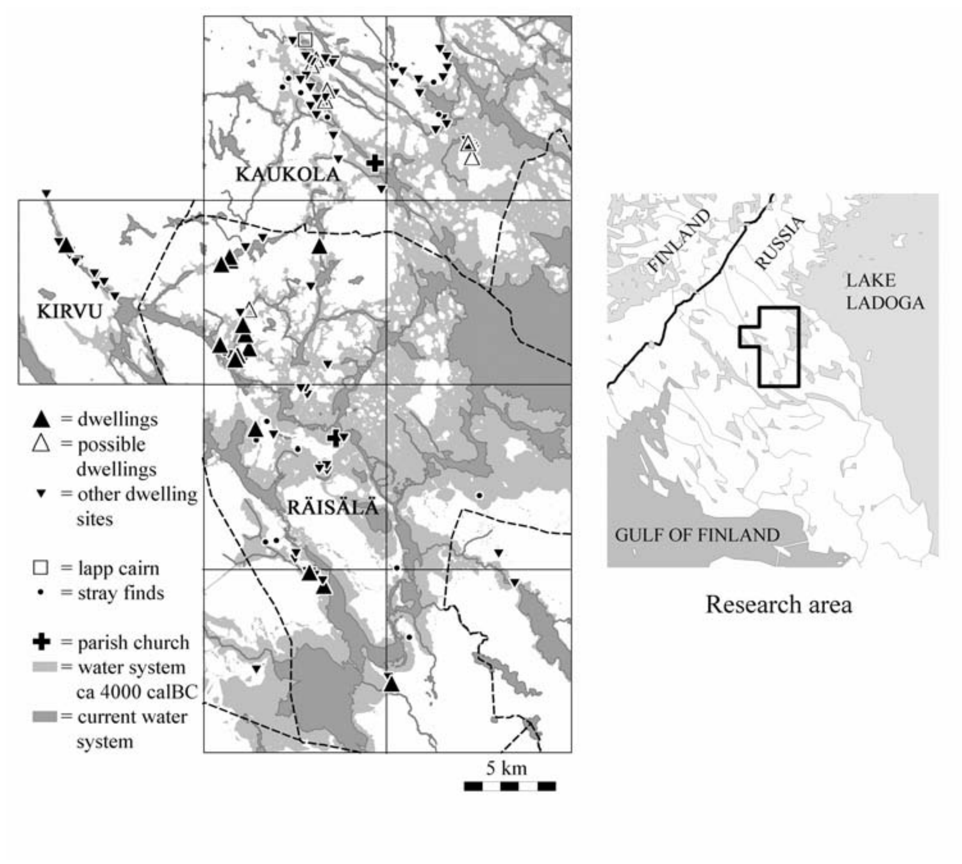

Fig. 1. The research area, sites, the current water level, and the water level after the outbreak of the River Vuoksi.

A short history of research

Although no surveys were conducted on the entire Karelian Isthmus before the late 1990s, Julius Ailio and Sakari Pälsi conducted the first large excavations in Kaukola and Räisälä as early as 1908, 1909, 1912 and 1915 (Pälsi 1915; Huurre 2003). The publication entitled *Riukjärven ja Piiskunsalmen kivikautiset asuinpaikat Kaukolassa* was Pälsi’s doctoral thesis. In his book, Pälsi not only gave a profound description of sites and typological classification of finds, but he also carried out some interesting discussion regarding the function of the finds. On the basis of the material Pälsi, (1916) also carried out experimental archaeology suggesting, for instance, how Textile ceramics can be made with the help of mould and fabric.

In Räisälä Pälsi was active in excavating the site at Pitkäjärvi, which later proved to be important to hut reconstruction, and which is still widely referred to in several books and articles regarding the Stone Age in Finland (Pälsi 1920; see also Huurre 2003). Another site in Räisälä which has played an important role in the prehistory of Finland is the Kalmistomäki site, which dates to the Early Metal Age (and also includes Iron Age finds). A.M. Tallgren (1914), the excavator of the site, dated it to the Bronze Age on the basis of a clay crucible. Some 40 years later C.F. Meinander (1954) directed his attention to Kalmistomäki-type ceramics, which were named after the site. The ceramics belongs to Late Textile Pottery (Meinander 1969; Lavento 2001). A. Europaeus (1923) found the Karelian Isthmus almost empty of Bronze Age/Early Metal Age material, but emphasised its importance to the Stone Age and the Iron Age. After the 1920s, no more important archaeological activities took place in the parishes (for a more detailed history of research, see Lavento et al. 2001; Uino 2003).

After World War II the entire Karelian Isthmus remained outside archaeological research. Only after the change of the political situation and the possibility to investigate these areas again Finnish archaeologists became attracted to the archaeological problems there. The first fieldwork the Finnish archaeologists took part in was conducted at Iron Age and Medieval sites in the late 1980s. The interest towards the Stone Age and the Early Metal Age increased in the late 1990s. The Department of Archaeology at the University of Helsinki and the Lahti Historical Museum started their first surveys on the isthmus in 1998. Since then fieldwork has continued yearly in different parishes. Very profitable investigations on the isthmus have also been carried out by Timo Jussila and Aivar Kriiska (Jussila 2001).

Between 1998–2003, the University of Helsinki carried out the Saimaa-Ladoga project (Lavento et al. 2001) in co-operation with the Russian Academy of Sciences, Institute of the History of Material Culture (St. Petersburg), the Anthropological Museum named after Peter the Great (Kunstkamera, St. Petersburg) and the National Board of Antiquities (Helsinki). More than 120 new sites were found in the western part of Lake Ladoga (Kaukola, Räisälä and Kurkijoki) and by the Gulf of Finland in the parishes of Johannes (Sovetskij), Koivisto (Primorsk) and Kuolemajärvi (Aleksandrovskoe). In addition, one dwelling site with a dwelling depression was excavated during the project in Räisälä in 2002 (Timofeev et al. 2003; Gerasimov & Koulkova 2003; Poplenko 2003). Because the fieldwork carried out in 1999 showed that the archaeological record is even richer and more diverse than previously assumed, the Department of Archaeology decided to continue investigations by starting a new project in the area already surveyed.

The Kaukola-Räisälä project: financing and collaborators

The project become possible because of the sum of 100 000 euros appropriated by the University of Helsinki. Some minor costs will also be covered by the institutes and grants in St. Petersburg and the Department of Archaeology, University of Helsinki. The participating institutions and collaborators of the survey are 1) the National Board of Antiquities (Docent P. Uino), 2) Institute of the History of Material Culture, Russian Academy of Sciences, St, Petersburg (Prof. E. Nosov, Dr. V. Timofeev (†), Dr. S. Lisitsyn and MA S. Belsky), 3) Museum of Anthropology and Ethnography Named after Peter the Great, Kunstkamera, St. Petersburg (MA D. Gerasimov), 4) University of Tartu, Estonia (Assistant Prof. A. Kriiska).

The Kaukola-Räisälä project is a part of a larger ‘umbrella project’ the purpose of which is to compare the Neolithic and the Early Metal Age settlement and its changes in three different types of environments. The environment, which has already been principally investigated, is the Great Lake Saimaa area in Finland. The research was conducted in the already completed Saimaa project between 1992 and 1996 (Kirkinen 1996a, 1996b). The second area includes the great lake environment in the western part of the Ancient Lake Ladoga in Kaukola and Räisälä. The third type of environment implies the Finnish Gulf in the parishes of Antrea, Koivisto and Kuolemajärvi. In the last-mentioned area of the ‘umbrella project’ only preliminary surveys have been made. More careful analyses will be conducted in the future.

The objectives and methodology of the project

The Kaukola-Räisälä project differs in many ways from earlier investigations in the area. The basic aims are:

1. to assess the changes in the degree of mobility/sedentarity in human societies on the area since the Early Mesolithic to the Late Early Metal period,
2. to analyse the similarities and differences between the settlements located in different environmental milieus, and
3. to study the extent and the nature of contacts between societies in eastern Fennoscandia and East Europe. Naturally, several additional, minor questions will arise during the survey.

The project began with an intensive-investigation of museum collections (excavation and inspection reports). The key methodology is related to the intensive field survey and obtaining detailed information on the archaeological sites in the research area. Shore displacement studies are necessary because they comprise reconstructing and making shoreline maps for different periods of the Ancient Lake Ladoga. Estimation of the impact of transgression and regression phases is important because they presumably influenced the settlement pattern and its changes during the long period under research.

The field survey was begun in May 2004 by conducting a three-week survey of the area. It was carried out in two groups: Lic. Phil. Petri Halinen was in charge of the Räisälä group while MA Teemu Mökkönen was in charge of the Kaukola group. Dmitriy Gerasimov, Aivar Kriiska, Oula Seitsonen and Sanna Puttonen worked also in the former group and Stanislav Belsky, Kerkko Nordqvist, Aivar Kriiska and Mika Lavento belonged to the latter group.

The 2005 season will concentrate on small-scale excavations in the sites found interesting during the survey. It also implies analysis of the survey material in order to obtain a better understanding of the subsistence strategies in the area. It seems evident now that complementary surveys are necessary in some parts of the area. The six-week fieldwork also implies two groups conducting small excavations and sample taking in 10–15 sites.

The year 2006 will be reserved for analysing the material and preparing the final report of the project. Only some revisions or complementary analyses will be made in the field. The time will be used to prepare as many publications as possible because a basic problem in many archaeological field projects is that they too seldom can finish the research with detailed publications. It is often the case that finance is insufficient and additional funding is not easy to obtain for this purpose. Here an attempt is made to try to avoid this problem already from the beginning.

Radiocarbon datings are evidently needed in order to understand temporal relations between sites. Collecting and analysing samples (osteological material, macrofossils, soil samples, etc.), which will cast light on subsistence strategies, is an important part of the survey. The analyses will be made both in St. Petersburg and in Helsinki. Comparative analyses of material culture give hints to establish relations between different sites and – after interpretation – between societies. In this work it is also necessary to take into account stray finds, the material excavated before World War II, investigations from the 1970s made by Russian archaeologists and those of the 1980s together with the material found during the 1999 survey. A database on the existing and new archaeological record of the research area will be created, mainly by the Russian archaeologists.

The project will be carried out both by investigating old collections and working in the field. For instance, the investigation of the material found and excavated before World War II is of particular importance to the work. The analysis of the material collected in these sites and research history will be also investigated by Docent Pirjo Uino, Assistant Professor Aivar Kriiska, MA Dmitriy Gerasimov, MA Oula Seitsonen and BA Kerkko Nordqvist. MA Teemu Mökkönen carried out the shore displacement investigation of the area; more data will probably be collected in order to fine-tune it. The field report in 2004 was written by T. Mökkönen and P. Halinen. BA Sanna Puttonen is in charge of the osteological analysis of the material. Basic material for three doctoral dissertations and two MA studies will be collected.

Preliminary results of the 2004 season

Because our interest is focused on the Stone Age and the Early Metal Age it is necessary to begin by understanding the conditions of nature and their changes during the Holocene. Like most of the Baltic shield, the Karelian Isthmus is covered with a moraine bed, which sometimes accumulates as drumlins. However, from the archaeological point of view the most important quaternary formations in the area are eskers and their deltas running roughly in a NW–SE direction.

Shore displacement is the second factor which must be investigated before the fieldwork. One cannot approach shore displacement by using regression models only, but on this occasion several transgression and regression phases of the area must also be taken into account.

The map in Figure 1 represents the shorelines ca. 4000 calBC during the outbreak of the River Vuoksi. Professor Matti Saarnisto (2003) estimated that the additional water running from Lake Saimaa to Lake Ladoga caused a slight transgression in Lake Ladoga, which finally led to the outbreak of the River Neva ca. 1350 calBC. In principle, very dramatic changes in water level did not take place during the Neolithic.

Although many shore displacement studies have been done in the area (e.g. Ailio 1915; Hyyppä 1932; Davydova 1969; Saarnisto & Siiriäinen 1970; Miettinen 2002; Saarnisto 2003), the question still needs a more detailed investigation. For instance, although in many sites the settlements seem to have stayed on the same level in relation to the level of the lake for thousands of years, we know that in some parts of the Isthmus there exist sites with considerable accumulation layers between the Neolithic and the Mesolithic settlements (Takala & Sirviö 2003; Timofeev et al. 2004). Although so far we cannot point out examples of accumulation layers in the sites of the investigation area, we should not close our eyes to this possibility. This reasoning remains now only a hypothesis, because it is not the purpose of this paper to discuss the phases of the River Vuoksi and Lake Ladoga in detail. Shores in the survey area are often steep and this makes it natural to settle the same shore terrace for a long period of time.

A short look at the results of the 2004 survey

Kaukola

When looking at the site concentration on the map (Fig. 1), one can separate six site concentrations altogether. In Kaukola one site concentration is visible in the Riukjärvi-Piiskunsalmi area – well known as early as in the early 1900s. It is also worth noticing that in addition to dwelling sites a large number of stray finds were found in the area before World War II. Almost all the stray finds were picked out in fields by a farmer and sent to the Antiquarian Commission (the predecessor of the National Board of Antiquities). In some of these stray find places or in their neighbourhood, a culture layer indicating that they were dwelling sites was uncovered during the survey in 2004. In many cases topographical observations also supported this kind of interpretation. The fact that most sites were found in fields may be connected with the non-existence of dwelling depressions in the area.

The sites in the concentration close to the railway station of Kaarlahti were mainly found during the 1999 survey (Lavento et al. 2001). Small sites follow the edges of the esker on both sides of it (Fig. 1). Neither the Riukjärvi-Piiskunsalmi nor the Kaarlahti areas imply dwelling depressions. In the former case the excavation reports written by Pälsi refer to the possibility that dwellings did exist but unambiguous evidence is still not available. Small sites in the Kaarlahti area are located in the environment by the large, open Lake Ladoga.

The third concentration, the Rupunkangas area, was in the main part found during the 2004 survey. The largest dwelling depression site, Pontuksenhauta, implies four depressions. What is particularly interesting is that the depressions proved to be empty of finds. Augerings showed also that the cultural layer was missing. Only a small fragment of burnt bone came up. However, a considerable amount of finds were found very near the depressions: ceramic sherds, quartz flakes, etc. A new type of ancient monument on the Karelian Isthmus was recorded also in the Rupunkangas area. For the first time evidence of cooking pits was obtained there. During the Neolithic the Rupunkangas area was an island. Even more interesting are those small sites situated in the archipelago of Lake Ladoga. Most probably they can be interpreted as seasonally occupied hunting and fishing places.

Almost all of the sites found in 1999 and in 2004 date to the Neolithic. Only one Mesolithic site was observed and no remains of the Early Metal Age were found. One reason for this may be that shore displacement constructions were calculated for the shores before the outbreak of the River Neva. If there were shoreline calculations available for later periods it might be possible to locate Early Metal Age sites there. In the future it is necessary to take into account also the lower terraces when making the survey. On the other hand one should not forget, however, that both Mesolithic and Early Metal Age finds belong to the Riukjärvi-Piiskunsalmi concentration (Timofeev 1993; Gerasimov et al. 2003; Lavento 2001).

Räisälä

In Räisälä, one site concentration exists by the esker and delta between the Juoksemajärvi-Pitkäjärvi area and the Räisälä church (Fig. 1). Sakari Pälsi’s excavation site at Pitkäjärvi belongs to this concentration and so does the site of Juoksemajärvi (Bol’shoye Zavetnoye-4), where the excavation was carried out in 2002 by the University of Helsinki in co-operation with the Institute of Material Culture, St. Petersburg (Gerasimov & Koulkova 2003; Halinen 2003; Timofeev 2003). During the 1999 and 2004 surveys large sites with several dwelling depressions were recorded there. For instance, in the Peltola site 15 depressions in three groups were recorded (Fig. 2). Even if the depressions are not synchronous, these minor groups can be considered ‘Neolithic villages’.

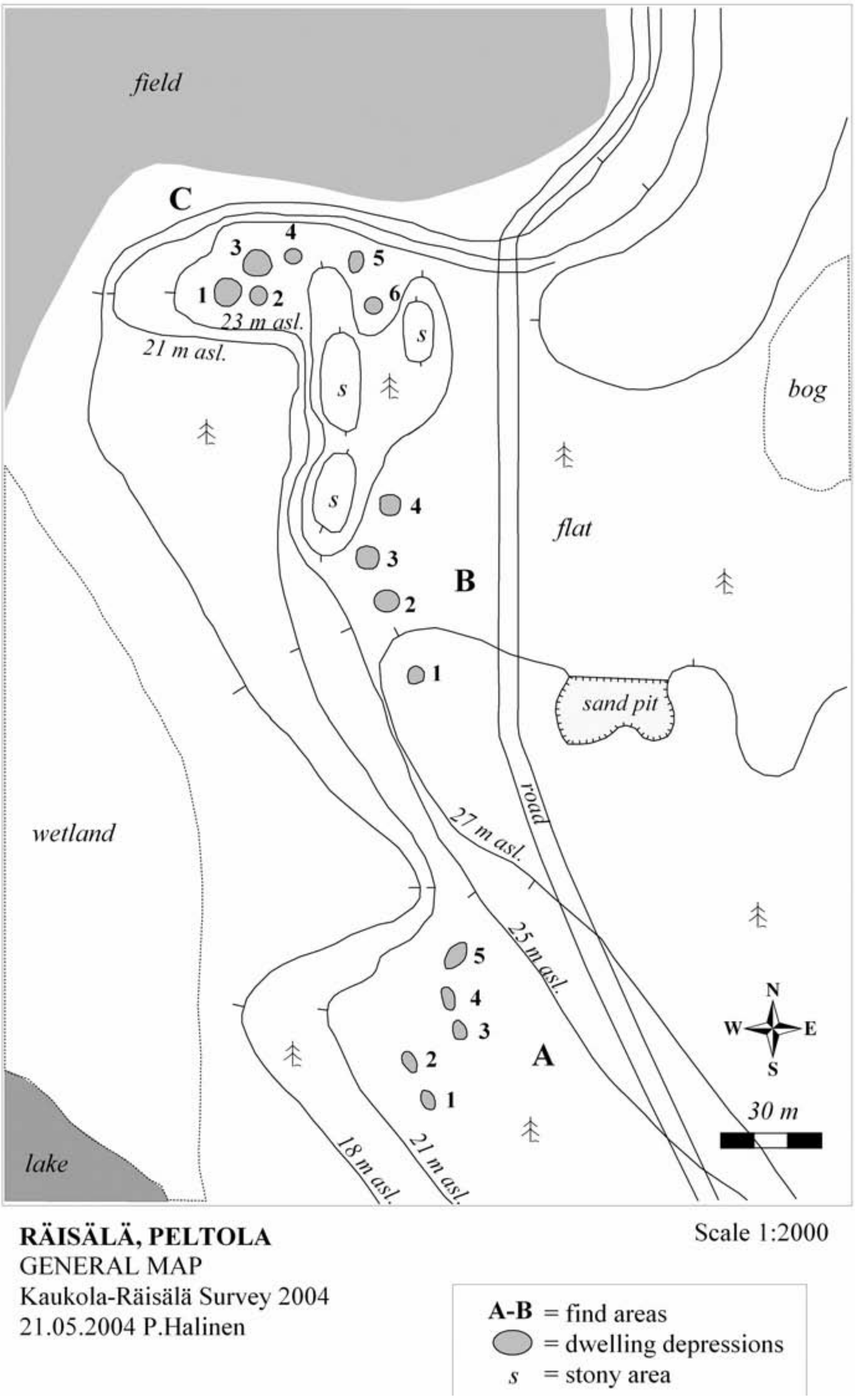

Fig. 2. The dwelling site of Peltola in Räisälä.

The second concentration was found on the esker by the River Kuunjoki where the river valley resembles a fjord (Fig. 1). Most sites there were found in 2004. The area continues to the parish of Kirvu. Interestingly the Kuunjoki area is empty of dwelling depressions thus referring to a different kind of settlement pattern than that of the Juoksemajärvi-Pitkäkärvi area. The sites can also belong to a larger settlement pattern, which includes different types of areas and sites.

The southern part of the parish comprises the region between the Räisälä church and the northern part of the Vuoksenranta parish. The eskers are running towards the SE from the most important environment of the sites of the area. Several sites with dwelling depressions were found there although most of the sites represent a different type of habitation. One can determine that the area includes different concentrations of sites, perhaps indicating different manners of settlement patterns.

On the basis of a preliminary investigation of finds most sites in Räisälä date to the Typical Comb Ware; still, on the basis of ceramic fragments it seems probable that some sites imply pottery belonging either to the Ka I or the Ka III type. In Räisälä there are sites in Kuunjoki and Juoksemajärvi dating to the Mesolithic. Their chronology is based on elevations in relation to the lower (younger) ones. There are still many problems with the chronology of the sites because the elevation of the ancient Lake Ladoga remained almost the same for many thousands of years. The 1999 survey uncovered one site with Textile ceramics but no new Early Metal Age sites were found in the 2004 survey; until now only two are known in Räisälä (Lavento et al. 2001).

Conclusions

Although one might feel tempted to divide sites without dwelling depressions in Kaukola roughly into large and small, this division cannot be verified on the basis of the available data. Evidently some sites in Riukjärvi and Piiskunsalmi are large, and it seems clear also that they seem to be small in the Kaarlahti area. Even smaller sites may exist in the Rupunkangas area.

When looking at the chronology, it seems that the settlement activity in the sites found in 1999 and 2004 is highly concentrated in the Neolithic Period. In the Riukjärvi and Piiskunsalmi area there are, however, at least 20 sites with Early Metal Age human activity also. In Kaukola, it is possible to separate at least three different types of environment: the fjord area (Riukjärvi and Piiskunsalmi), the esker area of Kaarlahti (Kuznechnoe) by the large lake and the island area in the environment of Rupunkangas. Whether or not they are even partly contemporary is beyond the scope of this paper.

In Räisälä there are also differences in the use of areas. For instance, comparison between the River Kuunjoki area and the Juoksemajärvi-Pitkäjärvi area uncovers the difference between sites with or without dwelling depressions. In general there are considerably more dwelling depressions in Räisälä than in Kaukola which refers to larger sites. It is also significant that in almost every case material was found when drilling the depressions: ceramic fragments, flint and quartz implements and flakes and burnt bones. It is also conspicuous that the cultural layer is usually clearly visible. The finds in the sites and their location in the environment are versatile. Most sites with depressions are dated to the period of the Typical Combed Ware, a short time after the outbreak of the River Vuoksi.

The earliest settlement period in Räisälä is, without doubt, the Mesolithic. This is visible not only in the finds but also on the basis of their elevation, which, however, is not without problems on the Isthmus. Still, it is possible to see the main lines of settlement activity from the Mesolithic until the end of the Early Metal Age in the area. It is also worth noting that in the sites without dwelling depressions the primary ceramic type is Typical Combed Ware. On the basis of a preliminary investigation there is only one site with Neolithic Asbestos Ware in Räisälä. Late Neolithic and Early Metal Age sites are few in number. Most sites here, like in Kaukola, were recognized on the basis of quartz and burnt bones.

On the basis of the results obtained during the 2004 survey season it can be stated that the three-week survey uncovered 62 new sites. Thus we now know of ca. 122 sites altogether in these parishes dating to the Stone Age and the Early Metal Age. In addition, a large number of stray finds is known in the survey area: ca. 20 find places with quartz were located. The number of stray finds from different periods without context is over 1000.

When considering the original question framing of the project much material exists now with which to build further hypotheses regarding the question of mobility/sedentarity and the question regarding similarities and differences between settlements and types of habitation. This is evident on the basis of the concentrations of dwelling depressions, sites by an open lake, sites on large islands or sites on very small islands. In other words, we now have a large variety of site types in different kinds of topographic environments during different periods between 9000–1 calBC. The material available offers excellent opportunities for further field research in the area.

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Interregional contacts across northern Fennoscandia 6000–4000 BC

Charlotte Damm

Abstract. *When northern Fennoscandia was first settled there appears to have been little contact between groups settled in different regions. The paper discusses when interactions were established and, more importantly, the form and consequences of such contacts across Fennoscandia. It is argued that the first contacts may have started at about 6000 BC, but that they intensified from 5000 BC and were perhaps consolidated at around 4000 BC. A key point in the paper is that to understand interregional interaction we must also study local organisation and regional interaction.*

Keywords: *Stone Age, northern Fennoscandia, interaction*

Introduction

In northern Fennoscandia (i.e. the northern-most parts of Norway, Sweden and Finland and the neighbouring areas in north-western Russia (see Fig. 1), in following simply: Fennoscandia) the archaeological evidence suggests increased exploitation of the interior by groups from around the Bothnic Bay and by groups from the Atlantic coast in the Atlantic period. While it is possible that groups from these separate settlement areas met by coincidence even earlier, it is likely that such direct encounters increased in frequency from 6000 BC. What was the character of the interaction between the groups, how did these develop and what were the consequences for the Atlantic groups?

The following represents a preliminary hypothesis based on the existing and rather sparse data. What I wish to emphasize in the suggested historical trajectory and in future analyses is the importance of simultaneous analyses of interregional and regional interaction as well as local socio-economic developments, and the probable interdependence of the local and the interregional.

Prelude

At the beginning of the Holocene, large parts of the Scandinavian Peninsula were still covered by ice. This meant that Fennoscandia was settled by different groups from different directions. Some came along the coast of Norway as early as around 9000-8500 BC calibrated. Others came from the southeast into Finland, reaching northern Finland around 7500-7000 BC quite some time after the ice had melted, and possibly continuing westwards into northern Sweden. Northern Sweden was most likely settled around 7500-7000 BC by groups having earlier immigrated from the southwest through a passage from Central Norway (Matiskainen 1996; Olofsson 2003; Rankama 2003).

The groups that settled in northern Norway along the Atlantic coast appear to have exploited primarily marine resources. They kept to the outer coastal areas and the fjords, and did not venture far away from the coast. The early groups in northern Sweden, however, exploited not only the coastal resources in the Bothnic Bay, but also (and perhaps predominantly) the relative low lying forest areas, where they caught beaver and elk (Forsberg 1996). This forest area was cut by long, shallow 'fjordal' arms stretching northwest from the Ancylus fresh water lake. In northern Finland reindeer seems to have been the most important prey (Ukkonen 2004: 122).

The groups settling in northern Sweden were separated from the groups to the west along the Atlantic coast by a higher, mountainous area (peaks between 1400-2000 m) with passes at a present altitude of 450-600 masl. The distance from the Swedish sites to the Atlantic coast would have been 150 km or more as the crow flies.

In more northern and eastern areas groups at the Norwegian coast and groups in northern Finland were not separated by mountains. Some of the early sites in north-western Finland were not far from the fjordal arms stretching north and east. Groups appear at first to have moved seasonally (Halinen 1995) from the Bay-area along major waterways to for instance the Enontekiö-region, which is still 150-200 km from the nearest Atlantic fjord, if one follows the waterways on the Atlantic side of the watershed.

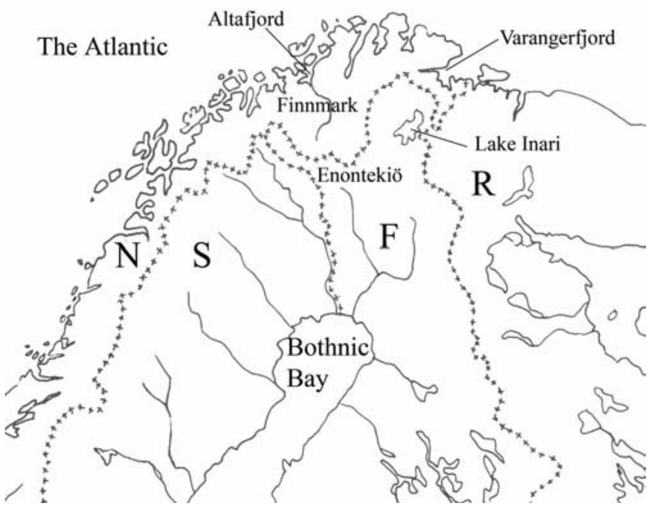

Fig. 1. Northern Fennoscandia covering parts of present day Norway (N), Sweden (S), Finland (F) and Russia (R) with topographical features mentioned in text.

Other groups further east and north may well have kept to the inland all year round (Räihäla 1999). Some of these groups moving northwards from south-eastern Finland appear to have crossed the watershed and settled in the Inari-area, where the major lakes and waterways drain north into the Varangerfjord, creating a potential link to the groups in northern Norway. The distance between the groups is difficult to estimate, but there is a distance of close to 150 km from the most well documented sites at the southern shores of lake Inari to the Varangerfjord. If the area was indeed settled from the southeast it would, however, seem unlikely that they did not continue their explorations as far as the coast. According to Grydeland (in press), there is a marked drop in the number of sites at the Varangerfjord at the same time as the Inari region is settled, and a simultaneous increase in use of quartz, the only raw material available locally in northern Finland. This may suggest that the Inari region was in fact settled by groups from the Norwegian coast. In any case, it is most likely that contact between the Inari region and the Varangerfjord area was established at around 7500-7000 BC.

From about 6000 BC, there was a general increase in the number of sites in both in northern Finland and northern Sweden (Forsberg 1996, 2003; Carpelan 2004). In addition there are now sites situated far inland along waterways linked to the Atlantic coast in also more western parts of northern Norway. These sites appear to represent the first more extensive exploitation of the inland by groups originating from the Atlantic coast west of the Varangerfjord. They are dated partly by ^{14}C and partly on the basis of the presence of oblique arrowheads (see below). With an apparent population increase in northern Finland and northern Sweden and a reduced distance between groups from different settlement areas, it is likely that contacts between groups increased.

The archaeological data

During the first 1000 years (roughly 6000-5000 BC), the assumed contacts did not leave many traces in the archaeological data. The material across Fennoscandia is rather indistinct in this phase, consisting primarily of quartz and other local material with oblique arrowheads as the only distinct artefact (Forsberg 2003: 67; Rankama 2003: 43). Otherwise the lithics indicate an expedient technology. In Northern Sweden there is some use of quartzite handle-cores for the production of microblades. At present only two chert handle-cores have been found in northern Norway. A few handle-cores are known from Northern Finland (e.g. Siiriäinen 1982). In both cases this may indicate contact to northern Sweden.

At about 5000 BC, there are several marked changes in the material (Damm in press). In northern Norway, tiny ‘thumbnail-shaped’ scrapers were produced and used. The type is known also from other areas in Fennoscandia, and even further south in Scandinavia. Rock carvings appeared in a limited area in northern Norway (the Altafjord-region). Comb ceramics were found throughout Finland and in a small area at the northern coast (Varangerfjord). Polished slate artefacts were introduced. Some such artefacts are known from even earlier contexts in mainly southern parts of Finland. A few have been found in northern Finland (Rankama pers. comm.). From about 5000 BC, the use of slate was common in the easternmost parts of Finnmark. Some centuries later, it was found also further west along the Atlantic coast. By around 4500-4300 BC (Skandfer pers. comm.), the use of the colourful red slate for polished artefacts is found throughout Fennoscandia, although these are most common along the Norwegian coast, and are found in smaller numbers in Sweden and Finland. In western Finnmark, the use of polished slate was preceded by knapped, but unpolished bifacial slate points. Throughout the coastal areas of Finnmark, there were coarse bifacials made of dark chert. Both of these types are found occasionally at Swedish and Finnish sites (Torvinen 2000: 15), although they are few in number.

Large greenstone picks (known as North Bothnic tools or Rovaniemi picks), produced in the present Swedish-Finnish border area around Tornedalen were widely distributed and occurred for instance at Atlantic sites with comb ceramics (Skandfer 2003). Use of red ochre also became more prominent. It was, however, used differently in different areas. In eastern parts of Fennoscandia it was used to paint the surface of the comb ceramics. In these same areas and in northern Sweden it was used abundantly in graves, while it is instead found in some house structures in northern Norway (Damm in press).

Flakes, blades, thumbnail-scrapers and bifacial points made from pink Russian flint are quite common at Comb Ceramic sites in eastern Fennoscandia (Skandfer pers. comm.). This type of flint is more sparsely distributed across the rest of Fennoscandia. Some almond-shaped bifacial points of a eastern (Russian) type more common in Finland (Edgren 1993: 74) and at certain sites in northern Sweden have been found in northern Norway too (Schanche u.å.: 10). Towards the end of the 5th millennia BC there were also even more exotic finds such as amber deriving from the Baltic.

Thus, according to the finds there was an at least 1000 year long phase with some interregional contact, which left hardly any traces in the archaeological data, succeeded by a 1000 year long phase with numerous indications of contact, albeit with clear regional variation. Also in other regions of Scandinavia the 5th millennia BC is characterised by evidence of intensification of contact over great distances (e.g. Fischer 2002; Hallgren 2003: 593).

At about 4000 BC, or a little earlier, there was a marked change in the settlements with the emergence of semi-subterranean dwellings all over Fennoscandia (Olsen 1994; Lundberg 1997; Pesonen 2002). There was an increase in the use of red slate with conspicuous similarities in the artefact categories and types, increase in rock art sites, imported goods, etc. Certainly by this time there was more regular contact and interaction across Fennoscandia.

6000-5000 BC

If we start by looking at the period 6000-5000 BC, there is as noted little concrete evidence of contact. This may of course reflect the actual situation: perhaps the groups from the Atlantic coast and the areas around the Bothnic Bay did in fact not – or at least hardly ever – meet. They may have exploited the same inland areas at different seasons, or they may have kept to either side of the watersheds. I consider the first alternative unlikely. From Sweden there are indications of exploitation of higher inland areas for a variety of purposes: fishing (Bergman 1995), extraction of raw material (Holm 1991) and hunting of elk, reindeer and beaver. In all cases the optimal seasons would have been summer and early autumn, while winter was spent in the lower forest region or at the coast respectively.

That each group kept primarily to their side of the watersheds and ventured only sporadically into the mountain region is a possibility in the more westerly regions of Fennoscandia. Again evidence from Sweden suggests that the higher areas were not used extensively and that one apparently did not return regularly to the same sites (Holm 1991; Bergman 1995). It is likely that the majority of the time in the higher altitudes would have been spent at lakes and rivers, and that expeditions into the mountain region proper and across watersheds would have taken place more irregularly, thus decreasing the chances of meeting groups venturing into the area from another direction. We may, therefore, expect contacts to have been of a more accidental character, happening infrequently, and not necessarily as a yearly event. It is possible that such accidental encounters happened more often in eastern parts of Fennoscandia, where topography eased access across watersheds.

Yet another explanation for the lack of evidence for contact could be exchange of goods made of perishable materials, such as bone, antler, hides, feathers, etc. – and in particular: meat.

What happened when members of two unfamiliar groups met? To understand this we must first attempt to understand how groups interacted within region they came from. Evidence from earlier phases along the Atlantic coast suggest small groups, with usually just one or perhaps a few dwelling structures at each site (Grydeland in press). The region could have supported quite a dense population, but there are no indications that this was in fact the case along the coast. So more likely there was a number of regional groups, inhabiting the choicest fjords and coastal areas, each consisting of a few small local bands or families, which probably aggregated one or several times each year. Occasionally there would be visits to or from other regional bands, these visits linking groups along the coast. I consider it likely that each area would consist of both outer coastal localities as well as sites in the fjords and probably in the closer inland, although it is possible that there were some groups based predominantly on the outer fjordal areas and island, while others exploited the fjords. I also assume that the local bands practised a mobile and fairly flexible settlement pattern, where they would occasionally return to favourite sites, but also frequently set up camp at less used sites. There would have been some distance to the next regional band. I assume that there were no distinct regional territories, due to no particular conflict over resources. On the other hand, the Atlantic coast itself presents a number of naturally delimited areas, typically composed of a long fjord and the islands and sounds outside this. With regard to the groups in northern Sweden and Finland, Forsberg (1985) and Räihälä (1999) suggest that the local bands here exploited rather limited areas (50-100 km in diameter?) along rivers and fresh water lakes.

Reciprocity is a central aspect of most hunter-gatherer groups. Sharing of at least larger mammals (whether reindeer, elk or seal) was presumably practised within the band, and quite likely also between regional bands, when these met, as they would presumably have been kin as well.

The groups that met in the interior were strangers to each other – at least at first. They were, however, most likely quite similar with regard to size and social and economic organisation, although presumably with different cultural expressions. It is likely that they would have solved an encounter with an unfamiliar group much as they would an encounter with a more distant, but still familiar band. They may well, therefore, have invited each other to share a meal, as an ordinary courtesy. This argument is perhaps supported by the fact that many hunters view their kill as a gift, something being given to them by the animal itself or by the animal's protective master (Feit 1989: 433; Ingold 2000: 122; Jordan 2003: 113). Thus, the meat is from the start a gift, which implies obligation and reciprocity. If encounters became a recurring event, more formal sharing, or perhaps formalised gift exchange, may have been established.

When groups met, they were probably in the area to exploit much the same resources. This could have caused conflict if resources were scarce, but may also have been solved rather undramatically, at first perhaps by a first-come – first right of place, later perhaps through repeated use-right to certain lakes, good fishing localities and hunting territories. Another possibility could be that each group was acknowledged to 'govern' certain areas, but at the time bound by mutual obligations to always allow other groups access (unrefusable access) (Jordan 2003: 262), thus establishing equal status and dependency between the groups.

If they were indeed exploiting the same resources, sharing and even more formal gift exchange would most likely have been of very similar items. Thomas Gibson (1988: 167) argues that societies exchanging more or less identical products are able to maintain fairly symmetrical relations.

Alternatively they could have exchanged things of more uncommon material or culturally distinct items, which they brought with them from lower lying areas either at the coast or in the forest region. Such items are not necessarily visible in the archaeological material, as organic material is seldom preserved. There seems to have been little need for any major exchange of food or other goods at this point, so I would consider it more likely that such exchange of more exotic items (whether food or other things) would have been rather limited and perhaps spontaneous rather than planned in advance.

On the basis that there is at present little indication of extensive contact and exchange between groups before 5000 BC, I consider it likely that contact was at this point still irregular; that initial sharing between groups possibly transformed into gift exchange of fairly identical products, thus not creating much basis for asymmetrical relations *between* the groups. Furthermore, if the inland was initially explored by an entire band, spending late summer and early autumn fishing, hunting and collecting berries, then all members of the group would probably have been involved in and benefited from such relations, which would have supported symmetrical relations also *within* each band, even if more exotic goods were exchanged.

5000-4000 BC

The changes seen in the archaeological material around 5000 BC, in my opinion, spring from changes in the settlement organisation, at least along the Atlantic coast, possibly also in the other areas. Along the coast a number of rather large sites emerge, generally without conspicuous dwelling structures, but often located at strategic points. One such site is found at Slettnes, where the lithic debris increases between five to ten times at this point in time (Hesjedal et al 1996: 159), suggesting either more long term occupation, repeated visits or an aggregation site. Another indication of change is the greater tendency towards a curated technology with distinct types.

The groups in Fennoscandia would probably always have practised some degree of collecting and storage, at least for parts of the year. However, while I assume that the groups in the 6th millennia and earlier were highly mobile, and that the local band predominantly stayed together with only short term split ups for hunting trips etc., i.e. an economic organisation tending towards a foraging mode, I envisage greater emphasis on collecting and storage from 5000 BC.

The larger sites at strategic locations may suggest longer stays at certain base camps. This may then have been linked to increased emphasis on collecting and storage at such base camps. The comb pottery found in the east may be another indicator of both long term sites and possibly storage. I would argue that the sites suggest change in both economic and social organisation. There would have been increased differentiation between sites (base camps, specialised sites, hunting camps, etc.) and quite possibly greater emphasis on task groups, with some individuals leaving the band for shorter or longer periods of time for specific tasks. This organisation may indicate a greater emphasis on the regional territory, with repeated use of certain locations. This may also be indicated by the emergence of rock art in western Finnmark, suggesting stronger association with particular locales in the landscape.

Thus, tentatively, there is a change towards task-organisation and task mobility rather than band mobility, more emphasis on collecting and storage and, as a result, stricter territorial use rights and defined territories. These developments may have caused significant changes in the social relations within groups, as it increased mutual dependence between members of the group and to a greater degree than before regulated access to certain resources or resource areas (Feit 1989: 427). Such changes in the social and economic organisation are likely to have had consequences for the interaction with other groups, which again influenced relations within the regional and local groups. As Ingold argues, it is 'the social relations themselves that both constitute and characterize the practical activities of hunting and gathering' (Ingold 1988: 276).

One specialised task may have been inland hunting expeditions. There is little evidence of intensified use of the interior, although the data otherwise indicates increased contact across Fennoscandia. One reason for this could be that the area was now exploited by smaller, specialised groups. Such smaller, and therefore even more mobile groups would perhaps be more likely to venture across watersheds in pursuit of game and other resources. If the technology of skis and sledges had spread from the Finnish area by then, travelling during winter would have eased both travel itself and transportation of goods tremendously. It has also been noted that roughly at this point in time, the pine forest is at its maximum extent, creating a more open forest that is perhaps easier to navigate (Hicks & Hyvärinen 1997).

Thus we have a situation where task groups from the Atlantic coast met either whole bands or perhaps task groups settled in northern Sweden or Finland. This meant that now only some members of a group were directly in contact with such distant groups. As Mary Helms (1992) has shown, this may have given these individuals a particular status within the group, and perhaps provided stimulus for obtaining goods that would increase this status. It is also possible that recurring encounters and potential conflict over territorial use rights when groups cross into new areas would have lead to more formal gift exchange, now possibly of qualitatively different things (be it different furs, raw material, different artefact types, etc.).

While the possession of such more exotic goods provide a potential for status differentiation, mechanisms may have existed that minimized the degree of differentiation (Paynter 1989). Presumably relations within the local band were based partly on sharing whatever each task group provided. In addition there would have been expectations of gifts between individuals both within each local band and within the regional band. More formal gift exchange probably existed also between regional bands. Thus it may have been difficult to hang on to any more prestigious object for longer periods of time, instead allowing the status to spread throughout the group. Status related to exotic object may also have been 'distributed' though other types of relations to the object: use right to an object owned by a close relative, the possibility of borrowing the object, etc. (Burch 1988).

What I envisage is a number of coastal groups with more defined territories, each with a central camp. These groups send out task groups up rivers and across land, where they meet other groups and exchange gifts and goods. These items are brought back to the territorial groups from where they may be passed on as gifts to people in other groups along the coast. Such a continuous passing on of gifts would have kept social differentiation based on exotic goods at a minimum, and there are no indications of major social differentiation in the data.

As mentioned above there is distinct intensification of long distance contacts throughout Scandinavia from about 5000 BC. This has been associated with exogamic marriage (Nuñez 1990; Fuglestvedt 1999; Hallgren 2003; Knutsson et al 2003). With regard to the northern Fennoscandic hunter-gatherer groups it is argued that out-marriage of women (exogamic, virilocal patterns) lead to the spread of various technologies such as pottery production and handle core technology.

While I would not exclude the possibility of marriage between groups across the Fennoscandic region discussed here, I would argue that for the period 6000-4000 BC this was not the core of the interaction. In contrast to the situation in northern Sweden, there appears to be little spread of particular technologies. In fact, Skandfer has convincingly demonstrated that while early coarse chert bifacials are found both in eastern and western Finnmark, the production sequence differs in the two regions (2003: 271). On the other hand, she agrees that pottery production is not easily learned by observation only and believes the introduction of pottery in the groups at Varangerfjord must be linked to knowledgable persons from the east or south, who were in regular contact with the Varanger groups (Skandfer 2003: 351-2).

4000 BC

During the 5th millennium contacts between Bothnic and Atlantic groups become archaeologically visible, probably as a result of more regular and regulated interaction. By approximately 4000 BC, it appears that distinct territories with semi-sedentary groups had been established both at the Atlantic coast and around the Bothnic Bay. Across Fennoscandia there are large numbers of semi-subterranean houses, re-occupied year after year. At the Atlantic coast there are many structures at each location. This may definitely be interpreted as signs of established territories. Certainly such territories now seem to have been established in the forest region of northern Sweden as demonstrated by Åsa Lundberg (1997). If this is the case then regular travel routes from the coast to the inland had probably been established, leading to the same groups across the mountain areas. This would probably have resulted in a consolidation of the interregional contacts with formal exchange partners and regular, institutionalised transactions.

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Flintdolken – en senneolitisk berättelse: dödshus och kroppsförändrande praktiker under senneolitikum i södra Sverige

Eva Stensköld

Abstract. *This article discusses differences between resharpened and non-resharpened flint daggers. There appears to have been two differing rules of deposition of the two types of flint daggers in the Late Neolithic society. Resharpened and non-resharpened flint daggers thus seem to relate to different societal spheres of significance in society. It is suggested that the flint daggers were used in varying forms of ritual body modification practices, as tools for alteration of bodily appearance. These rituals can be termed passage rituals – rituals connected to the individual's journey through her life-cycle. The resharpening of the dagger blade is then to be understood as a ceremonial resharpening, a ritual remaking of the dagger.*

Keywords: *Late Neolithic, flint daggers, mortuary houses, gallery graves, passage rituals, body modification*

Vad är en dolk?

Flintdolkar uppträder i flera områden i Europa under yngre stenålder. Den tidigaste tillverkningen av skandinaviska typ I-flintdolkar kan dateras till 2350 f. Kr. (Lomborg 1973; Apel 2001: 251). En överväldigande majoritet av flintdolkarna från Sverige och Norge är lösfynd. De flesta dolkar med känd fyndkontext kommer från gravar. Endast ett fåtal procent av dolkarna kan kopplas till boplatser, respektive konstaterade depåer.

Utifrån dolkbladsformen kan dolken sägas vara huvudsakligen lämpad som stickvapen, eller möjligtvis för ett djupt och genomträngande skärande snitt (Anthony

1996: 48). Dock innebär valet av material att en flintdolk ej på samma sätt som en metalldolk kan användas som stickvapen. Bladspetsen på en flintdolk är aldrig särskilt vass. Mer troligt är att flintdolken, om den använts till något praktiskt, fungerat som en kniv med skärande egenskaper. Då flinta är skört och icke elastiskt innebär det dock att endast förhållandevis mjuka material kan skäras (Apel 2001: 311).

Vad en dolk inte är – myten om den manliga dolken

I tolkningar av flintdolken dominerar vissa ord framför andra, till de oftast nämnda i sammanhanget hör teknologi, makt, individ, man, manlig, krigare, vapen, prestige och redistribution, eller ord som kan härledas ur dessa (Lindman 1988; Vandkilde 1996; Stafford 1998; Olausson 2000; Apel 2001). Väldigt sällan kan man dock övertygande argumentera för sådana kopplingar i det arkeologiska materialet. Däremot kopplas flintdolkar sällan eller aldrig ihop med ord som kvinna, barn, åldring, boplats, hem, hus, härd, rituell, rit, myt eller liknande. Nu menar jag inte att dessa två sfärer står mot varandra på något sätt. Däremot så framställs det tämligen ofta så i texter vilka behandlar bland annat flintdolkar (jfr Arwill-Nordbladh 2001: 6ff, 45).

Dolkens uppdykande i det arkeologiska materialet har nästan alltid tolkats som symptom på en större förändring i den politiska makten över hela sydöstra Europa (jfr Kristiansen 1982). Vid tiden för klockbägarkulturen och den snörkeramiska kulturen menar man att ett manligt och individbaserat krigarsamhälle, med dolken som statusföremål kom att ersätta en äldre samhällsmodell inriktad på mer hushållsnära värden (Gimbutas 1974, 1991).

Kopplingen mellan flintdolkar och vissa typer av tolkningar är dock tämligen svag, för att inte säga i många fall obefintlig. Det finns ingen övertygande koppling mellan män och flintdolkar som kan beläggas i det arkeologiska materialet från Sverige (jfr Hjørungdal 1998). I Danmark däremot förekommer flintdolkar i mansgravar (Groseth 2001: 73; jfr Lomborg 1959), vilket säkert är en förklaring till varför flintdolken även i Sverige beskrivs som ett manligt attribut.

Ofta fungerar den icke belagda kopplingen mellan män och flintdolkar som cirkelbevis, det vill säga, man hänvisar till uppfattningen om den manliga dolken, för att sedan göra andra kopplingar av samma slag i andra sammanhang (jfr Caesar 1999: 123). Till exempel då flintdolkar förutsätts vara tillverkade av män, då de ju används av män (Apel 2001: 338). På så sätt har den senneolitiska flintdolken kommit att bli ett manligt attribut, utan att någon har ifrågasatt de grunder på vilka denna bedömning är gjord. Flintdolken fungerar därmed som en legitimerande symbol för det manliga krigarideal som förutsätts existera i det senneolitiska skandinaviska samhället.

En dekonstruktion av myten om den manliga dolken kan mot bakgrund av detta bana vägen för en tolkning av hur olika sociala identiteter i samhället skapas, upprätthålls och omförhandlas genom användandet av flintdolkar i olika sammanhang.

Omhuggningen av flintdolkar

Den typologiska indelningen av flintdolkarna är baserad på i huvudsak skaftgreppets form. Detta beror främst på att det är mer stilistiskt varierat än bladet, men också på grund av att bladen på flintdolkarna så ofta är omhuggna. Med omhugget avses sådan åverkan på bladdelen som är likadan eller liknande den teknik, bifacial retuschering, med vilken dolken ursprungligen är framställd (Hayden 1989: 7). I de fall då omhuggningen av flintdolkar diskuteras i forskningen förutsätts den nästan alltid vara av enbart praktisk betydelse. Vidare är det regel att de omhuggna dolkarna beskrivs som lägre ner på den statusbringande skalan över prestigevaruföremål. Flintdolken förutsätts utgöra en så kallad prestigevara, och därefter är diskussionen kring dess funktion och betydelse i det senneolitiska samhället avslutad. I en sådan tolkning finns det sällan utrymme för en problematisering av omhuggningen av flintdolkar, eller hur man i det senneolitiska samhället använder sig av flintdolken i sin vardagliga praktik.

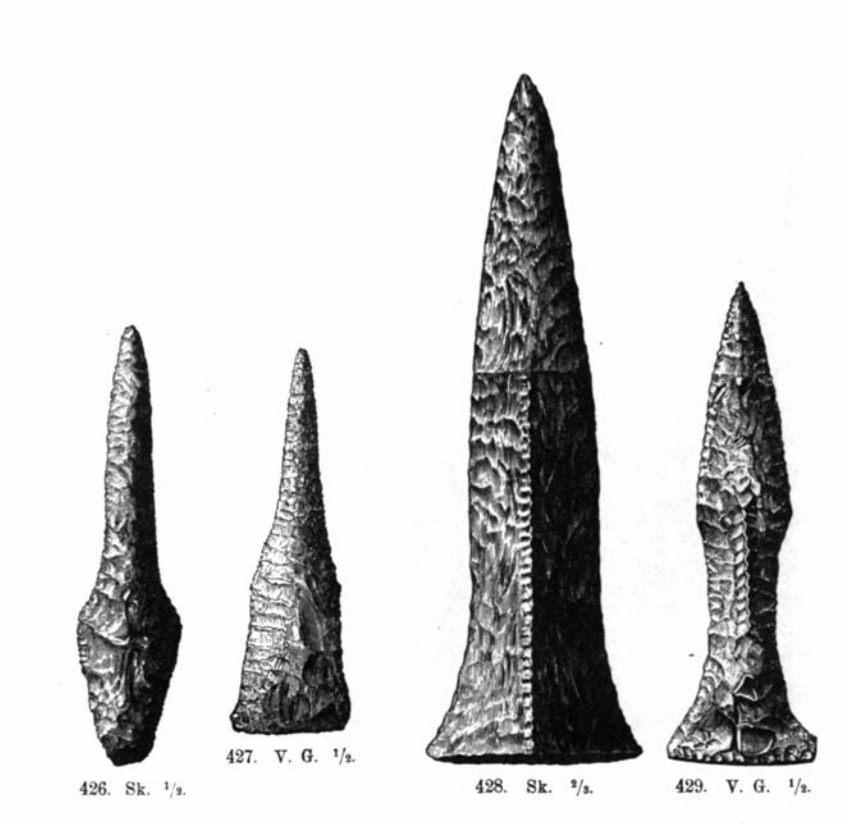

Fig. 1. Omhuggna flintdolkar av olika typer (Montelius 1917: nr 426-429).

Då man undersöker saken visar det sig att uppemot hälften av de lösfunna flintdolkarna, majoriteten av alla återfunna flintdolkar från senneolitikum, är omhuggna (Stensköld 2004: 114ff). Det är min åsikt att flintdolkarna använts aktivt, och att omhuggningen därför kan förklaras. Frågan är då istället i vilka sammanhang som omhuggningen fyllt en funktion.

Skillnaden mellan hela och omhuggna dolkar

Då jag i andra sammanhang undersökt skillnader avseende deponeringssammanhang för hela respektive omhuggna flintdolkar (Stensköld 2004: 114-21), har jag kunnat formulera ett förslag till det regelverk som synes ha styrt deponeringen av både hela och omhuggna flintdolkar under senneolitikum:

- Flintdolkar, både hela och omhuggna dolkar, deponeras företrädesvis så att de påträffas som lösfynd, därefter som gravfynd, och slutligen som offerfynd. Omhuggna flintdolkar har en ännu starkare koppling till lösfyndskontexten, än de hela dolkarna.
- I jämförelse med hela dolkar är omhuggna flintdolkar ovanliga som gravfynd, och mycket ovanliga som offernedläggelser.
- Omhuggna flintdolkar som genom sin fyndomständighet tolkats som offerfynd, synes företrädesvis deponeras för sig själva, eller kanske med en flintskära, och helst med anknytning till vatten.
- Hela flintdolkar som genom sin fyndomständighet tolkats som offerfynd, verkar ha placerats med andra föremål, gärna flintskäror, i vatten eller på fast mark, i så fall vanligtvis med anknytning till en stor sten.
- I gravar placerar man helst hela och ej omhuggna flintdolkar av god kvalitet.
- Ju längre hällkista, desto större antal hela och ej omhuggna dolkar tenderar det att finnas. Motsvarande gäller ej för de gravfunna omhuggna flintdolkarna, som varken ökar eller minskar i relation till kistlängdens variation.
- Om flintdolkar skall placeras i en grav sker det företrädesvis i en hällkista, flintdolkar i markgravar är mindre vanligt och ännu ovanligare är flintdolkar i gravar på gravfält.
- Områden som utgör produktionsområden, eller ligger i närheten av dessa, uppvisar en högre andel hela dolkar.

Man skulle kunna tolka dessa mönster som att flintdolkar vilka inte huggits om, graderas enligt en skala där storlek och god kvalitet på flintan och på den teknik som dolken tillverkats med, är eftertraktansvärt, då sådana dolkar ökar i antal i relation till hällkistornas storlek. På samma sätt finns det en större andel sådana dolkar i eller i närheten av produktionsområdena, platser som möjligen utgör samlingspunkter för något slags kontaktnät genom vilket människor knöts till varandra genom föremål. Omhuggna flintdolkar verkar däremot inte följa detta mönster. Då de förekommer i hällkistor påverkas deras antal och närvaro inte av kistlängden. Detta skulle man möjligen i detta skede kunna tolka som att omhuggna flintdolkar har en betydelse som inte är direkt avhängigt deras storlek eller kvalitet på flinta eller teknik.

Skillnad i deponeringssammanhang mellan de omhuggna och hela dolkarna styrker tanken att omhuggna flintdolkar sannolikt företräder ett annat betydelsesammanhang än de hela dolkarna.

Den senneolitiska dödsritualen

Jag vill driva tesen att flintdolken använts vid olika slags kroppsliga eller kroppsförändrande ingrepp under senneolitikum, med syftet att genom rituella praktiker markera olika slags övergångar i människors liv. Jag menar att det i huvudsak är omhuggna flintdolkar som använts i dessa sammanhang, då omhuggna flintdolkar har visat sig möjliga att koppla till en annan betydelsesfär i samhället, än de hela dolkarna. Jag skall här endast beröra övergångsritualer kopplade till handhavandet av döda.

Då de omhuggna dolkarna tolkas som redskap i en kroppsförändrande praktik, får också omhuggningen sin förklaring. Omhuggningens huvudsakliga syfte är därmed ej att skapa ett nytt funktionellt redskap, då eggen på dolken blivit slö, eller då det ömtåliga bladet på dolken brutits sönder, utan omhuggningen hänger samman med att dolken skall användas i en ritual. Dolken aktiveras då genom en ceremoniell omhuggning, då dolkbladet görs nytt.

Begreppet passagerit eller övergångsrit har vanligtvis använts till att beskriva hur individer går från en social status till en annan (van Gennep 1960). De flesta rituella praktiker kan definieras som övergångsriter och sker vid de stora förändringarna i livet, som till exempel födelse, pubertet, äktenskap, barnafödande och död. Det är vanligt att övergångsriten följer ungefär samma mönster. Den beskriver en transformationsprocess i tre steg, en vandring från en klart avgränsad och definierad verklighet, via en liminal fas, varpå man träder in i en välavgränsad och definierad verklighet igen. Den liminala fasen kan beskrivas som ett ingenmansland och är strukturellt osynlig. Den uppfattas därför ofta som farlig, kringgärdad av speciella regler och olika tabuföreställningar (van Gennep 1960: 146ff; Turner 1995; Douglas 2004: 137f).

Man kan tänka sig följande scenario vid en människas död. Hon läggs att vila i en anläggning särskilt inredd för att hysa denna aktivitet; dödshuset. Den döde befinner sig nu i den liminala fasen och stränga regelsystem styr allt handhavande av den döda kroppen. Kroppen skall sedan genom flera olika faser, som förruttnelse, skelettering, kremering, uppstrukturering och positionering, permanent avskljas från den sociala gruppen (jfr Bloch 1971). Tanken är att flintdolken använts i dödsritualens olika faser: vid kroppsförändrande praktiker riktade mot de anhöriga som deltar i dödsritualen, vid olika slags förberedelser av den döda kroppen före förruttnelse, vid sönderdelandet av den döda kroppen efter förruttnelse, vid olika slags offerritualer utförda under dödsritualen, vid det rituella slaktandet av offerdjur och själva tillagandet och konsumtionen av speciella offermåltider i samband med dödsritualens utförande.

Senneolitiska dödshus

Döds- eller kulthus är ett fenomen som blir mycket påtagligt under bronsåldern (Victor 2002), men de har förmodligen sina rötter tillbaka i det tidigneolitiska samhället (Knutsson 1995). Flera dödshus från mellanneolitikum har också påträffats i Sverige (Larsson 1995; Lindström 1995, 2000; Artursson 1996; Malmer 2002: 142). Dödshustraditionen under senneolitikum är dock något mindre dokumenterad och uppmärksammad (jfr Holm et al. 1997: 229; Gill 2003: 206ff). Jag menar dock att dödshustraditionen som etableras under mellanneolitikum, fortsätter under senneolitikum, och bronsålder, skall uppfattas som en obruten kontinuitet från neolitikum.

Jag har sammanställt en rad anläggningar från senneolitikum som kan tolkas som dödshus, eller sättas i samband med de ritualer som fokuserar kring handhavandet av döda kroppar (Stensköld 2004: 138ff). Utifrån detta material kan man dra vissa generella slutsatser. Dödshuset under senneolitikum består sannolikt av stolpar, vilka håller upp ett förmodligen vägglöst tak. Utmed eller strax utanför stolphålen finns ofta en ränna i vilken gropar eller nedgrävningar ofta finns. I dessa nedgrävningar finns nästan alltid brända och/eller obrända ben (människo- och/eller djurben), keramik, sot och kol, och ibland även andra småföremål av framförallt sten, brända eller obrända. I själva dödshuset, eller strax utanför detta är det också vanligt med fler gropar, rännor, nedgrävningar med samma fyllning som ovan. Ibland har benen från dödshus eller gropar/rännor i eller i närheten av dödshuset, sorterats/ordnats så att en viss typ av ben saknas, eller är överrepresenterade, t. ex. långa rörben eller skallben.

Dödshuset kan dock vara taklöst och utgöras endast av en vägg eller skärmliknande konstruktion. Det förekommer också att stolpar placerats efter varandra som avskärmning för dödshuset åt olika håll. Det förekommer också att gravar finns i direkt eller indirekt anslutning till dödshuset. Kokgropar, härdar och anläggningar vilka kan tolkas som bålplats, återfinns även i direkt eller indirekt närhet till dödshuset.

Avgränsningar och liminalfaser

Att man på så många olika sätt markerar gränser i dessa anläggningar kan tolkas som en markering av platsen där två världar möts. Deponeringar i anslutning till dessa gränser, antyder gränsens och gränsöverskridandets betydelse i den rituella praktiken. Fokuseringen på avgränsningar av olika slag skall sannolikt kopplas samman med platsens liminala och därmed farliga karaktär. Formelement som ytterväggar, skärmar, golv, tak, trösklar, ingångar/utgångar, stolpar, avskiljande väggar kan sägas fungera som ett slags förenklat symboliskt formspråk. Det förekommer även deponeringar i rännor, gropar och stolphål, stora stolphål som antyder närvaron av resta pålar, dessa antyder också symboliska avgränsningar och markeringar av platsernas speciella karaktär. Dödshuset kan liknas vid ett ingenmansland, avgränsat, avskiljt och styrt av regler vilka upphör att gälla utanför dess yttre markering.

Flintdolken i dödsritualen

Det är en tilltalande tanke att flintdolken och kanske framför allt den omhuggna flintdolken, haft en nyckelposition i dödsritualens olika faser under senneolitikum. En övervägande andel av anläggningarna i genomgången innehåller också en eller flera flintdolkar, hela, omhuggna och fragmenterade.

Flintdolkarna verkar vara särskilt viktiga både vid anläggnings- och övergivandefasen av kultplatser som dödshus och gravar, då de förekommer placerade i botten på anläggningen eller i fyllningen till den samma. Det förekommer också att flintdolkar deponeras i gropar/nedgrävningar eller fyndförande lager utanför anläggningarna.

Varför dolken?

Varför har man då valt just flintdolken som huvudaktör i de rituella kroppsförändrande praktikerna under senneolitikum, där den här beskrivna dödsritualen utgör en del? Jag tror helt enkelt att flintdolken fungerar som en materiell metafor för essensen i de senneolitiska övergångsritualerna och därför getts en plats i dessa rituella praktiker.

En övergångsritual i sig innebär att vandra från ett tillstånd till ett annat, att separeras, skiljas, att lämna den man varit bakom sig och bli till något nytt. En dödsritual innebär en övergångsritual både för den döde, men även för de sörjande. Den levande människan lämnar vid sin död en avgränsad, känd och definierad verklighet för att passera igenom en liminal fas. Den liminala fasens syfte är att permanent upplösa individen och avskilja den nu döde från den sociala gruppen, att omvandlas. Detta sker genom att den levande människan blir till kött, till en kropp. Kroppen genomgår en rad omvandlingsprocesser; förruttnelse, skelettering, kremering, uppstrukturering och positionering. I slutändan har så kroppen omvandlats till ben. Återigen träder det som var en människa in i en välavgränsad och definierad verklighet igen och benen (hela, delar av, obrända eller brända) kan slutligen deponeras i en grav och/eller inkorporeras i andra sammanhang. Den döda individen uppgår i ett anonymt förfaderskollektiv, där människor av olika kön och åldrar sammanblandas och upplöses i varandra (jfr Handsman 1991: 340).

Kroppen kan uppfattas som en yta med vilken man kan tänka kring sociala tillhörigheter av olika slag. Ytan, huden, utgör ju en gräns mot omvärlden, en markering mellan jaget och den omgivande världen. Markeringen på huden blir som ett slags gränsskikt mellan kroppen och omgivningen, som både distanserar och intimiserar kroppen i förhållande till omgivningen. Huden blir en gräns mellan insida och utsida, mellan individ och omvärld och markeringen vägleder betraktarens öga till denna gräns, eller yta. De markeringar med vilka man deformerar och förändrar denna skiljelinje handlar i hög utsträckning om jagets resa genom det socialt levda livet. Genom förändringen av kroppens yttre gräns kan man markera ett inre ställningstagande eller en förändring. Markeringen på kroppens hud kan fungera som ett förkroppsligat minne, en hågkomst av olika genomlevda händelser. Genom att förändra den yta med vilken man avskiljer sig från omvärlden, kan man förändra vem man är. Då man penetrerar denna yta genom att sticka hål på den, genom att skära hål i den med vassa föremål, öppnar man upp mellan det slutna självet och den öppna omgivningen (Gell 1993: 23ff; Turner 2000:

40; Stelarc 2000: 119). Kniven, dolken, skär itu, skalar av, avgränsar och delar upp. Genom kniven kan människor omvandlas och själva omvandla. Kniven länkar samman och skiljer åt på en och samma gång.

Flintdolken är också den av neolitikums stenartefakter som passerar flest nivåer i tillverkningsprocessen (Apel 2001: 34ff). Flintdolkens tillblivelseprocess har därmed en stark koppling till den invecklade förändringsprocess i flera steg som människan går igenom från födsel till vuxen. Liksom råämnet går igenom en lång rad olika steg innan flintstycket kan definieras som en flintdolk, går en människa igenom flera processer och passerar många stadier innan hon kan definieras som vuxen. En intim relation mellan människor och flintdolkar frammanas, från hennes födelse till hennes död, genom livets alla skeden.

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Net fishing gear from Sārnate Neolithic site, Latvia

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***Abstract**. The large collection of net fishing equipment from the Neolithic lakeshore site of Sārnate, in coastal western Latvia, includes a wide variety of pine-bark and birch-bark floats, as well as stone sinkers, many with birch-bark wrapping or bast binding, and the remains of a net. Two seine end-sticks indicate that seining was practiced, while the use of stationary (gill) nets, perhaps set in rivers or in the sea, is suggested by the presence of relatively heavy sinkers notched at both ends. The fishing gear derives from dwellings of various ages, associated with Comb Ware, Early and Late Sārnate Ware, allowing the development of fishing practices to be traced.*

***Keywords:** Neolithic, fishing, nets, floats, sinkers, Sārnate*

One of Northern Europe's major collections of Neolithic fishing gear, including a large number and variety of organic and stone artefacts relating to fishing nets, comes from the wetland site of Sārnate, on the west coast of the Kurzeme Peninsula, Latvia. This collection at the Latvian History Museum, recovered in the course of excavations directed by Eduards Šturms (1938-40) and Lūcija Vankina (1949, 1953-9) and concisely treated in a monograph by Vankina (1970), has now been studied comprehensively, in order to obtain a clearer picture of net fishing technology.

The artefacts are classified into functional groups. However, the Sārnate material is not culturally homogeneous, deriving from a large number of separate dwellings with Comb Ware, Early and Late Sārnate Ware, representing successive phases of occupation (Bērziņš 2003) and thus also revealing the development of fishing practices.

Floats

Flat pine-bark floats and cylindrical rolls of birch bark were found in the Early and Late Sārnate Ware dwellings, where organic remains were preserved, while the part of the site with Comb Ware dwellings did not have organic preservation, hence the absence of floats there.

Unperforated pine-bark floats

The great majority of pine-bark floats (103 out of 125) are unperforated. They have either notches at the ends, or a longitudinal groove, or in some cases lack any kind of notching. Virtually all are regularly shaped, and most have been carefully finished.

All the pine-bark floats from the Early Sārnate Ware dwellings (Fig. 1: 2, 3, 7) are small pieces (5.9-10.5 cm long and 2.4-3.4 cm wide) with notched ends, and most are subrectangular with rounded corners. Likewise, in both longitudinal and cross-section they are generally rectangular or subrectangular.

Much more diverse are the unperforated floats from the Late Sārnate Ware dwellings. Only this group has floats with a longitudinal groove (Fig. 1: 1,5). There are 34 grooved floats. Most of the rest are notched at the ends (32 pieces), while five floats have no groove or notching. Both the grooved and notched floats display a variety of forms. Most commonly, they are subrectangular with rounded corners, i.e. similar to those from the Early Sārnate Ware dwellings. Particularly characteristic of this group of dwellings are oval floats (Fig. 1: 1, 5), usually plane-convex in longitudinal and cross-section. Also quite common are floats with straight sides and rounded ends. Excepting three unusually large examples, the unperforated floats from this group of dwellings are 4.2-10.5 cm long and 1.3-5.3 cm wide.

Two dwellings, Z_a and L, with pottery differing from that of the major ware groups, have comparatively large floats, all subrectangular with rounded corners and notched at the ends, some quite roughly worked (Fig. 1: 4).

Floats from several dwellings have birch-bark binding (Fig. 1: 5), and some have remains of twine or bast in the groove, which would have served for attaching the float at both ends to the headrope (floatline) of the net. The birch-bark binding may have helped to secure the attachment cord or else may have served to increase the buoyancy or visibility of the float.

Small pine-bark floats with notching or a groove are represented at many Neolithic sites in present-day Latvia and Lithuania, most notably at Šventoji (Rimantienė 1979: Fig. 22: 1-11, 15-19). Although exact ethnographic parallels have not been found, they may be equated in functional terms to a form of float widely represented in the region: elongated wooden floats attached at both ends by a string passing through perforations at the ends of the float, and sometimes in the middle as well (Bielenstein 1918: Fig. 580; Benecke 1881: Fig. 168; Manninen 1931: 208-209, Figs. 198-201).

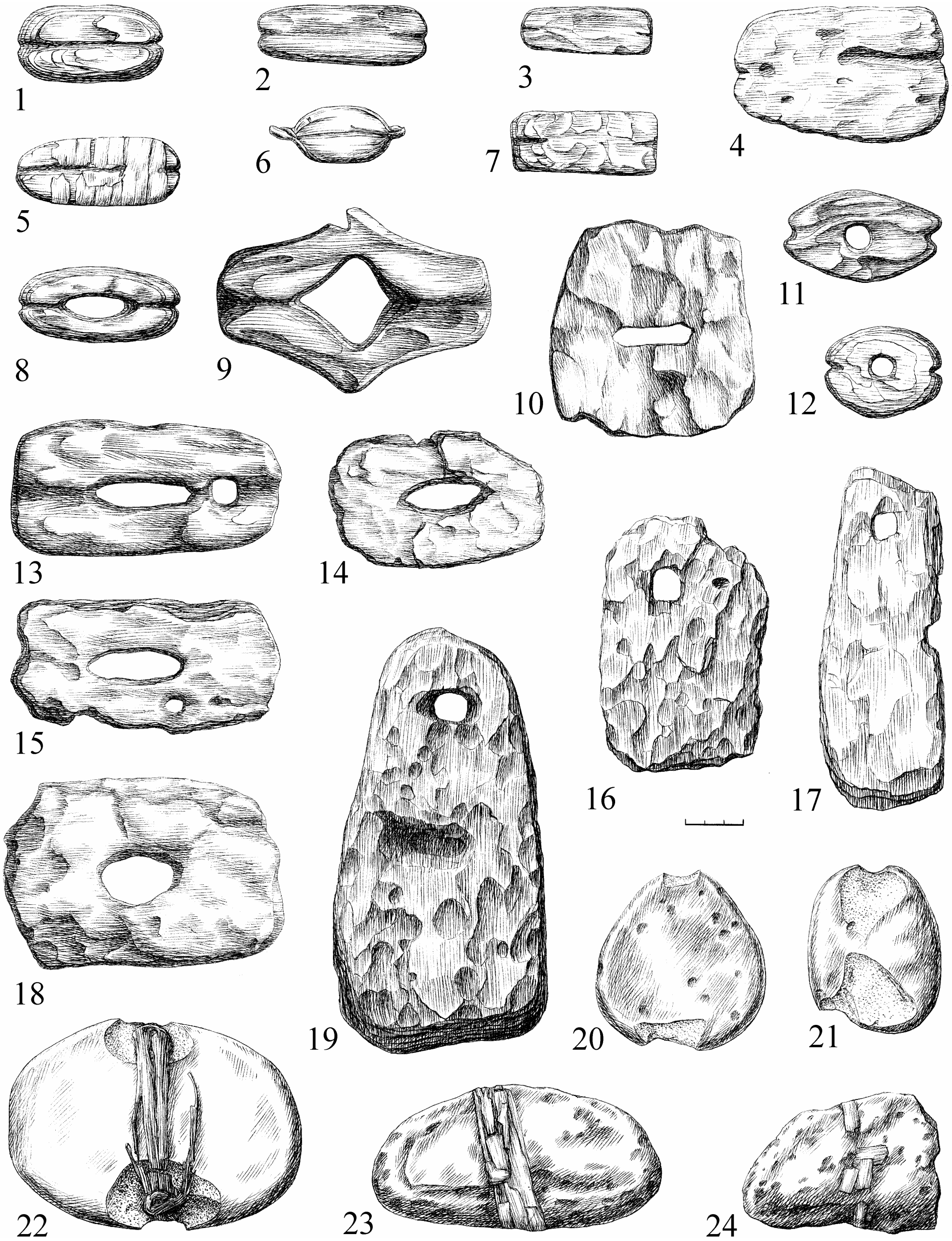

Fig. 1. Pine-bark floats (1-5, 7-19) and stone sinkers (6, 20-24) from Sārnate. Dwelling A_{DR} (1, 5, 6, 8), M (2, 3, 7), L (4, 9, 20, 21), T (10, 11, 24), N (12, 15), K (13, 18), A_{DA} (14, 22), A_{ZA} (16, 17), K/M (19) and I_D (23). Drawings by Anda Bērziņa.

Large pine-bark floats perforated at one end

Nine larger, elongated pine-bark floats of different shapes were found, with a perforation at one end (Fig. 1: 16, 17, 19), at least eight of them deriving from the Late Sārnate Ware dwellings.

Elongated pine bark floats perforated at one end are known in the region already from the Mesolithic (Pälsi 1920, Fig. VI: 22-24), and are also represented in the Neolithic (Zagorskis 1965: Fig. 4: 20; Rimantienė 1979: Fig. 21: 1-3, 8; 1980: Fig. 3: 3, 6). There are many ethnographic equivalents, although these are mostly wooden (Manninen 1931: Figs. 169, 195; Sirelius 1934: Figs. 207-211).

Floats with an elongated central perforation

Nine pine-bark floats with an elongated perforation at the centre are treated as one group, although they vary considerably in size, shape and thickness (Fig. 1: 8-10, 13-15, 18). Some also have a longitudinal groove or notching, and two have a small circular perforation in addition to the longitudinal hole. Vankina also regards as a float a wooden board, approximately oval in shape, with an elongated central perforation and a notch at one end, which bears some resemblance to pine-bark floats from this group (Vankina 1970: Fig. XXIV: 2).

Bark artefacts perforated in the middle are known from the Mesolithic and Neolithic of the region (Rimantienė 1979: Fig. 22: 6, 13; Ošibkina 1997: 118, Fig. 92), although similar-shaped wooden objects are more common (Indreko 1948: Fig. 79: 2; Foss 1952: Fig. 23: 7; Burov 1966: Fig. 5: 4; Rimantienė 1979: Fig. 25: 1-3; Loze 1988: 41, Fig. XXXVI: 3-7; Girininkas 1990: Fig. 44; Ošibkina 1997: 118, Fig. 91-92).

As indicated by a find from Šventoji (Rimantienė 1979: Fig. 25: 6), such wooden objects were attached to wooden poles, used either for beating the water surface to drive fish (Indreko 1948: 327, Fig. 80: 3) or to prevent the tip of the pole sinking into the mud when poling a boat (Rimantienė 1979: 32. Some of the thicker bark examples from Sārnate (Fig. 1: 18) may have served the same functions, while others might be regarded as too thin and flimsy for such needs, and instead might have been some kind of specialised floats.

Small pine-bark floats with a circular or square central perforation and notched ends

Four carefully-worked small oval, circular or rhombic floats, from dwellings N and T (Fig. 1: 11, 12), have a small circular or square perforation in the middle and notches at the ends. Similar examples are known in the Middle Neolithic and especially the Late Neolithic material from Šventoji (Rimantienė 1979: 29, Fig. 22: 20-22; 1980: Fig. 3: 10).

Birch-bark rolls

In dwellings of all the groups with organic preservation were found cylindrical rolls of birch bark, numbering at least 23, which presumably also served as net floats (Vankina 1970: Fig. XIII: 1-3). Such birch-bark rolls have been found on other Neolithic sites (Zagorska 1991: 60; Rimantienė 1991: 73), and there are many ethnographic examples (Manninen 1931: 195, 206-207, Figs. 182, 194; Sirelius 1934: Fig. 225; Ligers 1942: 63, Fig. 60; Vilkuna 1975: Fig. 136).

Sinkers

Unworked pebbles and pebbles in birch-bark wrapping

Recovered were 58 small, unworked pebbles with partially or completely preserved birch-bark wrapping, which was tied at both ends with bast and used to attach the pebble to the net (Fig. 1: 6). Another 108 similar-sized pebbles do not have any wrapping, but such pebbles commonly occur in groups and piles and are regarded as net sinkers too, the wrapping simply having decayed.

The pattern in both groups of Sārnate Ware dwellings is quite similar: most common are sinkers weighing 20-40 g, with only four pieces, all from Late Sārnate Ware dwellings, exceeding 100 g. The continued use of pebble sinkers of similar weight suggests that the functional requirements of sinkers on the fishing gear used by the occupants of both groups of dwellings remained similar.

The only such pebble sinkers from the Comb Ware dwellings are some comparatively light pieces forming a pile in dwelling 12_{DR} (Vankina 1970: 85).

In addition to the wrapping, bands of bast or string are preserved in several cases, connecting the two ends of the sinker. Likewise, preserved remains or impressions in the wrapping sometimes indicate that the sinker had been tied round the middle with bast or string. Such binding presumably served to secure the bark wrapping, while the bast or string connecting the ends of the sinker would have been for attachment at both ends to the footrope.

Similar small pebble sinkers in birch-bark wrapping have been found on other Neolithic sites (Rimantienė 1996a: 35, Fig. 23: 1-3; 1996b: Fig. 20; Loze 1988: Fig. XXXVI: 1, 2), and were in use in recent times in Latvia and Estonia (Manninen 1931: 146, 205; Šulcs 1961: 161).

Unworked large stones tied with bast

Six unworked large stones (352-2808 g), four of them tied round the middle with bast and one with a natural notch on one side, come from dwellings I_D, A_{DR} and K (Fig. 1: 23). Both the incomparably greater weight of these sinkers and the different method of attachment (bast binding instead of birch-bark wrapping) serve to set them apart as a separate functional group.

End-notched pebble sinkers

Representing the second most widespread group of sinkers (121 in number) are elongated, flat pebbles, mainly quartzite, notched at the ends (Fig. 1: 20-21). Suitably-shaped flat pebbles may nowadays be found in the beach shingle along several stretches of the western coast of the Kurzeme Peninsula. Elsewhere along the coast and inland, suitable raw material would have been rare or absent.

The great majority of these sinkers (78) come from the Late Sārnate Ware dwellings, while the other groups of dwellings, Early Sārnate Ware and Comb Ware, have each produced only five. Twenty-five come from the unclassified dwellings (13 of them from dwelling Z_a and eight from dwelling L).

Among the intact pieces from Late Sārnate Ware dwellings, there are two particularly heavy pieces, weighing 795 g and 1127 g. The rest fall within the range of 33-375 g (mean weight: 167.3 g). At least three weight groups may be distinguished. Most common are sinkers in the range of 125-250 g. In addition, a group of lighter sinkers may be distinguished (25-50 g) and a group of heavier ones (300-375 g). It should be noted that, although end-notched sinkers were found in several dwellings with well-preserved organic remains, there are no remains of binding on any of them.

End-notched pebble sinkers have been found on some Latvian and Estonian Neolithic sites (Loze 1979: Fig. XXIII: 9-10; Jaanits 1991: 36). They seem to be poorly represented at Šventoji, where side-notched examples are much more common (Rimantienė 1979: 31). The use of end-notched pebble sinkers, suspended in a vertical position, is attested by ethnographic material from Estonia and Finland (Manninen 1931: Fig. 193: a; Vilkuna 1975: Fig. 115).

Side-notched pebble sinkers

A similar technique was used to make stone sinkers notched at the sides, which are much less common at Sārnate (21 altogether) and were mostly recovered from the Late Sārnate Ware dwellings. However, the side-notched sinkers are generally much heavier than the end-notched kind, the pieces from Late Sārnate dwellings weighing 212-1282 g. While there is no evidence of the material used to attach the end-notched sinkers, the side-notched pieces are known to have been tied with bands of bast, as indicated by the remains of bast binding on three of them (Fig. 1: 22, 24).

Large numbers of side-notched stone sinkers were found on the Middle and Late Neolithic sites at Šventoji (Rimantienė 1979: Fig. 23: 1-2).

End-sticks for seine nets

Dwelling K produced two wooden rods (53 and 66 cm long) with spherical knobs at both ends, reminiscent of the end-sticks attached at both ends of a seine net (Vankina 1970: 95, Fig. XXI: 8, 9). Similar artefacts have been found at Šventoji and other Neolithic sites (Rimantienė 1979: 32, Fig. 31: 5-7; 1996a: 35, Fig. 24: 7, 8.; Loze 1988: 41, Fig. XXXVII: 7).

The net from dwelling A_{DR}

A cluster of artefacts found near the hearth of dwelling A_{DR} evidently all derive from one net (Vankina 1970: 22-3, Fig. XVIII: 1a, b). These include:

- ten small unperforated floats (Fig. 1: 1, 5), three of them with preserved birch-bark binding (at least eight with a longitudinal groove and one with notches),
- one small, oval net float with an oval perforation and a longitudinal groove with preserved remains of twine (Fig. 1: 8),
- six unworked pebble sinkers, two of them still in their birch bark wrapping (Fig. 1: 6), and
- remains of the mesh.

The twine of the mesh is about 1-1.5 mm in diameter, Z-plied from two twisted strands. The material is not conclusively identifiable, but may be bast. Because of the poor state of preservation, the mesh size or the kind of knot used could not be determined.

The Sārnate net is one of two finds of Neolithic netting from Latvia: the other is a fragment of fine, knotted netting from Abora I (Loze 1979: 79). In Lithuania, there are several fragments of bast netting from Šventoji (Rimantienė 1970: 143-4; 1979: 27, Figs. 19, 20, 59-60).

In six other cases as well, small, unworked pebble sinkers have been found in the same square metres as small, unperforated bark floats, suggesting a functional association between these particular kinds of floats and sinkers.

The development of fishing practices at Sārnate

At the time of occupation, the site was on the shore of a shallow lake with a muddy bottom and evidently with a tendency to overgrow. The lake waters flowed into the River Sārnate, which entered the sea several kilometres further downstream.

We have minimal osteological material telling about the fish fauna of these waters. The few fish remains preserved in the acid conditions at Sārnate are those of large carnivorous species - pike, pike-perch and wels (Sloka 1984: 74-6). These are more likely to have been caught by spearing or angling, and so there is no osteological evidence regarding the smaller fish that would have dominated in catches with nets.

The artefactual remains, on the other hand, are more informative about the development of net fishing. The Comb Ware dwellings are thought to represent earliest occupation on the site. Judging from the very small number of sinkers found in these dwellings, net fishing was apparently not very important at Sārnate during this period. Possibly, other kinds of gear, such as barriers and enclosures, were considered more effective for the conditions in the fishing grounds here.

From the Early Sārnate Ware dwellings, dated to cal. BC 3960-3790 (5065±75 BP, Ua-15984, calibration: OxCal v3.3, 68.2% range, Intcal98 atmospheric curve), the only floats are birch-bark rolls and small, rectangular pine-bark examples notched at the ends, while the sinkers found here are mostly small (wrapped) pebbles. Such small floats and sinkers could have been used on a variety of net fishing gear.

The Late Sārnate Ware dwellings, dated to cal. BC 3750-2850, display a much greater diversity of net fishing gear. In addition to a range of different forms of small, unperforated pine-bark floats with a groove or notches, a variety of perforated floats appear. For all their diversity, the floats do not seem to be diagnostic in terms of the kind of fishing nets used. However, the seine-net end sticks from dwelling K indicate that the inhabitants of this group of dwellings used seines with towing lines (Seligo 1926: 63, 95-6; Sirelius 1934: 107; Vankina 1970: 133; Brandt 1984: 283-4, 287).

Aquatic vegetation would no doubt have impeded seining during the vegetation period, restricting it mostly to the cooler months, when the vegetation dies back and when fish migrate to deeper parts of water-bodies and become less active, thus rendering other kinds of fishing gear ineffective.

The considerable numbers of somewhat heavier, end-notched sinkers from the Late Sārnate Ware dwellings seem to indicate the use of stationary nets (presumably gill nets), which are placed across the path of the fish (Seligo 1926: 71, 104, 108; Sirelius 1934: 127). A need for such heavier sinkers would have arisen particularly when fishing in conditions with a strong current, i.e. in rivers or in the sea. Along with other kinds of stationary gear, they could have been used in summer, and in winter too, when they might conceivably have been set under the ice.

It appears that net-fishing techniques at Sārnate diversified over the course of time, perhaps indicating that net fishing was growing in importance relative to other fish-catching methods. On a regional level, changes in fishing gear are seemingly reflected in the wider use of comparatively heavy end-notched or side-notched sinkers in the latter part of the Neolithic at Sārnate and Šventoji. These may have been used on gill nets placed across rivers, or else on nets for coastal marine fishing.

Thirty-two particularly heavy sinkers, exceeding 300 g (15 side-notched, 10 end-notched and seven unworked pieces), differ from the rest in terms of the method of attachment: the bast binding preserved on several of them is a feature not found on any of the lighter sinkers. They could have served for anchoring various kinds of stationary fishing gear (Benecke 1881: Fig. 195; Bielenstein 1918: Fig. 581; Manninen 1931: Fig. 126; Sirelius 1934: Fig. 186).

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Riter och keramik i Mälardalen under bronsålder

Thomas Eriksson

Abstract. *The article deals with pottery from the Bronze Age in the valley of Mälaren. Pottery is here taken as a major source for understanding material culture and its overlying ideology. The so called Lausitzbowls are in this article not seen as just bowls made in a Lausitian manner but as artefacts signifying a new continental way of ritual drinking, as an expression of the idea of the symposion. A case studied in this article is the settlement at Ryssgärdet in Onslunda, Uppland.*

Keywords: *pottery, Bronze Age, Lake Mälaren, Lausitian culture, ritual drinking*

Keramik är en ofta förbisedd källa för studiet av kulturella yttringar och bakomliggande kontakter under brons- och järnålder i Mälardalen. En bidragande orsak till detta kan vara att keramiken ofta är mycket fragmenterad och att den till största delen är ett odekorerat vardagsgods som inte lämpar sig för samma typer av detaljkronologier som till exempel metallföremålen. Dessutom har keramiken ofta ett bokstavligen grått utseende som kanske inte alla gånger inbjuder till mer teoretiska resonemang kring materiell och andlig kultur. I själva verket har dock keramiken en nästan obegränsad potential för studiet av avfallshantering, matkultur och kanske framförallt för ätandet och drickandet i sig. Man kan förmoda att merparten av keramikkärlen har använts antingen för förvaring eller för förtäring av drycker och mat. Mat och vatten är i sig två av människans biologiska grundbehov och intagandet av dessa ämnen är och har alltid varit förknippade med social prestige och ritualiserande beteenden. Riterna har sannolikt varit förbundna med livets och årets skeenden, religion, knytandet av sociala kontakter men keramiken har också haft en viktig roll i vardagens konsumtion och brukande. Lerkärl har bara varit en del av de materiella ting som har behövts för konsumtion, givetvis har fat och kärl av bland annat trä, horn, näver, bark och i viss mån även metall använts. I stort sett har alla dessa material, förutom keramiken och metallen idag försvunnit. I vissa kontexter har de dock bevarats till exempel i ekkistgravar och i brunnar (Glob 1970; Eriksson & Anund 1998: 149ff).

Artikeln tar upp ett av många delproblem som kommer att behandlas mer ingående i min avhandling. Denna kommer att behandla framförallt keramik och keramikanvändning i framförallt Uppland under bronsålder och äldre järnålder.

Någon gång under period II eller möjligen först under period III, börjar flera nya kärltyper att uppträda i Mälardalen. Flera mer eller mindre nya kärltyper att uppträder under bronsåldern i boplatskontexterna i Mälardalen, tillhörande en ny kontinental matservis. Till dessa nya får bland annat de tunn- eller situlaformade rabbade krukorna räknas liksom de polerade tre- eller flerledade skålarna med en eller flera hanker (Fig. 2). Båda typerna finns i flera olika storlekar. Den sistnämnda typen brukar i Sverige slentrianmässigt benämnas Lausitzskålar efter ett av huvudinfluensområdena för kärltypen.

Den keramiska forskningstraditionen

Källmaterialet, som i Mälardalen under bronsåldern domineras av boplatsmaterial, har styrt forskningen på enskilda formelement, gods och ytbehandling, mycket på grund av hög fragmentering. Urnegravar är ovanliga i Mälardalen och därigenom är möjligheterna till studier av mer intakta kärl och till eventuella daterande fyndkombinationer starkt inskränkta. Att dessutom keramiken i stort sett saknar dekor och är allmänt oesteticerande har dessutom påverkat arkeologerna. Arkeologer har, oavsett vad vi deklarerar offentligt, en grundmurad forskningstradition där ädla material, monument samt vackra och ovanliga ting förhöjer såväl statusen på undersökningen som den utförande arkeologen. Med andra ord har keramiken från bronsålder och framförallt från järnålder fått en tämligen undanskymd roll i forskningstraditionen i regionen. De enda större genomgångar i Mälardalen som har gjorts tidigare är bearbetningar från Hallunda, Botkyrka socken i Södermanland och Darsgärde i Skederids socken i Uppland (Jaanusson 1981; Reisborg 1989). I övrigt finns i stort sett endast specialregistreringar av hela eller delar av keramikmaterial (t ex Eriksson 2002a, b, 2003). Materialet i sig har främst givit möjligheter till studier av de enskilda fragmenten, eftersom materialet har varit litet och fragmenterat, frånsett materialen från t ex Hallunda och Apalle. Studierna har därför varit inriktade på gods, ytbehandling och enskilda formelement. Hallundamaterialet är stort och välbevarat och kärlformerna bearbetades i Shepards anda, där formen kodades utan hänsyn till proportioner och storlekar (Jaanusson 1981: 66ff; Shepard 1971: 225ff). Indelningen är teknisk och utformad enligt den tidens processuella anda. Indelningarna är dessvärre svårhanterliga och tar ingen hänsyn till mer kulturhistoriska och praktiska funktioner hos kärlen. Terminologin i sig är också besvärlig och har inte fått något större genomslag i senare arbeten. Syftet var att rent objektivt beskriva kärlen och deras form, trots att de ofta uppenbara skillnaderna i storlek måste ha fött frågor om indelningen var relevant. Förutom att indelningen syftade till att vara objektiv i den tidens anda har den en annan bakgrund, nämligen att det i stort sett saknas en använd nomenklatur för kärlformer i skilda storlekar på det sätt som det finns i till exempel den antika världen. Där finns i stället en sedan gammalt accepterad kärlindelning som har sina rötter i den tid som kärlen producerades i, där namn, form och funktion är nära förknippade. Funktionen är dessutom ofta mer eller mindre känd från samtida källor. Därigenom kan kulturhistoriska analyser göras på ett helt annat sätt än i Skandinavien. Här har istället man fokuserat på externa influenser som bakgrund för enskilda ytbehandlingar. Här kommer att delvis göras ett försök till en diskussion om vissa av de kärlformer som finns i det mellansvenska materialet. Visserligen finns i bland annat Danmark en ännu levande tradition med rötterna i förkrigstiden att definiera kärl utifrån en kombination av kärlform och storlek. Denna terminologi har dock aldrig genomförts till fullo i Mellansverige, sannolikt återigen beroende på att få kärl har varit rekonstruerbara och att ännu färre rekonstruktionsförsök har gjorts.

En uppgift för keramikstudierna i regionen bör därför vara att försöka, trots de brister som finns i materialet, göra en kulturhistorisk analys av materialet. Med andra ord att inte bara att se skärvorna utan försöka nå kärlen och deras praktiska och symboliska funktioner.

Symposion, kult och gästabud

> ”Härolder kom och göt vatten på männens händer, och pojkar fyllde blandningskärlen med vin och räckte pokaler till dem alla. De utskurna tungorna lades på elden. Männen reste sig upp och förrättade offret, och när de offrat, och själva druckit av vinet så mycket de ville,… ”
>
> Odysséen sång III (Homeros 1975: 49).

I stora delar av Medelhavsområdet uppträder under bronsålder en fastställd servis som sedan kommer att i delvis förändrad form användas in i klassisk tid (Sherratt 1997). Till formerna hör bland annat dryckesskålen eller –koppen: kylixen, skyphos eller kantharos eller med en eller två hänklar; den fasta stora vin- eller vattenbehållaren: amforan, hydrian eller kratern; kannan eller skopan för att ta upp vätskan samt ett mängd olika fat och skålar att äta på och servera maten. Formerna var standardiserade och i många fall fabricerade i mer eller mindre industriell skala. Från texter och bildframställningar känner vi till hur kärlen användes, åtminstone såsom det var tänkt i den ideala världen. Dryck serverades vid gästabud, ibland förknippade med makt och kult, där framförallt männen samlades kring blandningskärlet med vin, liggandes till bords med en dryckesskål i handen. Kärlet som man drack ur, kylixen, hade under mykensk tid och framöver en hög fot men i övrigt så överensstämmer form och storlek väl med de hänkelförsedda skålar utan fot som förekommer i stora delar av Europa under den period som motsvarar vår bronsålder. Skålarna finns i såväl metall som lera, och det sannolikaste är att de sistnämnda var betydligt vanligare.

Skålar som är identiska eller liknar ”Lausitzskålarna” i Mälardalen finns spridda över ett stort område. Så finns exempelvis dryckesskålar av silver på fot från mykensk tid i t ex grav X i Dendra som har daterats till ca 1500-1350 BC, vilket borde motsvara nordisk bronsålder period II (Vermeule 1972: 133f). Metallskålar av liknande utseende men utan fot, av bland annat Fuchsstadt och Jensovicetyp, finns i Centraleuropa under period III och IV. Ingen är ännu känd från Mälardalen men exemplar finns påträffade i Danmark, Norge och på den svenska västkusten (Jensen 2002: 252ff;Thrane 1962, 1975: 135; Kristiansen 1998: 88ff; Oldeberg 1974: 332, nr. 2601; Sherratt & Taylor 1997). De enklare bronsskålarna, av den typ som det finns ett exemplar från Bondvattnet i Tegneby socken i Bohuslän, har exakt samma form som de keramikskålar som brukar benämnas Lausitzskålar och som kan dateras från och med period III/IV och framåt i Mälardalen. Oavsett om inspirationen har nått Mälardalen från Lausitzkulturen eller från andra delar av Centraleuropa så har skålarna tillverkats lokalt i regionen och antagligen brukats som just dryckesskålar. I regionen finns få depåfynd med dryckesserviser men detta finns från andra regioner med skandinavisk bronsålder t ex i det välkända fyndet från Mariesminde på Fyn med sin bronskrater och de kontinentala guldskålarna med sina i Skandinavien påsatta handtag samt andra fynd av bronsskålar från Danmark och Nordtyskland (Jensen 2002: 419ff; Thrane 1966). Man bör inte se skålarna som enbart skålar utan givetvis som ett delvis nytt sätt att förtära och dricka i ett socialt och rituellt spel. I Skandinavien saknas bildframställningar av sådana tillställningar men under vår yngre bronsålder finns många framställningar på vasmålningar och tempelreliefer av män liggandes som i Sydeuropa med dryckesskålen i den högra handen. I Centraleuropa under Hallstattperioden sitter istället männen med samma dryckesskål i handen och kratern och skopan framför sig (Kristiansen 1998: 235f). I Mälardalen har antagligen mjödet eller ölet haft en liknande roll i det sociala livet, kulten och maktutövning som vinet har haft i Sydeuropa under samma tid. Annars förefaller just det ritualiserande drickandet få ett uppsving under bronsålder i Europa som ett led i kult, maktutövning och det sociala spelet i stort (Barrett 1989: 309ff; Kristiansen 1998; Vencl 1994: 303ff). Detta ska också ses i en större kontext där gåvor, bjudningar och återgäldning av detta var en grundsten i samhällsstrukturen (Mauss 1996).

Andra tecken som visar på starka kontinentala, sydliga influenser i Mälardalen är bland annat de kannelerade skålarna som finns på bland annat Apalleboplatsen och i enklare efterbildningar även i Uppsalatrakten. Skålarna är sannolikt lokalt tillverkade och kan dateras till mellersta och yngre bronsålder. Kanneleringen har direkta paralleller i Centraleuropa och i Lausitzkulturen där den diagonala kanneleringen på skuldrorna har sin huvudsakliga datering till period III-V (Grünberg 1943; Buck 1989: 358). Även här bör skålarna ses som delar i en servis som tillhör bordet och där skålarna sannolikt har varit använda som dryckesskålar.

Bordsservisen i Mälardalen

På grund av materialets höga fragmenteringsgrad är källmaterialet i de flesta fall svårt att rekonstruera. Keramiken från regionen är framförallt påträffad i boplatssammanhang och hela kärlformer är ofta mycket svåra att fastställa. Regelrätta urnegravfält med hela eller mer intakta kärl saknas i stort sett från regionens bronsålder även om enstaka lerkärl har använts i begravningarna. En mer utbredd tradition att använda keramik till grav- och bikärl etablerar sig, frånsett enstaka undantag, först under förromersk järnålder.

I stället får man uppskatta keramiken utifrån rekonstruktioner av mer inkompletta kärl samt utifrån ytbehandlingarna av kärlen. På de flesta boplatserna är ytbehandlingarna av keramiken från period II eller III till och med VI mycket ensartade (Fig. 1 & 3). Mellan 60 % och 80 % av fragmenten, bortsett från odefinierbara bitar och bottnar, är rabbiga. Oftast är de rabbiga kärlen större kärl med tunnformig eller lätt S-formig ytterkontur. Bukväggarna är vanligtvis över 7 mm tjocka och brukar vara mellan 9-11 mm. De skulle huvudsakligen kunna karaktäriseras som förvarings- eller möjligen beredningskärl för olika födoämnen och drycker. I och med att de rabbiga kärlen är både tjockväggiga och stora blir de överrepresenterade vis såväl beräkningar utifrån fragment som vikt (Fig. 2).

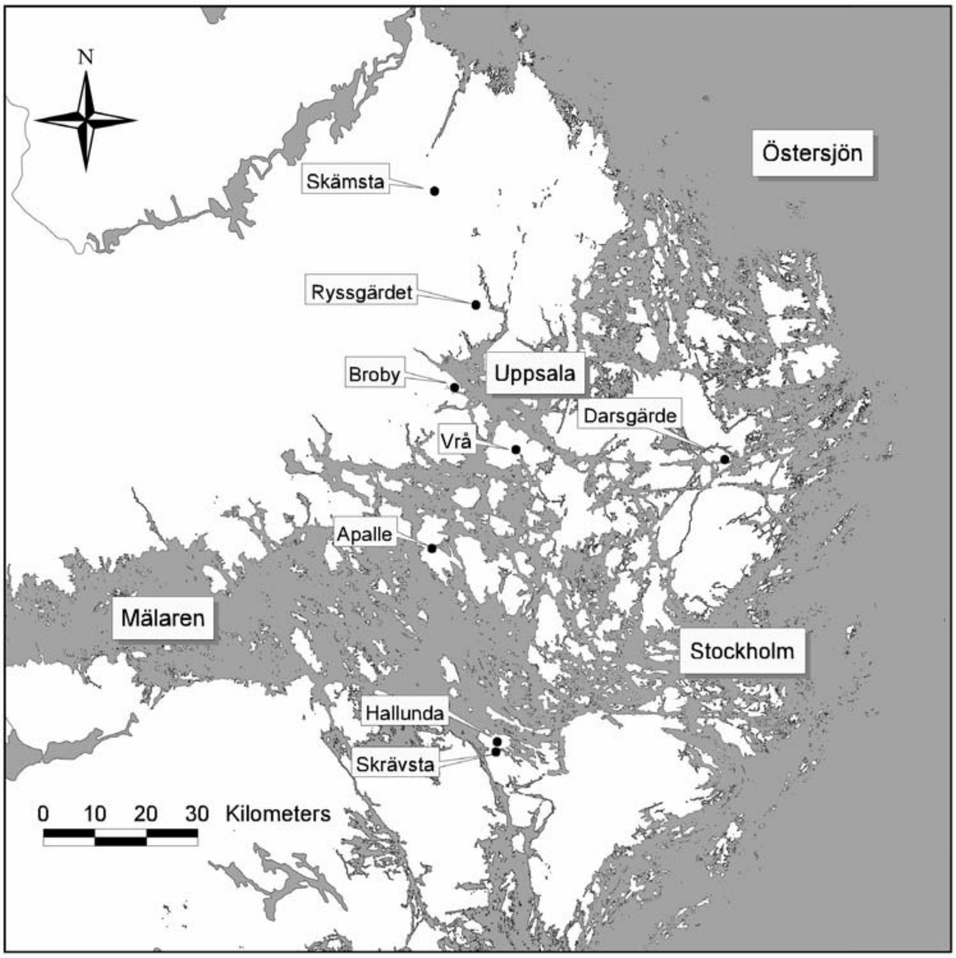

Fig. 1. Mälardalen med markering av de lokaler som nämns i texten. Vattenståndet motsvarar ca 3000 BP, vilket bör det som var aktuellt under bronsålderns period III eller IV. Underlag från SGU.

Map of the Mälaren Basin with the site locations mentioned in this article. Sea levels refer to the period c. 3000 BP corresponding to Bronze Age period III or IV. Original map from SGU.

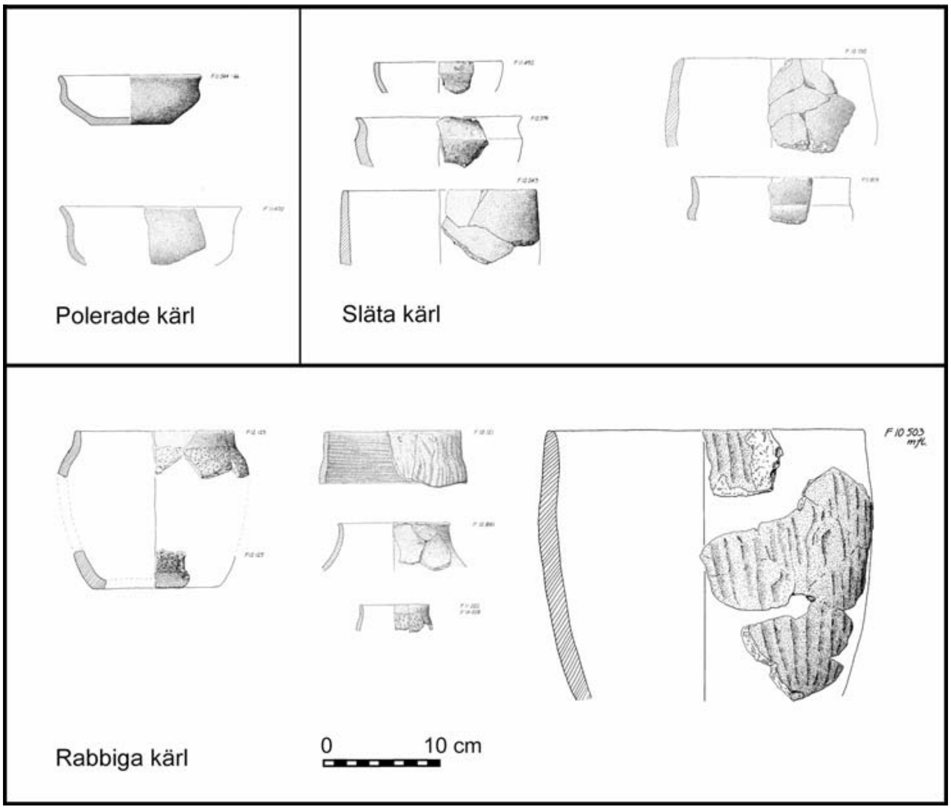

Fig. 2. Kärlrekonstruktioner från Vråboplatsen, Knivsta socken i Uppland. De stora rabbiga kärlen kan ses som förvarings- och/eller beredningskärl, de släta som serverings- och beredningskärl och de polerade skålarna som dryckes- eller matskålar. Teckningar av Eva Crafoord (Eriksson 2002a).

Reconstructions of different pots from the settlement at Vrå, Knivsta parish in Uppland. The larger rusticated pots are interpreted as different kinds of storage and processingcontainers, the burnished pots as cooking and storage vessels. The burnished bowls are for drinking and eating. Drawings by Eva Crafoord (Eriksson 2002a).

De annars övervägande ytbehandlingarna är de polerade eller släta bukarna som upptar mellan 10 % och 35 % av fragmenten. Bland de kärl som kan rekonstrueras med dessa ytor finns skålar, fat och viss mån bikoniska kärl. Enstaka större förvarings- eller beredningskärl finns även i grupperna. Kärlen med dessa ytor är oftast mindre och tunnväggigare än i den rabbiga gruppen. Fördelningen är så pass enhetlig att den bör spegla en bordsservis med kulturellt fastslagna kärlfunktioner. Ett avvikande exempel är till exempel Otterböteboplatsen där den rabbiga keramiken är helt övervägande och upptar ca 90 % av keramikmaterialet (Fig. 3). Förhållandet bör kunna förklaras med att platsen inte är en regelrätt boplats utan en jaktstation med beredning av sälprodukter – ett förhållande som också visar sig i keramiken (Gustavsson 1997).

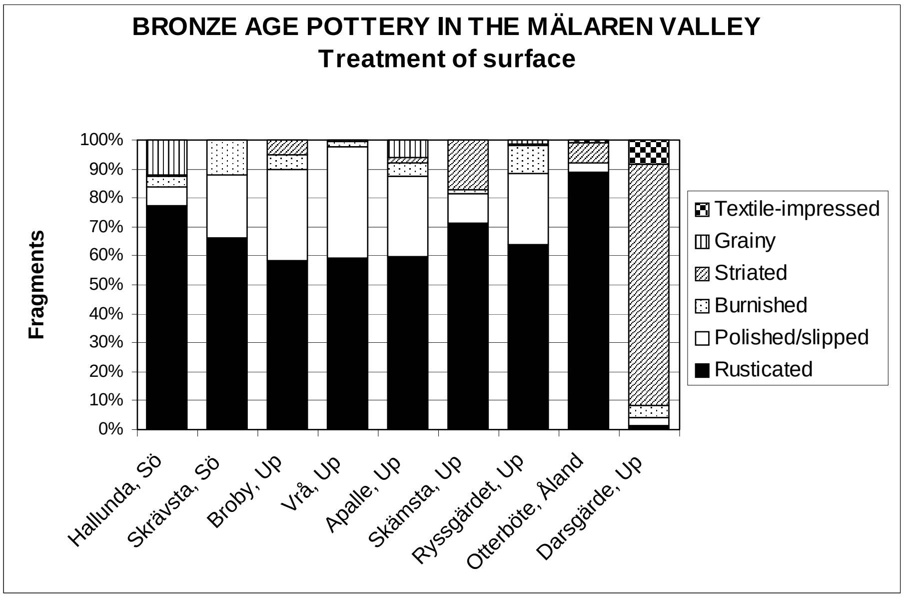

Fig. 3. Ytbehandlingar från ett urval av boplatser med huvudsakliga dateringar från bronsålder. Här kompletterat med material från Otterböte, Åland. Darsgärdematerialet har en stark östlig karaktär och Otterböte är ingen vanlig boplats utan bör ses en säljägarboplats (Jaanusson 1981; Reisborg 1989; Eriksson 2002a, 2000b; Eriksson 2003; Eriksson & Östling 2004).

The distribution of different treatments of surface from different settlements dated to the Bronze Age in Uppland, Åland and Södermanland. The distributions are very similar except Darsgärde and Otterböte. The material from Darsgärde has eastern connection and Otterböte is not an ordinary settlement, but a sealhunters camp (Jaanusson 1981; Reisborg 1989; Eriksson 2002a, 2000b; Eriksson 2003; Eriksson & Östling 2004).

Ofta har just skålarna av den sedvanliga bronsålderstypen fått en standardiserad beteckning som Lausitzskålar. Den sydliga påverkan från Lausitzkulturen har varit en stående tolkning som har framhävts inom svensk arkeologi sedan åtminstone 1930-talet (Vifot 1938: 77ff). Kontakterna mellan de båda regionerna har antagligen varit täta men att kalla skålarna för Lausitzskålar kan vara missledande. Typen finns i andra regioner inom stora delar av central- och sydeuropeiska området och de som förekommer i Mälardalen har till största delen sannolikt inte tillverkats någon annanstans än i Mälardalen. Klara indikationer finns på kontakter men om dessa har gått direkt från Lausitzområdet eller via närliggande områden längs Östersjön går inte att utreda. I vissa fall har Lausitzpåverkan framstått som mycket tydlig, men den har också ifrågasatts från polskt håll (Jaanusson 1981: 120ff; Dabrowski 1983: 146ff). Platser som har tolkats som rena Lausitzboplatser finns dock i Östergötland (Larsson 1993: 142ff). En mer plausibel tolkning av kärlen är att i stället se dem som materiella uttryck för en ny gemensam ideologi där det rituella drickandet har spelat en betydande roll.

De olika ytbehandlingarna kan ses som olika uttryck för skilda funktioner i den dåtida servisen (jfr Stålbom 1998). De stora likheterna mellan fördelning av dem visar en stor likhet i servisuppsättning på skilda boplatser, en fördelning som bör ha haft en stark ideologisk och funktionell förankring. De avvikande platserna, Darsgärde och Otterböte, förklaras på andra sätt. Darsgärde har sannolikt delvis en något yngre datering och framförallt en klart östlig prägel. Otterböte är ingen vanlig boplats utan ska ses som en säljägarboplats med ett klart Lausitzinflytande (Gustavsson 1997).

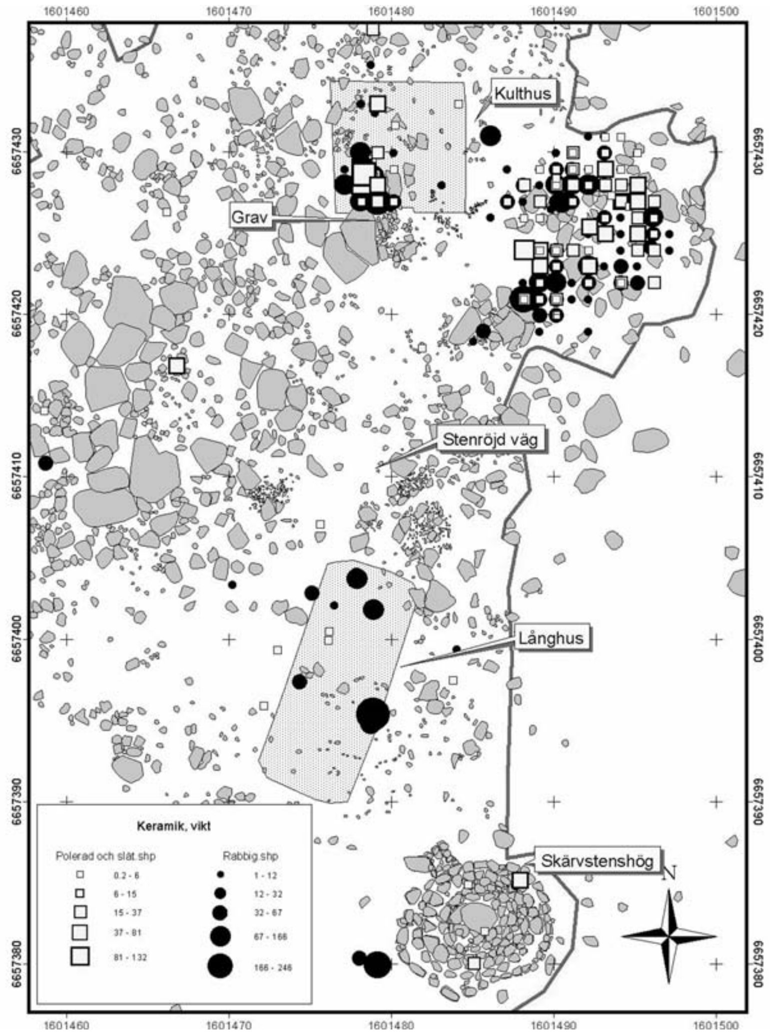

Fig. 4. Översiktsbild av spridningen av rabbig kontra polerad och glättad keramik på den nordöstra kullen på Ryssgärdet, Onslunda, RAÄ 435, Tensta socken i Uppland. Keramiken låg framförallt i det sydöstra hörnet av ett kulthus samt i kulturlagret i sluttningen öster om detta. Områdets dateringar ligger ca 1100-900 BC.

Map of the northeastern part of the excavation at Ryssgärdet, Onslunda, RAÄ 435, Tensta parish in Uppland. The pottery was mainly present in the southeastern corner of a culthouse and in the culture layer in the slope east of the house. The structures are dated to c. 1100-900 BC.

Exemplet Ryssgärdet

Ett typexempel för hur keramiken kan ha använts i både funktionell och rumslig bemärkelse är det nyligen undersökta bronsålderskomplexet vid Ryssgärdet, Onslunda i Tensta socken i Uppland (Eriksson 2004; Eriksson & Östling 2004). Platsen är belägen ca 2 mil norr om Uppsala i den innersta delen av en dalgång som under bronsåldern hade kontakt med den dåtida Mälaren och Östersjön. Platsen fungerade utifrån sitt ortnamn under järnålder som kultplats för Oden och under medeltiden var den även säte för häradets ting. De undersökta lämningarna omfattar dock först och främst rester av den boplats som har funnits där ca 1400-900 f. Kr, men på platsen finns även fynd från senneolitikum och äldsta bronsålder samt från äldre järnålder och historisk tid (Fig. 1 & 4).

Totalt omfattade undersökningen en ca 18 000 m^2 stor yta som kan delas upp i två huvudområden. I söder fanns ett låglänt område som fortsatte ut mot den större dalgången i öster. Området dominerades av lera och silt och där påträffades långhus, mindre huskonstruktioner, gropsystem, skärvstensflak och högar samt härdar och kokgropar. I norr låg i stället två mycket dominerande kullar åtskiljda av en mindre men mycket markant svacka eller dalgång. De ovannämnda skärvstenshögarna låg i brytningen mellan de båda topografiska nischerna. På krönen av de båda kullarna låg hus som inte förefaller vara vanliga bostadshus utan som i stället kan tolkas som kulthus, försvarsanläggningar, samlingslokaler eller som en kombination av två eller flera av dessa funktioner. Utifrån keramiken är det den ena kullen, den nordöstra, som är mest intressant. På en platå nedanför kullen fanns ett ca 18 meter långt hus från bronsålder med en intilliggande skärvstenshög med mittblock, en övre och en yttre kantkedja, fem inre kantkedjor samt en rektangulär utbyggnad i form av en stenkista i nordväst. Huset kan tolkas som ett vanligt bostadshus, skärvstenshögen bör dock ha haft en mer symbolisk roll eller så har de praktiska funktioner som resulterat i skärvstenen omgivits av riter. I huset påträffades framförallt grovväggig rabbad keramik, keramik som bör kunna tolkas som förråds- och förvaringskärl. Längs husets långsida och upp på krönet av kullen löpte en stenröjd väg, vars övre ände flankerades av två stensättningar. På själva krönet, vid vägens slut, låg ett kvadratiskt hus som var ca 8 x 8 meter stort. Längs med husets östra vägg låg flera skålar som i vissa fall var hänkelförsedda (Fig. 5). Även rabbig keramik påträffades här. I sluttningen utanför husets östra sida låg ett mycket fyndrikt kulturlager med fynd av bronser och bronsgjuteri, en guldspiralring, sten- och benföremål, ca 20 kg brända och obrända djurben och rikligt av rabbig, slät och polerad/glättad keramik. Fynd och ^{14}C-dateringar visar att lämningarna är från ca 1100-900 f Kr. Utifrån fyndkontexten och fyndens läge kan man dra paralleller till de rituella platser som finns från det samtida Medelhavsområdet. Där fanns i många fall tempelberg eller befästa berg, akropoler som var platsen för kult och makt. Ofta låg de över den låglänta egentliga boplatsen för att höja sig över denna både geografiskt, socialt och andligt. Likaså finns ofta denna koppling som i Ryssgärdet mellan gravar, gravläggningar, hantverk och rituell förtäring (Bradley 2000). Glättade eller polerade skålar som de i Ryssgärdet förekommer även i andra, mer ordinära sammanhang på andra samtida boplatser. Men i Ryssgärdet bör fynden kunna ses som en blek avspegling av den symposietradition som skålarna har fört med sig till en annan kultur med ett annat, lägre demografiskt tryck än det i dåtida

Sydosteuropa. Den mindre populationen här bör ha gett ett lägre tryck på olika hierarkiska stratifieringsprocesser och inte kunnat ge underlag för en lika utvecklad arkitektur. Men utifrån ett svenskt perspektiv bjuder den nordöstra kullen i Ryssgärdet på en osedvanligt genomtänkt och uppbyggd yttre arkitektur och landskapsutnyttjande som i sig har bildat det yttre rummet för keramiken och den förtäring som har varit knuten till denna.

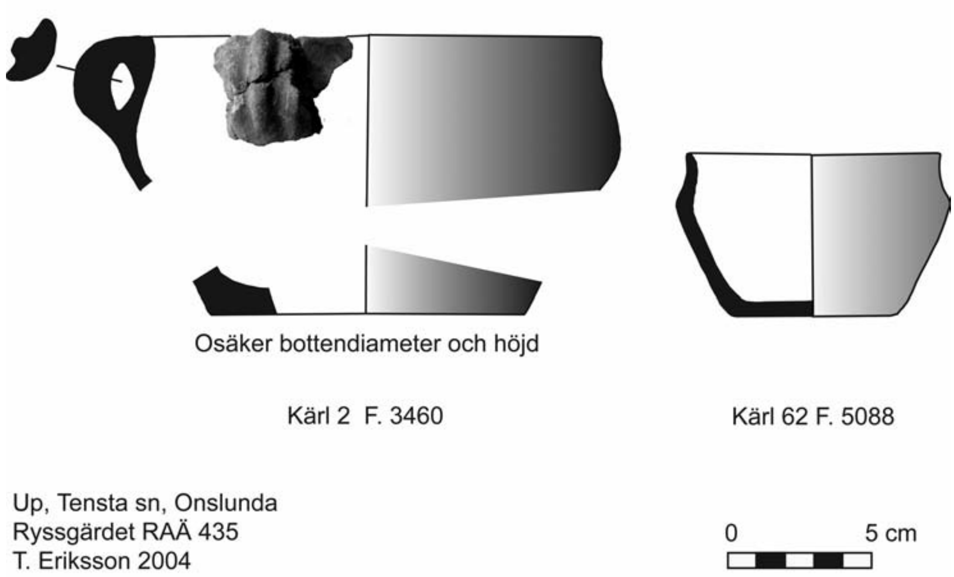

Fig. 5. Rekonstruktioner av skålar från Ryssgärdet. Skålarna kan dateras till ca 1100-900 BC. Illustration Thomas Eriksson.

Reconstructions of bowls from Ryssgärdet, Onslunda in Uppland. The bowls are dated to c. 1100-900 BC. Illustration Thomas Eriksson.

Sammanfattning

För att kunna gå vidare med keramiken i Mälardalen måste flera detaljfrågor lösas kring kronologi, funktion och form. Målet måste vara att förstå keramikens roll i det dåtida samhället. Ofta har just keramiken, trots att den är den kanske största artefaktgruppen på de flesta undersökning, förbisetts som källmaterial. Keramiken har ofta enbart setts som ett medel att spåra externa influenser i den materiella kulturen. Om man i stället ser kärlformerna som funktionella delar i en ideologi kan man använda keramiken på ett nytt sätt. Typexemplet här är Ryssgärdet och det som här har tolkats som dryckesskålar. Skålarna bör ses som utslag för ett rituellt drickande i en idévärld som ytterst hör hemma i Medelhavsområdet. Ryssgärdets material ger genom studiet av den rumsliga spridning av keramik i skenet av dess kontexter en unik möjlighet att se ”symbols in action”. Den materiella kulturen och dess uttryck måste användas för att försöka förstå den överliggande ideologin.

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Karelian petroglyphs: problems of protection and reasonable use

Nadezha Lobanova

Abstract. *The paper summarises the history of discovery, study and results of recent field documentation and protection work on Karelian rock art - unique cultural and historical treasures of Northern Europe from the Neolithic epoch. The international Karelian-Norwegian project 'Preservation of Karelian petroglyphs (1998-2001)' has contributed much to this endeavour. The project was funded by the Cultural Heritage Directorate of the Ministry for Environment of Norway and the Karelian Ministry of Culture. An electronic database of petroglyphs is the main achievement of the project. It contains large and various information on Karelian carvings which could promote further research, protection and managing of the sites.*

Keywords: *petroglyphs; study, preservation and management of rock art*

Karelian rock art belongs to a unique cultural treasure of Northern Europe. It reflects, in a specific form, the spiritual and everyday life of the ancient peoples who inhabited the eastern shore of Lake Onega and the lower reaches of the Vyg River in south-western Pribelomorje. They are located about 325 km apart. These carvings have been described in books, encyclopedia and popular-science literature the world over. A.M. Linevsky, a writer and archaeologist, wrote a book for children based on the facts depicted on petroglyphs. The book has become world famous. The Karelian petroglyphs were created in the Neolithic Times, about 5500-6000 years ago. According to many investigators, they may be related to the so-called Pit-Comb Ceramics Culture of the Early and Late Neolithic, late 5th/4th–early 3rd millennium BC (Lobanova 1995: 359 -66). Numerous sites of this culture (and a cemetery) were found around the petroglyph clusters.

Fig. 1. Eastern shore of Lake Onega. Capes with rock art.

The Onega Lake petroglyphs were discovered in 1848 by K. Grevingk, an archaeologist from Saint-Petersburg, and a Petrozavodsk teacher P. Shved (Fig. 1). They published the first facts about the Lake Onega petroglyphs in 1850. Later (late 19th–early 20th centuries), these carvings attracted a lot of attention of both Russian and foreign investigators. The White Sea petroglyphs were discovered in 1926 by A.M. Linevsky, an ethnography student from Leningrad. A local man, G. Matrosov took him to the Island of Shoirukshin and showed Besovy Sledki (Demon's Footprints) to the young researcher. This surprising and extremely valuable discovery had brought Linevsky to the study of the rock carvings in Karelia. He was the first to begin special investigations of the Karelian rock art (Linevsky 1939).

Later, a number of archaeologists, art experts and amateurs undertook studies of the unique Karelian petroglyphs. In 1935-36, the expedition of V. Ravdonikas, a Leningrad archaeologist, discovered some new groups on the eastern shore of Lake Onega and in the White Sea Region. V. Ravdonikas prepared and published two large Catalogues of the Karelian Rock Art Sites (Ravdonikas 1936, 1938). They became a standard of careful documentation and had remained a reference source for many years. A. Linevsky and V. Ravdonikas started a long dispute about the interpretation of the Karelian rock art. The ideas of V. Ravdonokas in the field of interpretation have by now become eminent among researches. On the whole, the 1930s proved to be very fruitful for the study of ancient carvings in Karelia.

In 1963, an archaeological expedition supervised by Y.A. Savvateev, excavated the sites around petroglyphs and found a new large location of the rock art, Novaya Zalavruga (Fig. 2) and Jerpin Pudas, including total about 1300 separate images (Savvateyev 1977). Unfortunately, since the 1970s, no petroglyphs investigations have been carried out in the Belomorje. The works of the State Center for the Monuments Protection in 2001 showed that new interesting findings are possible here, especially on small nameless islands (Lobanova 2001).

Fig. 2. White sea carvings: Novaya Zalavruga, group 4.

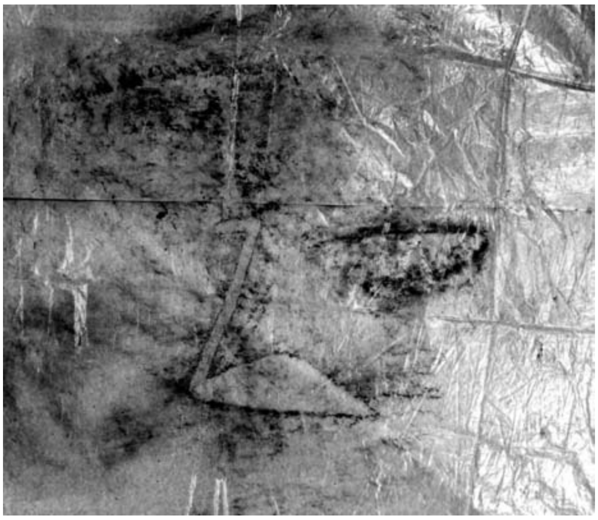

Fig. 3. Kladovets Cape. Rubbing on plastic made under water.

In the 1970s, Savvatejev's team investigated petroglyphs at Lake Onega. Long-term visual investigations of the lakeside rocks under favorable sun light, by illuminating them with mirrors in the day-time and searchlight at night, graphitic copying of the most promising parts of the rock surface and, finally, special underwater operations had resulted in opening ten new clusters comprising about 100 figures and more than 200 images in the formerly-found groups and subgroups (Savvateyev 1982). In the course of underwater works, archaeologists discovered 14 underwater images on the rock blocks that had broken off from the cliffs at various capes –Karetsky Nos, Besov Nos, Kladovets Nos (Fig. 3), Peri Nos.

The result of the intensive work at the White Sea area is reflected in Yu. Savvateev's book *Zalavruga* (Savvateyev 1970). Several popular books and many research articles about the Karelian rock pictures have been written by him. Unfortunately, a two-volume manuscript entitled *The Lake Onega Petroglyphs* written by Yu. Savvateyev and R. Klimov with a complete, by then, catalogue of the sites (with colour reproductions and graphic copies of all the petroglyphs), and views on the evolution and semantics of rock images, has never been published.

During 1982-1992, members of the Estonian Society for Prehistoric Art Investigation thoroughly studied Lake Onega carvings. In 1986-91, they discovered new interesting clusters of rock carvings at the estuary of the Vodla River. Also they managed to find new images in the previously studied places. The Estonian Society prepared and published a detailed catalogue of petroglyphs of the northern Onega Sanctuary (Poikalainen & Ernits 1998).

There are over 1100 separate carvings and signs at Lake Onega (all within a 20 sq. km area). They are carved in solid crystalline rocks: granite and gneiss granite at the depth of from 1 to 3 mm by pecking dots with quarts implements on the rock surface. They occupy the shore side close to the water, at the height of 0,04-2,62 meters above the lake, and that is why they are under effect of adverse natural factors – waves, ice and wind. Contours of the figures closest to the shoreline are rather smoothed over those higher above suffer from different lichens. Among them, there predominate bird images (40%). The presence of anthropomorphous images is a significant feature of the Onega carvings. There are many symbols (Fig. 4) there and rare figures, such as the Demon, an otter, a sheat-fish, beavers, rods, trees, snakes, a human leg, etc. It is very important that Onega carvings should be preserved in the non-disturbed environment similar to that when they were carved 5500-6000 years ago. The Besov Nos rock art area belongs to the Muromsky Nature Reserve (established in 1986), but not really protected.

Fig. 4. Onega Lake carvings. Peri Nos 6.

Fig. 5. Novaya Zalavruga: famous hunting scene.

The White Sea carvings are located at the lower reaches of the Vyg River, 1,5 km from the village of Vygostrov, 14 to 22 m above the sea level. There are more than two thousand located at a 2 sq. km area. Most of the petroglyphs are small, usually 20 to 50 cm, but their size may vary considerably. Both big (2-3 m) and very small (4-5 cm) figures may occur. The White Sea rock art feature is that there are many famous sea and forest-animal hunting scenes: white-whale and elk hunting (Fig. 5), battle scenes, etc. shown in a realistic narrative manner, fantastic images are not typical here.

In the late 1950s and early 1960s, the Vygostrovsky Water Power Plant was built and the area has changed a lot. One of the clusters was covered with the dam of the Vygostrovsky Water Power Plant. In 1968, a protective pavilion of concrete and glass was built over the northern cluster of Besovy Sledki.

The anthropogenic influence on the sites is obvious in both localities. The monks of the neighboring Muromsky Monastery were the first people who damaged the Lake Onega rock art, approximately in the 15th century. In the 20th century, in the 1930s, a large part of the carved rock was transferred to the Hermitage from the Cape Peri 3. In the explosion, the rock panel was split into several parts and several images were destroyed including the unique scene of procreation. As a result, the Hermitage Museum has acquired a natural rock with carvings for exhibition, but the Lake Onega rock sanctuary had lost one of the most interesting groups. Heavy damage to the rock art has been made (and is being made) by ignorant visitors-vandals. Usually they are locals, and there are no special regulations to stop them. Petroglyphs are protected by law, but the government is unable to provide a good and effective system of protection of the sites.

Fig. 6. Modern inscriptions on island Korjushkin. Lake Onega.

Since there are no efficient protection measures established, every now and then the locals build fires in the close vicinity of petroglyphs or even right on them, or else they engrave their initials and other inscriptions on the petroglyphs (Fig. 6). The same modern ‘art’ is registered on the White Sea rock carving area.

The problem of the rock art preservation and conservation is the most important task in connection with tourism development (especially, wild tourism, which remains completely uncontrolled). The government cannot assign sufficient funding to ensure real and efficient protection of the sites. For example, the pavilion erected over the Besovy Sledki group in 1968 did not implement its protective function. The rock carvings inside it started to change their colour and became poorly visible. In 1999, the wall of the building cracked. As the Ministry of Culture cannot support the repairs of the pavilion, it was decided to cover the rock pictures with sawdust for a year. Four years have passed since the Besovy Sledki site became inaccessible to visitors after covering. This situation is likely to last much longer.

Rock carvings are considered to be the objects of special attention of the State Centre for the Monuments Protection, which is responsible for the Heritage Preservation. However, its resources are rather limited. During the last decade, the State Centre took a number of measures. A long-term program of developing some common ways and approaches to document and protect ancient relics, and control their management was written. In 1994-1995, two projects were prepared. The former defines the protected zones of the rock art, ancient sites and landscapes with the regime of their maintenance. The latter deals with the rock art management in tourism and education. The permissible visitation to the rock art territory was calculated, and several tourist routes were also proposed. The projects have currently become out-dated and need a lot of updating, especially in the recreation load.

Fig. 7. White Sea carvings: 2001 year discovery.

In 1998-2001, the international ‘Karelian Petroglyphs Preservation’ project carried out a great amount of work. The project was funded by the Cultural Heritage Directorate of the Ministry for Environment of Norway**.** Experts in various fields took part in the project, as well as devotees and amateurs, who worked as volunteers. The project reached further than the objectives initially set and covered a larger range of issues related to the rock art sites. The documenting of Onega petroglyphs can be considered finished; however, the need for further lichenological monitoring is still evident. For the White Sea petroglyphs, a general examination of the rock art clusters was carried out. Data on the present state of the Karelian petroglyphs have been collected; the most problematic sites demanding special care were defined. At the same time new, very interesting engravings were found and the potential for discoveries is not exhausted yet (Figs. 7-8).

The Karelian petroglyphs electronic database is the main achievement of this Russian-Norwegian cooperation. A database control system has been prepared, including all-important information of the carvings: photo documentation, verbal description, rubbings and topographical maps and schemes.

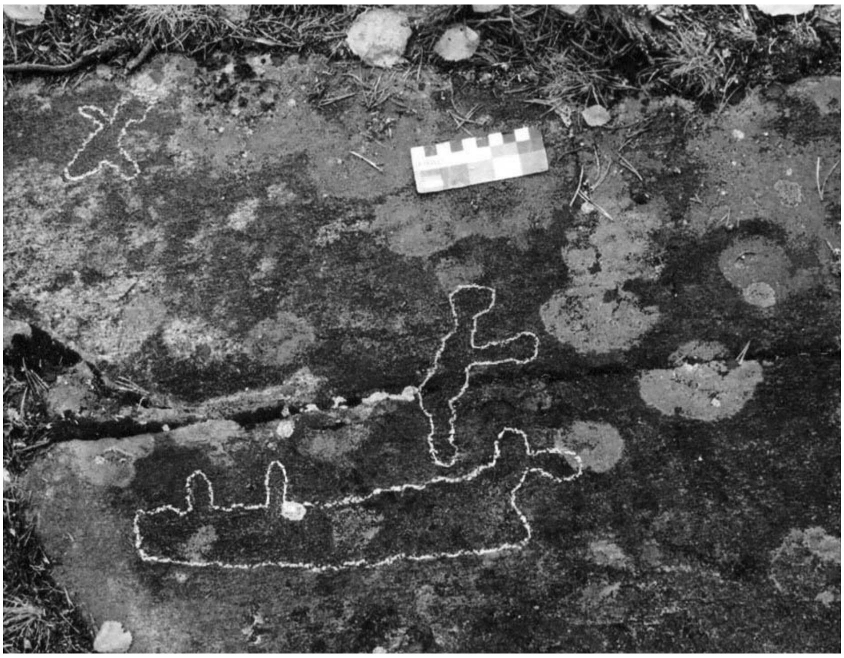

Fig. 8. White Sea carvings: 2004 discovery.

The four-year Norwegian-Karelian Project has contributed much more in practical activity, education and popularization of the rock art sites than what had been done previously. In 1999 and 2001, with some funding from the joint Norwegian-Karelian Project, five large information and warning signs were set in the petroglyphs areas. The tourist places neighboring the petroglyphs sites were also determined, and the signs were placed there. One of these places was fully equipped for archaeologists' camps. There are awnings with tables and benches, a special place to build a fire, several benches without awnings to get the best view of the landscape and some other settings. Unfortunately, by 2003 many signs in the White Sea rock art area and camping place at Besov Nos area were destroyed. These are typical acts of vandalism in the unprotected areas. This could be avoided if the area was guarded and a person in charge of the facilities was appointed. At the same time, it is necessary to raise awareness of the unique cultural heritage and make rock art areas in Karelia more attractive for tourists. The use of rock art sites in cultural tourism would promote the involvement of local people in the tourist business where they could provide hospitality, services, guiding, etc.

As the cultural tourism is rapidly developing in Karelia, a crucial task is integrated assessment of the state of the Onega petroglyphs and the environment as a whole, including other archaeological sites, determination of the carrying capacity on the territory and the monuments themselves. This work shall involve, apart from archaeologists, experts in landscapes, environmentalists, geologists, etc. The acquired data will enable researchers to prepare a scientific basis for organization of reserve-museums in the petroglyphs area. The White Sea rock area has more advantages for promoting tourism. So, managing approaches should vary for rock art areas in Karelia. Another equally important goal is to conduct a large-scale awareness campaign for local people. They should be educated about the monuments; learn to respect the ancient art, to protect petroglyphs and the surrounding nature.

True preservation of rock art for future generations requires a whole complex of serious measures from the state, involving other state-holders, individuals, and sufficient funding.

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Houses, settlements and landscapes

House pit formation processes: a preliminary assessment of pit 4 at Rävåsen, southern Ostrobothnia, Finland

Esa Hertell & Mikael A. Manninen

Abstract. *The paper presents a model of house pit formation processes and discusses House pit 4 at the Rävåsen site, Finland within this framework. The formation of a house pit is divided into a five phase sequence: use of the area predating house construction, building of the house, use of the house, abandonment of the house, and post-abandonment processes. It is argued that traces of all of the phases in the sequence are to be found in the excavated House pit 4. Individual models are also presented in order to clarify some of the processes that affect artefact distribution patterns in house pits.*

Keywords: *formation processes, house pit, spatial analysis, Stone Age, Finland*

Introduction

The objective of this paper is to outline a house pit formation process model and use it to make a preparatory assessment of a house pit excavated at the Rävåsen site, southern Ostrobothnia, Finland. The model is represented as a temporal sequence, or a flow model, in which different phases of the formation process are studied through individual explanatory models.

Structural remains of actual house constructions are not well preserved at Stone Age sites in Finland, and this is also the case at Rävåsen. At most sites the artefact distribution is the prime key to the understanding of formation processes and human behaviour at the site. In this paper we will attempt to explain the general spatial artefact and ecofact distribution patterns as well as the lack of structural remains observed in House pit 4 at the Rävåsen site.

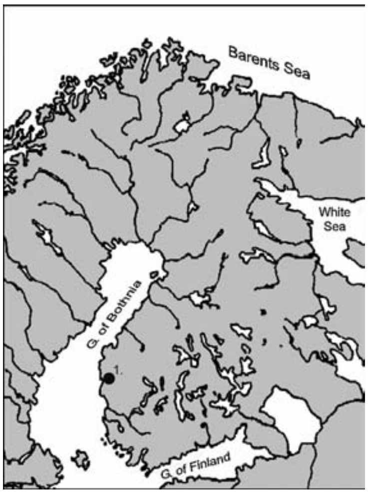
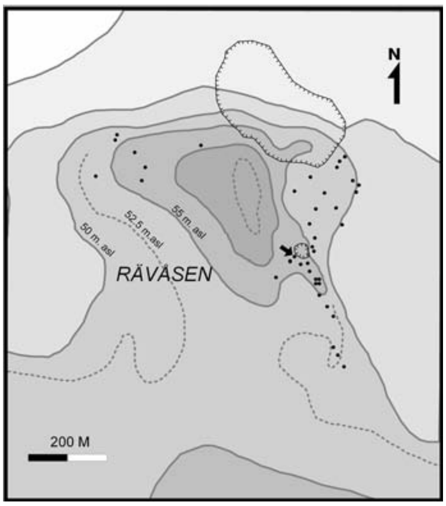


Fig. 1. North-Eastern Fennoscandia. The Råvåsen site is marked with a dot (1.).

Although the paper is only the first step towards understanding the whole spectrum of natural and human induced processes that have affected one individual house pit, we believe that the general discussion is useful also for other researchers dealing with similar sites. Recently Johnson and Wilmerding (2001) have presented a more detailed model that concentrates also on other aspects of house pit formation. Several authors have also discussed individual phases of house-related site formation, most notably use and maintenance (e.g. McKee 1999) and abandonment (e.g. Cameron 1990; Kankaanpää 2003).

The Rävåsen site

The Rävåsen site is situated on the Rävåsen esker in Kristiinankaupunki, southern Ostrobothnia, Finland (Fig. 1**)**. The site has been excavated by the National Board of Antiquities in 1994–2001 (Edgren, in press). During the time of the earliest occupation the site was on a small island at the mouth of the River Lappväärtinjoki. Excavations and test pits have revealed artefacts scattered mostly on the eastern side of the esker.



Over 40 house pits have been discovered on the esker (Fig. 2**)**, of which four have been partly excavated (Laulumaa 2001: Appendix 1; Pesonen 2002: Table 5). The house pit (House pit 4) discussed in this paper was excavated in 2000–2001 under the supervision of Vesa Laulumaa, NBA. Prior to its excavation the house pit had already been partly destroyed in gravel extraction (Fig. 3). The excavation was carried out using a 50 x 50 cm grid and arbitrary 5 cm spits. The finds were recorded with an accuracy of ±2,5 cm vertically and ±35 cm horizontally.

Fig. 2. The Rävåsen esker. Small black dots mark house pits located by Vesa Laulumaa in 2001. House pit 4 is marked with an arrow. House pits destroyed in gravel extraction are not included in the map. The approximate extents of the gravel extraction areas in 2001 are marked with a jagged line.

The finds include, among other things, a large lithic assemblage (38,8 kg) consisting mainly of quartz artefacts (26,5 kg), pottery sherds (7,4 kg) of the Late Comb Ware Uskela style, burnt bone (1,5 kg), charred hazelnut shells (92 g) and fragments of amber pendants. Neither remains of the superstructure of the house nor the original house floor could be detected in the excavation. (Laulumaa 2000, 2001.)

A charred nutshell found in the embankment surrounding the house pit has been dated to 4545±70 BP (Hela-461). At that time the shoreline was at approximately 50 meters above present sea level and due to isostatic uplift, the Råvåsen esker had already turned into a small cape connected with the mainland. House pit 4, at an elevation of circa 58,5 meters above present sea level, was at some distance from the shore at the time of its occupation.

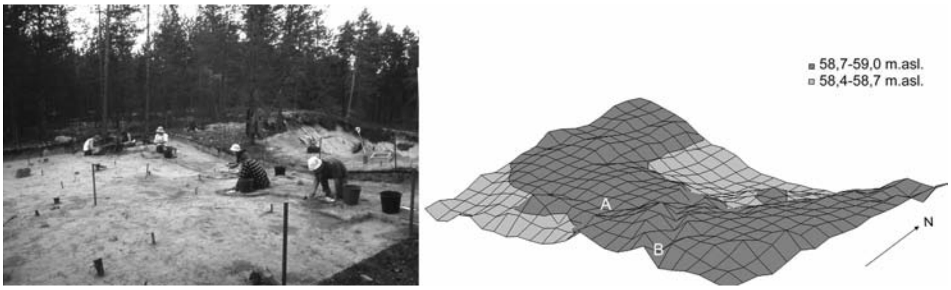


Fig. 3. Left: Excavation of house pit 4 during the 2001 field season. The gravel pit that has partly destroyed the site can be seen in the background. (Photo: M. A. Manninen). Right: Surface contour map of the excavated area with a probable place of a doorway (A) and a track left by the wheel of a modern harvesting machine (B) marked.

The formation process of a house pit

Although individual site formation processes always follow differing and complex trajectories, all house pits go through common phases during their life cycles. A general formation process model of a house pit can therefore be divided into five phases: use of the area predating house construction, building of the house, use of the house, abandonment of the house, and post-abandonment processes, i.e., human activities and natural processes after the abandonment of the house.

Phase 1: use of the area predating house construction

The spot where a house is built may have been used for different activities already prior to the building. Artefacts left at a given site by a previous occupation, even thousands of years before, can affect considerably the spatial artefact distribution and artefact composition of a house pit. A simple, 2-dimensional formation process model shows how an even artefact distribution is changed into a patterned uneven distribution when the pit is dug through an existing layer of artefacts (Fig. 4). As the model indicates, single artefacts and artefact concentrations found in the house pit embankment may predate the house and, therefore, have no relation with the actual use of the house.

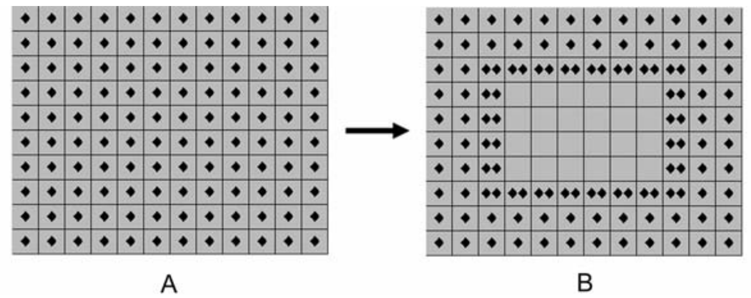


Fig. 4. 2-dimensional model showing what happens when a house pit is dug trough an existing cultural layer: the artefact distribution changes from an even distribution (A) to a distribution in which artefacts are concentrated in the embankments surrounding the pit (B).

Rävåsen

At Rävåsen, there was no clear indication in the excavated area of occupation predating the building of the semisubterranean house, e.g. remnants of old pits below the house, or chronologically diagnostic older artefact types among the assemblage. However, Typical Comb Ware pottery sherds found circa 15 meters northwest of the house pit suggest that some of the material excavated in the house pit may predate the house.

In the 27 test-pits excavated in the vicinity of the house, there was an average of 40 artefacts per square meter. This can be taken as an average background scatter value for artefact density predating the house construction in the area, although some of the material in the test pits is probably contemporary with or later than the use phase of the house. It seems clear, however, that certain artefact categories found in the embankment are related only to the actual use of the house. Charred nutshells and burnt bone fragments were not found in the test-pits outside the house pit area, although they did exist further northeast.

Phase 2: building phase

Before the house pit is dug, several other processes related to house construction take place. Vegetation, such as trees, bushes, turf and so forth, needs to be removed. Some of this material can be used in the building and is likely to be piled next to the cleared area.

When the pit for the house is dug, a large amount of dirt needs to be moved. For instance at the Kerimäki Martinniemi 3 site, calculating from the data presented in Halinen et al. (2002), the amount of sand removed has been at least 50 cubic meters. The removed sand is placed around the excavated pit. Piling around the pit is the most optimal way, if the dirt is to be used for covering the walls, which, judging from the embankments frequently found around house pits, seems to have been a common procedure.

The superstructure of a house can vary from simple pole frames to timbered walls and roof. Most traditional buildings have a composite structure: frame and cover, although there are exceptions (cf. Vaara 2000). Several possible materials may have been used in coating the walls and roof, such as moss, reeds, birch bark, sand and/or turf.

Following this line of thought, the building of a semisubterranean house can theoretically be divided into four phases:

1. Removing the vegetation from the area where the house is to be constructed.
2. Digging the pit for the house.
3. Constructing the frames/superstructure of the house.
4. Covering the frames.

Rävåsen

At Rävåsen there were no visible remains of a fossilised turf, i.e., humus layer or podzol under the embankment of House pit 4. This suggests that there was no turf layer beneath the embankment when the house was constructed. This may imply two things: either there had not been enough time for a turf layer to form, i.e., the house was built on a sandy open area, or the turf was removed not only from the area of the pit but also from an area around the pit.

Judging from shore displacement chronology (Salomaa & Matiskainen 1985), the house was built on a spot that had emerged from the sea hundreds of years before. Considering the fact that in a study conducted circa 100 kilometres north of Kristiinankaupunki up to 70 different plant species were identified on islands that had emerged from the sea 200 years before the study (Kalliola 1973: 156–7), it seems likely that the place where House pit 4 was dug in Rävåsen was vegetated. If this was the case and the turf was removed, it probably was done during the building phase of the house. If the removed turf was used for covering the roof of the house, it needed to be removed also from an area around the pit in order to cover the whole roof. This follows from the fact that the area of the roof of a semisubterranean house is always larger than the area of the pit, i.e., the floor. It is worth stressing here that no extensive use of turf, e.g., turf walls, is to be assumed at a sand esker like Rävåsen, or at other sites in similar environments, since construction materials are expected to correlate with the surrounding environment (see e.g. Korhonen 1999: 350–2).

Phase 3: use of the house

The duration of the use of a semisubterranean house has a major impact on the formation process. The duration of occupation will have an effect on the amount of artefacts as well as on patterns of artefact distribution (e.g. Schiffer 1987: 44–6). In the case of pit 4, with only one absolute date (see above), it is not yet possible to estimate accurately the duration of the house's or house pit's use.

For every semisubterranean house there is a theoretical lower limit for the duration of use. That is when the house is abandoned immediately after its construction. This kind of abandonment is likely to cause a situation where no, or only a few single artefacts are deposited in the house pit. The upper range, i.e., the maximum time of use, is impossible to fix theoretically. Archaeological data show that some house pits have been used over and over again up to almost a thousand years (Hayden 1997; Prentiss et al. 2003).

This means that the time span of a house pit's use can be considerable. Assuming that the construction time of a semisubterranean house was minimised, it implies that in situations where site relocation is slow, e.g. in areas with minor shore displacement, old house pits were reused constantly. In Finland this explains partly the contradistinction in house pit cultural layers, i.e., the differences in the amount of material and discolouring of sand between some coastal and inland house pit sites such as Kerimäki Martinnimiemi 3 (Halinen et al. 2002) and Tervola Kauvonkangas (Kankaanpää 2002).

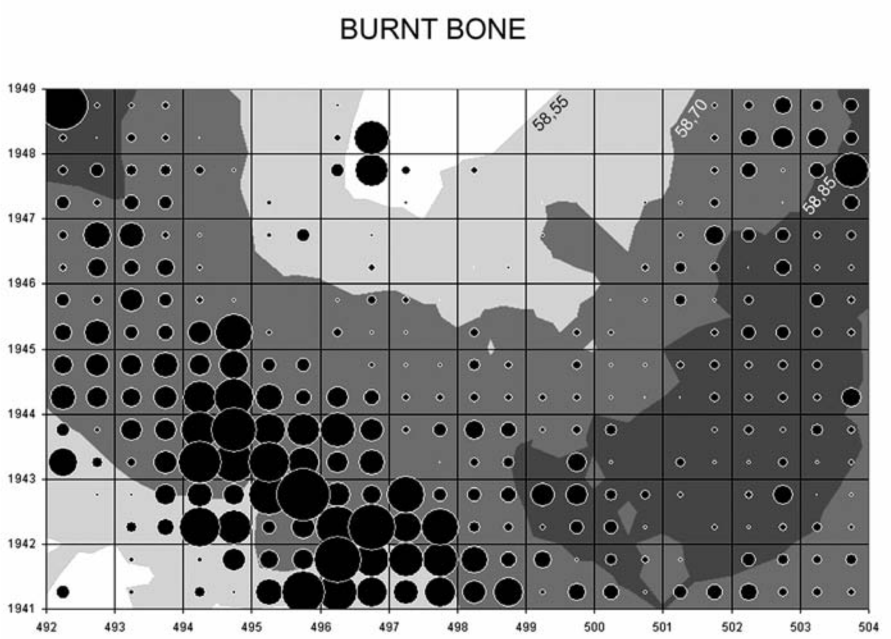


Fig. 5. Distribution of burnt bone in the excavated area. The finds are plotted in 50 by 50 centimetre squares. Surface contours are marked with different shades of grey at 15 cm intervals. The dots are scaled according to weight. Minimum value 0,1g, maximum 29g, total 1,5 kg.

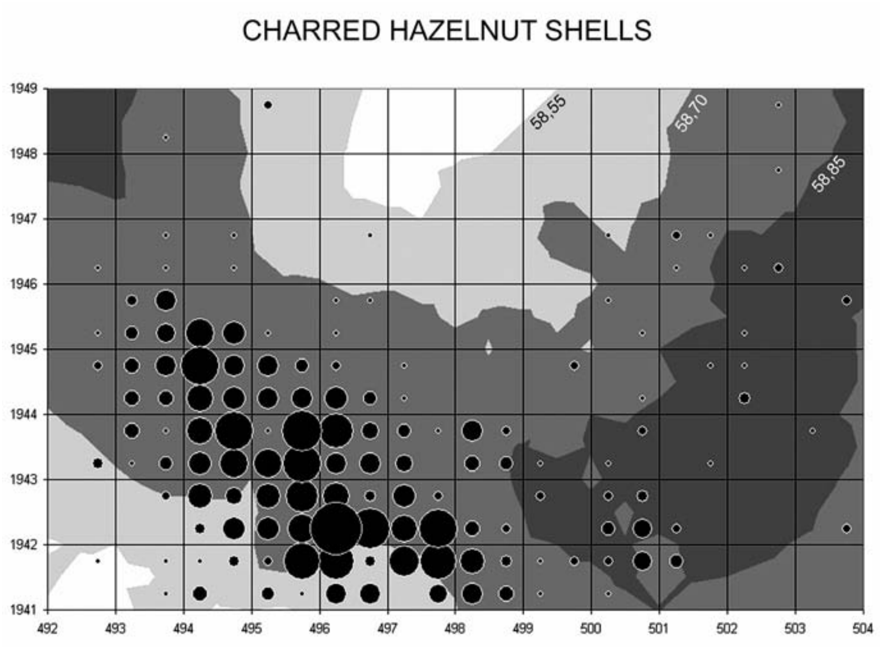


Fig. 6. Distribution of charred hazelnut shells in the excavated area. The finds are plotted in 50 by 50 centimetre squares. Surface contours are marked with different shades of grey at 15 cm intervals. The dots are scaled according to weight. Minimum value 0,1g, maximum 4,8 g, total 92 g.

Rävåsen

The location of House pit 4 at Rävåsen circa 100 meters from and circa six meters above the shoreline of the time suggests that the same pit may have been used for a relatively long period of time. The large amount of finds from pit 4, when compared with some other known coastal sites (e.g. Rankama 2002), supports this. The total span of use is likely to have been several decades rather than a season or a few years. This proposition can be tested to a degree by dating more of the material found in the house pit and especially the ecofacts found in the dump (see below).

It is obvious that several individual events and processes have taken place at house pits which have been used for a long time. One of these is the periodical cleaning of the house (e.g. Murray 1980). In House pit 4 at Rävåsen, many of the find categories most probably related to household activities, such as burnt bones, charred nutshells, and to some degree also pottery, were concentrated in the embankment on the southwest side of the house (Figs. 5-6). Most of this mass was probably cleaned from inside the house. This interpretation is supported by the fact that there were no signs of a hearth inside the house, but burnt stones were also concentrated in the embankment around the house (for a parallel example, see Kankaanpää 2002), as well as the fact that the dump was placed next to the probable doorway. Of the lithic artefacts found in the excavated area especially the quartz artefacts have a more even distribution and were found in large quantities both inside and outside the house.

Placing the dump near the doorway does not necessarily mean only minimal cleaning and discarding effort; but it can also imply optimisation of the reuse potential of the artefacts. This location makes it easily accessible if artefacts in the refuse have a reuse potential (cf. Wilson 1994: 47–8). This suggests constant recycling of the material.

The same reasons that are behind the need to clean indoors and place the refuse out of the way (e.g. hazardousness of certain artefacts) may lead also to cleaning of the area next to the house. From this it follows, that part of the finds in the house embankment may also originate from outside activities. Artefacts deriving from the area next to the house may end up in the embankment also when the house is partly rebuilt during repair. Therefore the assemblage excavated in the embankment does not need to be related to the use period of the house. This has obvious implications, for example, for studies on the season of occupation of house pits that are based on the find assemblage.

Phase 4: abandonment of the house

Any house and house pit can be abandoned and reused repeatedly. For example, for mobile individuals abandonment is a constant event. In the same way as other artefacts, during the life cycle of a house its function can go through changes that gradually lead to the actual final and permanent abandonment (e.g. Schiffer 1985; Kankaapää 2003). There are three alternative ways in which the permanent abandonment can take place:

1. The house is left standing and decaying in its place.
2. The material, e.g., wood, is scavenged for constructing a new house, for firewood or for some other purpose.
3. The house is burnt down accidentally or on purpose.

Rävåsen

In the Rävåsen pit 4 the distribution of finds indicates that there was a major functional change in the use of the house close to the end of its life cycle. Two quartz artefact concentrations inside the house (Fig. **7**) at an elevation of circa 58,35 masl. most probably indicate the original floor level. This means that these quartz artefacts were left on the floor immediately before the final abandonment, and that they represent the final phases of the house’s use.

The large amount of material suggests that the house was used as a quartz knapping work-shop after its use as a living and sleeping place had ended and the house had been cleaned for the last time. There are also some smaller concentrations of pottery inside the house (Fig. 8) that could indicate, for instance, use as a storage room or as a dump. The last proposition can be tested by refitting and by comparing the raw materials of pottery sherds (cf. Varonen 2003).

QUARTZ FLAKES & FRAGMENTS

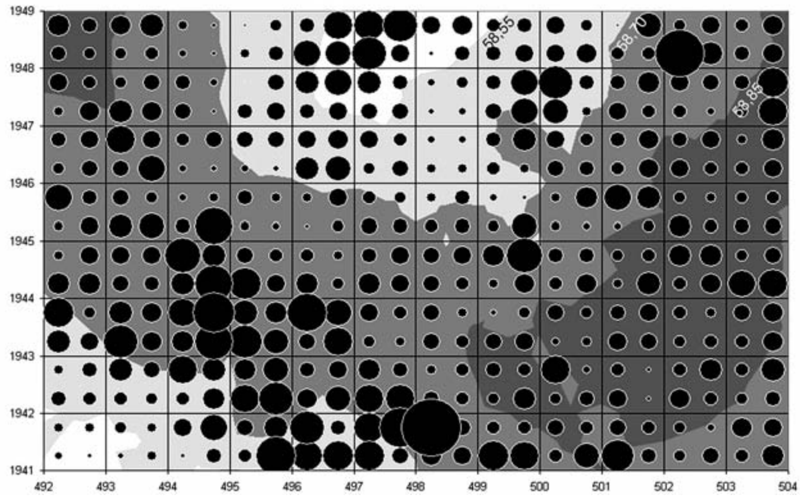


Fig. 7. Distribution of quartz flakes and flake fragments in the excavated area. The finds are plotted in 50 to 50 centimetre squares. Surface contours are marked with different shades of grey at 15 cm intervals. The dots are scaled according to weight. Minimum value 1,2 g, maximum 420 g, total 26,5 kg.

POTTERY SHERDS

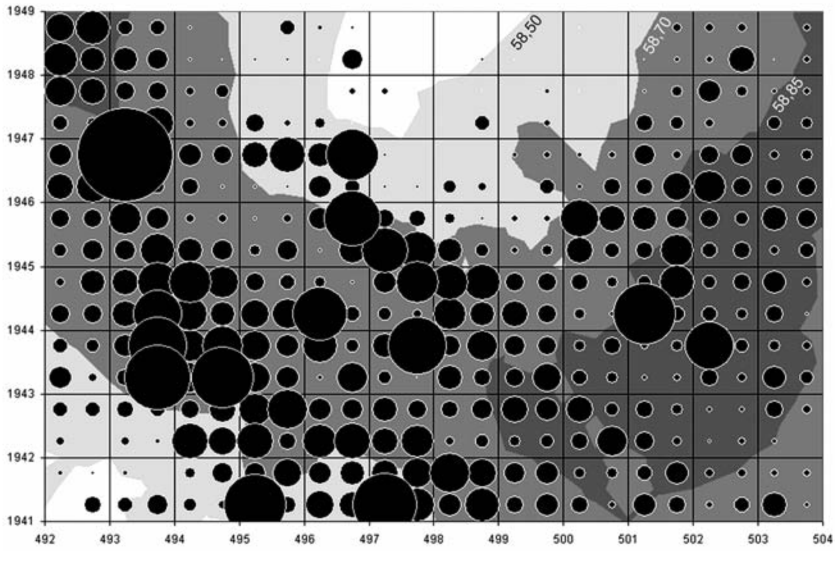


Fig. 8. Distribution of pottery sherds in the excavated area. The finds are plotted in 50 by 50 centimetre squares. Surface contours are marked with different shades of grey at 15 cm intervals. The dots are scaled according to weight. Minimum value 0,1 g, maximum 333,4 g, total 7,4 kg.

As was mentioned above, at Rävåsen no remains related to the house superstructure were found. The good preservation of charred hazelnut shells suggests that some charcoal would have been preserved if it had existed in large amounts. The lack of charcoal suggests that the house did not burn down in the final phase of abandonment. This leaves us two options: either the house was left standing in its place or it was torn down and parts of it were reused.

Although the question is difficult to tackle directly, archaeological data from elsewhere in Finland reveals a general pattern that has implications also to the abandonment process of House pit 4. The lack of remains of a superstructure seems to be a typical phenomenon in many coastal house pit sites in Finland (e.g. Halinen et al. 1998; Kankaanpää 2003; but see Vaara 2000: 3–5) and is in contradistinction with many of the, usually smaller, inland house pit sites (e.g. Leskinen 2002; Katiskoski 2002).

The difference between coastal and inland sites can be explained by a notable difference in the ecology of foragers in these two environments. To summarise in brief: the options for using wood were different in these areas because of differences in environmental stability and population size. A different rate of environmental change, i.e., shoreline displacement and its effect on ecological succession, affected the quality and quantity of wood and made different species available in these two areas.

The larger number of people at coastal sites had a bigger impact on the vegetation around the site, because of more intensive trampling, a larger demand on wood, and so forth. These things suggest that people had differing options in these areas, and that the house constructions and abandonment processes were different at coastal and inland sites. The lack of remains of a superstructure at coastal sites could therefore mean that the wooden structures were made of younger trees that decay faster, and that the old existing wooden structures, e.g., semisubterranean houses, were a potential source of wood, and therefore reused, and scavenged for firewood, more frequently than at inland sites. This resulted in the above-mentioned difference between coastal and inland sites in the archaeological record.

Phase 5: post-abandonment processes

After abandonment, a house goes through both natural processes and processes induced by human behaviour. These processes create and disperse artefact concentrations. Some natural post-abandonment processes that take place depend on the way the house was abandoned. For instance, if the house is left decaying in its place, the roof and the walls will gradually fall in bringing along sand and artefacts deposited in the sand over time (Fig. 9).

After the final abandonment, the house remains and especially the pit can be used for dumping trash like broken vessels, bones, and lithic debris (cf. Schiffer 1987: 61–2). The pit itself can also be used as a workshop area. This kind of post-abandonment use will result in artefact concentrations in the topmost excavation layers.

A multitude of natural processes, such as frost-lift, tree falls, root action, and disturbances caused by burrowing animals (cf. Schiffer 1987: 199–262) have affected find distributions at archaeological sites. The excavation methods and find recovery techniques used prevent us from detecting this kind of processes properly in the case of Rävåsen pit 4. The name of the site (Rävåsen, i.e., *fox esker*) in itself serves as a reminder that processes of this kind have also affected the site. In spite of this refitting of especially sandstone artefacts and pottery sherds can be used to study the amount of vertical and horizontal movement of artefacts in the pit. Other post-abandonment processes, some of which have clearly affected the artefact distribution, can be detected also in the Rävåsen assemblage. These are briefly discussed in the following.

Fig. 9. Remains of a Saami turf hut in the Báišduottar – Paistunturi wilderness area, Utsjoki, Finland. The roof and parts of the walls have fallen in bringing inside the hut artefacts and structural parts that originally were outside. (Photo: T. Valtonen)

Rävåsen

Of the post-depositional processes that have affected House pit 4 at Rävåsen, the most pronounced is modern gravel extraction, which made half of the semisubterranean house to disappear before excavation. Signs of modern land use were also present in the southwest corner of the house where there was a track left by a harvesting machine. These events, however, are not likely to have had any major effect on the artefact distribution patterns in the remaining part of the pit as a whole.

Regardless of the way the house is abandoned, the embankment surrounding a house pit will sooner or later partly collapse into the pit. Artefacts originally deposited in the embankment will be re-deposited inside the house pit by the sliding sand. This can be seen in the vertical find distribution of pit 4. The excavation squares located in the area of the original house wall have more excavation spits containing finds than the other squares in the excavated area. This is explained by sand and artefacts that have accumulated on top of the original floor. The accumulated layer is thickest near the original wall.

The quartz artefact concentration in the middle of the floor area (Fig. 7) was covered by a relatively thin layer of sand and it is therefore possible that the concentration derives from either dumping or quartz knapping that took place in the pit after the house had already been taken down or collapsed. However, it feels more probable that the concentration is of the same age as the other concentration inside the house and the thin layer of sand on top of it is explained by the fact that it lies in the middle of the floor, i.e., in the place where the smallest amount of sand would accumulate from the collapsing walls. A sand-covered roof, however, could be expected to cause a thick layer especially in the middle of the floor. This suggests that there was not much material on top of the roof when it collapsed or, maybe more probably, the roof was taken down and reused.

The relatively small amount of very fragmentary pottery sherds recovered inside the house open many possible interpretations. They may represent, for instance, collapsing walls, sherds unheeded in cleaning, post-abandonment dumping, or child play. The concentrations may even be related to ritual formation processes (cf. LaMotta & Schiffer 1999). It is clear that no definitive conclusions can be drawn from the small amount of pottery sherds at this stage.

Artefact discard rate model and its bearing on archaeology

Human induced post-abandonment disturbance in pit 4 is again a difficult issue to tackle directly but it can be modelled (Fig. 10). In the model time is the only variable affecting the accumulation of the total assemblage. By increasing time units, e.g., years, the percentage of newly discarded artefacts in the total assemblage diminishes. This means that when an artefact is picked up from the total assemblage it is more likely to be an old than a newly discarded artefact.

This has obvious implications for sites like Rävåsen with long occupational histories. People encountered old discarded artefacts and, if artefact burial and discard rate is neglected, they were relatively old artefacts more often than newly discarded artefacts. This suggests that when people were in immediate need of, e.g., lithic material, and searched the site at random to find suitable pieces, they usually encountered and used relatively old material. From this it follows that some older artefacts ‘disappeared’ and some concentrations were disturbed as artefacts were reused and moved around the site. This kind of activity has affected the artefact distribution both in time and space.

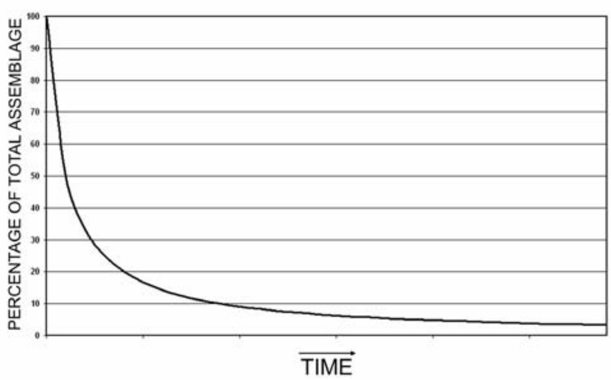


Fig. 10. Model indicating the proportion of artefacts discarded at a given moment in the total assemblage when the discard rate is constant.

Since we are interested in pit 4 and the processes that conditioned its formation, we would like to know whether the scavenging was systematic at Rävåsen. There is ample evidence on recycling (regardless of time and place) that suggests that the behaviour is universal and conditioned by need and availability of suitable material. It is obvious that known artefact concentrations, like old house pits, were potential places for collecting useable raw material. This means that at Rävåsen, where a large amount of lithics accumulated (Hertell & Manninen, in press), scavenging and recycling took place in times of need, i.e., most probably during the winter.

The durability of raw material has an obvious effect on recycling potential. The short durability of some materials makes it unlikely that they would have been reused after long periods. However, this does not mean that they could not have been moved and re-deposited several times. While the model (Fig. 7) concerns accumulation and consequent encounter probability, but not use, it suggests that, e.g., old pottery sherds were often encountered. These were probably piled into new locations without any intention to use them, e.g. during child play (see Schiffer 1987: 75). Previously it has been argued that children were present at the site (Hertell & Manninen, in press), and it is not unlikely that some artefact patterning is partly caused by them.

In pit 4 the nature and magnitude of displacement would best be studied through refitting analyses. This applies especially well for the sandstone artefacts. The large amount of very fragmentary quartz and the poor preservation of pottery sherds make them less suitable for refitting studies. However, quartz fracture analysis and pottery raw material comparisons might prove useful in testing the assessments and propositions made in this paper.

Concluding discussion

In the paper we have outlined the five-phase house pit formation process model and used this as a conceptual tool to understand House pit 4 at Rävåsen. By studying the house pit formation process it is possible to reveal not only sources of error affecting our thinking, but to understand the variability in the formation of house pits, and to formulate further questions that can be studied at a later date. We have also used simple models to discuss those issues that are difficult to see in the artefact scatters but which are likely to be at work beyond the seemingly static distribution maps.

We argue that the consequences of all five phases contribute to the present picture of House pit 4. A small amount of artefacts left at the spot before the house pit was dug later ended up in the embankment. House pit maintenance activities resulted in mixed artefact concentrations especially in the embankment, and gradual abandonment and functional change of the house polarised the spatial artefact distributions inside and outside the house. In addition, the post-abandonment processes caused discarded artefacts to accumulate in certain parts of the area, and moved artefacts from their original positions both within the excavated area and in and out of it.

In Finland the past decades have seen large-scale excavations of Stone Age house pits. In spite of this, we feel that the study of their formation processes has so far only scratched the surface. We hope that our paper can contribute to this field, but we also stress the fact that the serious testing of the ideas presented here is yet to be done in the case of Råvåsen, and at other house pit sites as well.

Acknowledgments

We wish to thank T. Heikkurinen-Montell, V. Laulumaa, T. Rankama, M. Tallavaara, T. Valtonen, M. Varonen and E.-M. Viitanen for reading and commenting on earlier versions of the paper, the Finnish Cultural Foundation for the funding, and the organizers of the 22nd Nordic Archaeology Conference for the possibility to present the paper.

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One house – two households? An investigation of a Late Subneolithic pithouse in Kuorikkikangas site, Posio, southern Lapland

Petro Pesonen

Abstract. *Kuorikkikangas site in Posio, southern Lapland, was excavated by the author in 1995. The site has yielded ceramic material from different periods of northern Finland's prehistory: Säräisniemi 1-pottery from the Early Subneolithic, Pöljä Ware from the Late Subneolithic and Säräisniemi 2 -pottery from the Early Metal Period. The site itself is very substantial in area, but the cultural layer is rather composed of several separate activity areas than of a uniform cultural layer. On the surface, two depressions were interpreted as remains of pithouses and one of these was excavated. The pithouse turned out to be rectangular in shape. On the basis of surface contours, find distribution, the appearance of cultural layer as well as the distribution of fire-cracked stones, the size of the pithouse was estimated to be 5 by 6,5 meters. It had two entrances and two fireplaces along the longitudinal axis of the house. The soil analysis showed high values of phosphate inside the house. The house was dated to the Late Subneolithic, 2900–2300 cal. BC. The finds and their distribution indicate that the house was used only in wintertime and probably only for some years. On the basis of two hearths and entrances, there were two households living in the house. It is suggested, that the households were not separated from each other, but the house was divided into women's and men's parts during the daytime activities, which may have differed from the family lodging areas.*

Keywords: *Late Subneolithic, pithouse, social archaeology, Lapland*

Introduction: a house in the lake area

Kuorikkikangas site is situated in Posio, southern Lapland's lake area. The site is on a pine-forested sandy heath on the shore of Lake Yli-Kitka. The first signs of the prehistoric settlement were discovered by Markku Torvinen in 1989 and the site was surveyed by Hannu Kotivuori in 1994. The author of this article conducted an excavation at the site in 1995. The focus of the excavation was one of the two pithouses in the site. Four other excavation areas were opened in addition to the pithouse excavation, and an extensive test pit grid was planned in order to determine the extent of the site. In the test pits, cultural layer and finds were observed in the area covering several hectares of the ancient shore of the lake (Fig. 1). Based on the ceramic typology and radiocarbon dates, there were several occupation phases in the site, from the Early Subneolithic until the Early Metal Period, ca. 5100–500 cal. BC. The ceramics found in the site include pieces of Säräisniemi 1 Ware and remains of one Pöljä Ware vessel as well as pieces from two Early Metal Period pots of unidentified style.

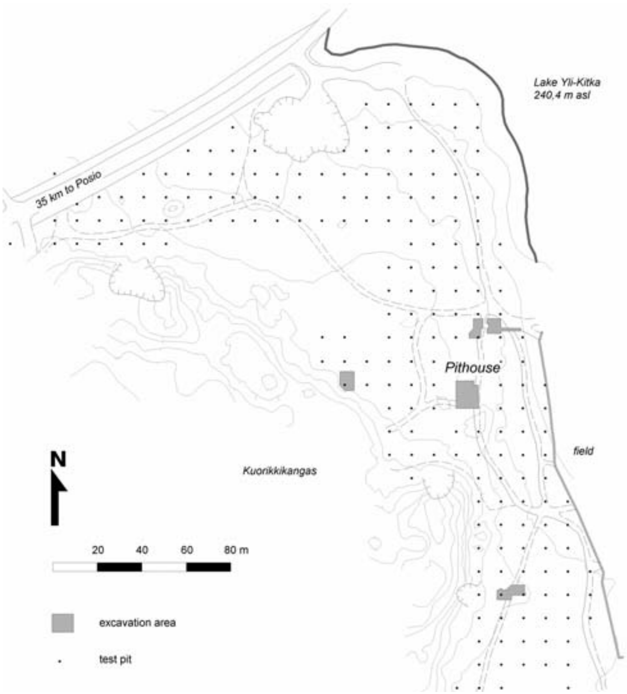

Fig. 1. General map of the Kuorikkikangas site. Surface contours are in 1 m intervals.

The pithouse excavated in Kuorikkikangas was among the first pithouses to be recognised as remains of a rectangular house rather than a round hut, which was a sort of a stereotype for the Stone Age house form in Finnish archaeology until 1990s. Generally, the Stone Age dwellings were thought to be *kota*-like buildings and they were called 'huts of Madeneva-type' (Meinander 1976; see also Pesonen 2002). During the last decades, several excavations in Finland have shown that more versatile building tradition occurred in the Stone Age and some of the house forms have been very solid and substantial constructions (see Ranta 2002). Also the Kuorikkikangas house was determined to be rectangular on the basis of several features and the distribution of artefacts (Pesonen 1996).

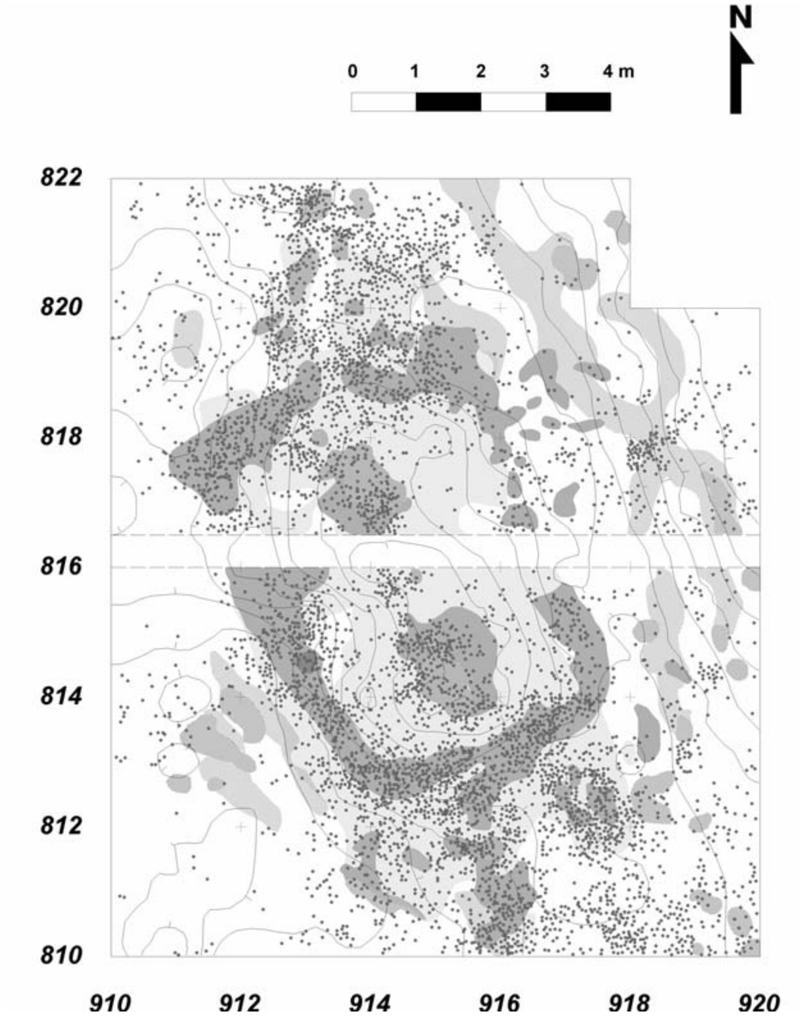

Fig. 2. Discoloured soil in the excavation levels of the pithouse area. Surface contours are in 5 cm intervals. Each small circle indicates a fire-cracked stone.

Rectangular house from the Late Subneolithic

On the surface, the pithouse was discerned as an oval depression with a shallow passage leading out through the southern short wall (Fig. 2). The measures of the depression were 4 by 6 meters, approximately. The longer walls aligned with the present shoreline of the Lake Yli-Kitka, which is a few meters lower than the shoreline during the occupation period in Kuorikkikangas. Still, the present shore lies only at a distance of 60 meters from the pithouse site.

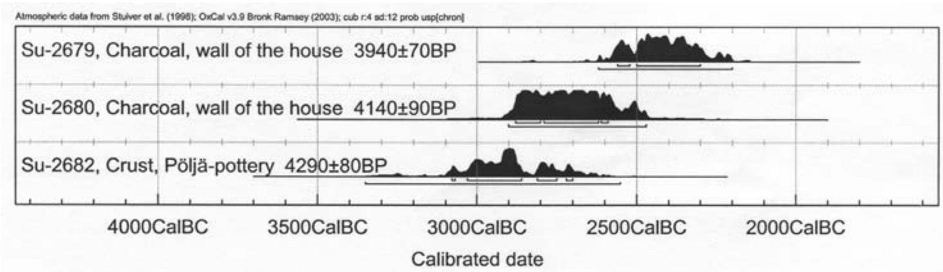

Fig. 3. The Late Subneolithic radiocarbon dates from Kuorikkikangas site.

The most obvious concentration of cultural layer was perceived as a rectangular dark grey and brown discoloured soil area in the excavation levels. The dimensions of the feature were little broader than observed as a depression in the surface: 5 by 6,5 meters, approximately. This formation probably represents a packed cleaning debris accumulated along the walls of the ancient building. Other interesting features were the red-burnt patches of soil in the middle axis of both halves of the house (Fig. 2). The dating of the house to the Late Subneolithic was based on two charcoal samples collected from the cultural layer in the wall, dated between 2900 and 2300 cal. BC (Fig. 3). In Finnish pottery chronology, this coincides with the period of Pöljä –style pottery in eastern and northern Finland (e.g. Carpelan 1999: 273). At Kuorikkikangas, Pöljä pottery was found in another excavation area, not in the pithouse area. The crust inside the walls of the pot was radiocarbon dated a little older than the house (Fig. 3).[1]

The fire-cracked stones were concentrated along the walls, in the areas of discoloured soil (Fig. 2). There were also clear concentrations in the center of the both halves of the house, matching the red-burnt patches of soil. Outside of both of the short ends of the house, there were accumulations of fire-cracked stones – apparent tossing areas of used hearth stones. Especially the southern accumulation shows interestingly a cleared passage through the stones. Here was an obvious southern entrance. The northern accumulation may also represent another entrance from the northern side of the house.

The find distribution in the house is virtually identical with the distribution of fire-cracked stones and the discoloured soil areas (Fig. 4). There seemed to be similar passages leading out both in the southern and northern ends of the house. There were also clusters of artefact debris accumulations correlating with the fire-cracked stone concentrations near the entrances. The distributions of different find categories are further discussed below.

As a conclusion, three most obvious remarks can be made on the structure of the house. Firstly, the house was rectangular with internal measures of 5 by 6,5 meters. Secondly, there were entrances at both short ends of the house. And thirdly, there were fireplaces in the center of both halves of the house, along the middle axis. The wall and fireplace lines according to different observations are drawn in Figure 4. On the basis of the two fireplaces and two entrances, it is suggested that the house was divided into two halves, which is seen in the distribution of the artefacts and fire-cracked stones as well.

1There is a further one radiocarbon date from the Kuorikkikangas site, which is connected with the Säräisniemi 1 pottery found in the site. The date is 4720-4460 calBC (5750+110 BP, Su-2681).

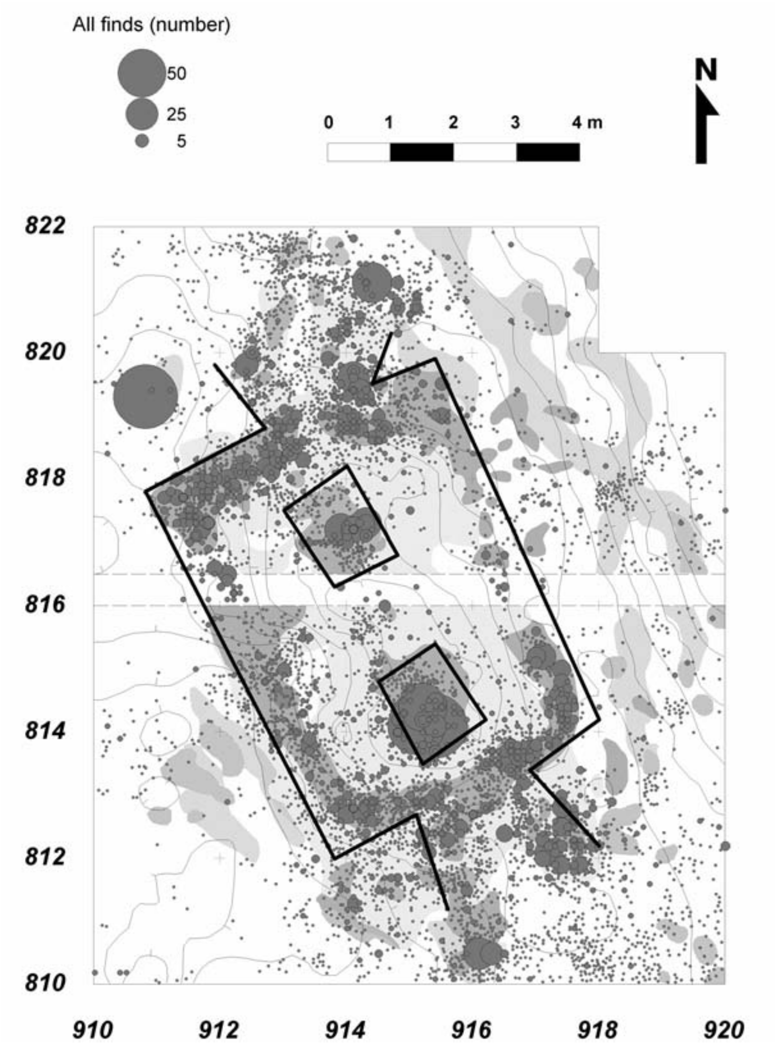

Fig. 4. Combined distribution of finds and fire-cracked stones with the wall and hearth lines marked.

In addition, the phosphate contents of the soil samples taken in a one-meter grid were analysed and the results show relatively high phosphate contents. Statistical interpretation of the results shows higher values both inside the house and outside the entrances (Fig. 5). There are high phosphate values also circling the low banks around the house. This may, in fact, indicate that the natural phosphate content of the soil in the site is quite high, and the lower values in the banks are the result of disturbation caused by digging of the semisubterranean basement of the house. The highest values are in the southern half of the house, and especially around the southern hearth area. The phosphate values are not so bipolarly distributed as the other observations, but indicate more intensive activity in the southern part of the house.

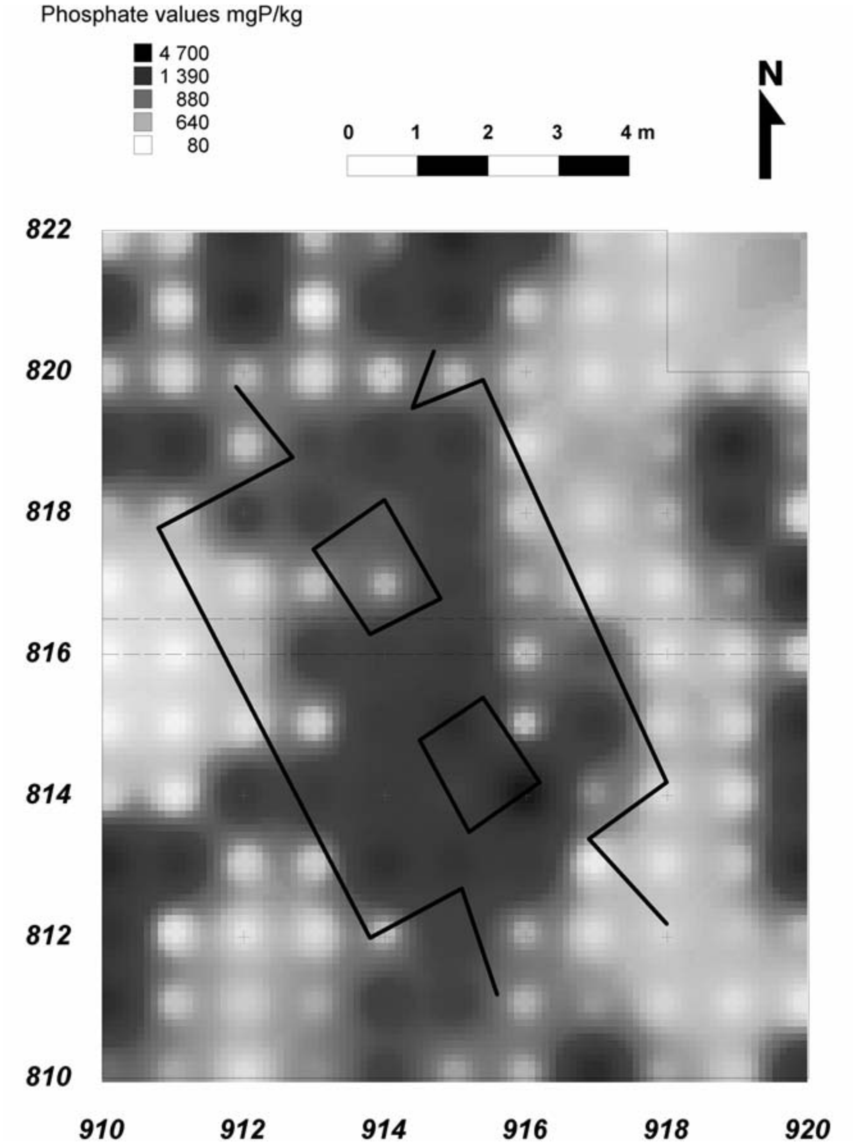

Fig. 5. The phosphate distribution in the pithouse area.

A winterhouse?

In the following section, the distribution of different find categories in the house area is explored. In this connection, the question of seasonality is also discussed. This is a factor that may explain some features in the distribution of finds.

Burnt bone fragments

In the house area, a number of burnt bone fragments were found (18903 pcs). Of these, 861 pieces could be in some accuracy identified into level of the species (Table 1). The most common species were fish, as usual in the lakeside sites in Finland. Pike and perch were identified. Of the mammals, wild reindeer is dominant, though a number of pine marten bones also occur. Beaver is not very abundant in the Kuorikkikangas material, though it is one of the most common terrestrial mammals in Finnish Stone Age osteological materials (Ukkonen 1993: 257). Bird bones are very few, and only one species - willow grouse - was identified.

The species reflect a typical southern Lappish environment and do not seem to be specific either for winter or summer hunting. The lack of migratory birds, though, points to the winter-use of the site. The distribution of burnt bone fragments, as such, could also be taken as an evidence for winter-use (Fig. 6). The finds were strictly concentrated inside the house and there did not seem to be any significant activity areas outside the house, which probably would have been the case if the house was used in the summertime. The restricted find distribution allows also a speculation that the house was used only a short time. It could be assumed that if the house was used continuously for several years, some waste would have ended up also outside the house.

Table 1. Osteological material from the pithouse area (analysis by Pirkko Ukkonen).

Fish	
pike (Esox lucius)	254
perch (Perca fluviatilis)	26
cyprinids (Cyprinidae)	8
fish (Teleostei)	496
Mammals	
pine marten (*Martes martes*)	17
wild reindeer (*Rangifer tarandus*)	47
hare (*Lepus timidus*)	2
beaver (*Castor fiber*)	4
Birds	
willow grouse (*Lagopus lagopus*)	7

Quartz and other stone materials

There are also some references in the stone material that suggest winter-use of the house. The quartz was not concentrated in the wall, entrances and hearth areas as clearly as burnt bone was (Fig. 7). The southern hearth seemed to include a lot of quartz, which however is due to some quartz-containing rocks used in the fireplace. A lot of other quartz pieces were also of poor, fragile and brittle quality. Most of the quartz artefacts were scrapers, though a minor number of retouched, cutting blades were also found. Surprisingly, a large number of quartz artefacts were found outside the house, by the northwestern corner and the northern side of the house, some also in the southern side. Some of these blades were broken waste, but some were intact implements. This implies that some of the work was done also outside the house, even if it was wintertime.

Fig. 6. The distribution of burnt bone fragments in the pithouse area.

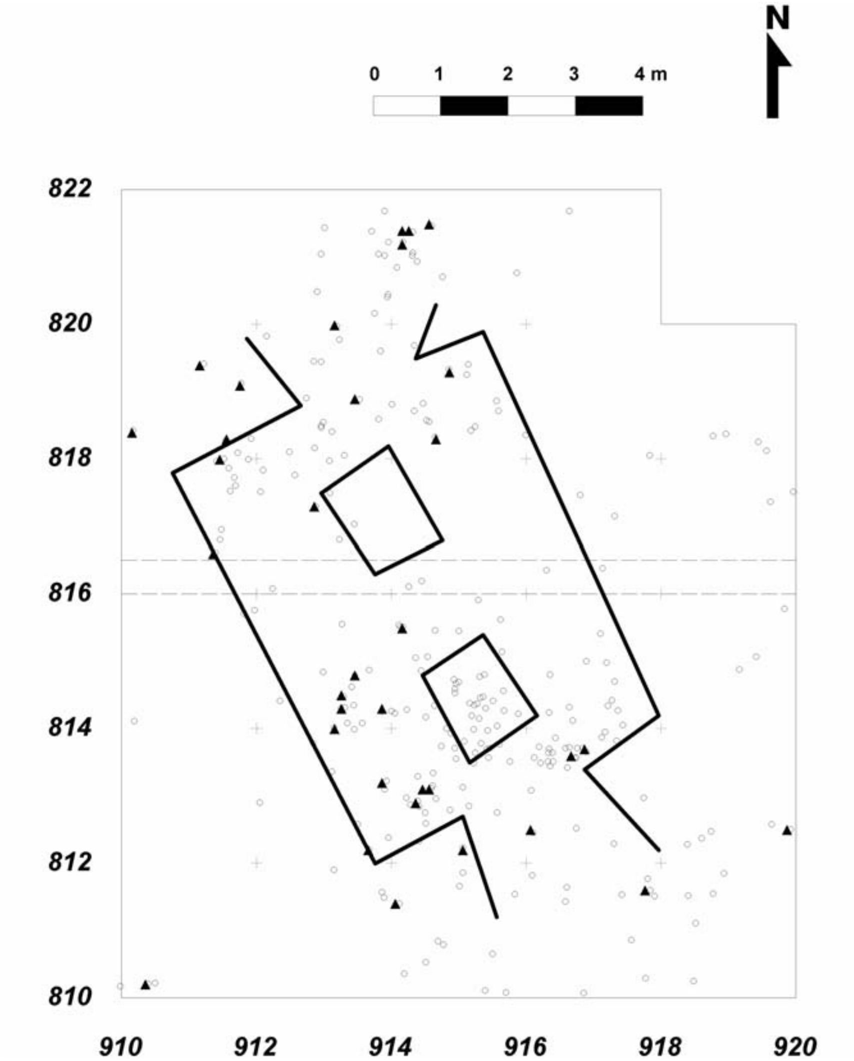

Fig. 7. The distribution of quartz in the pithouse area. Triangles represent quartz implements, circles are quartz cores and flakes.

A number of whetstone fragments were found in the house area. There were pieces of at least three whetstones of different colours from almost white to shades of violet. The material of the whetstones seemed to be sandstone. Obviously, the whetstone fragments had been crushed into pieces and at least some of them had been in fire also. There did not seem to have been any attempts to make any tools out of these crushed flakes. Almost all of the fragments were found by the northeastern corner of the house, both inside and outside the house area (Fig. 8). It looks like the whetstone pieces were treated similarly to fire-cracked stones. It is like the whetstones had to be used as hearth stones during the winter in lack of stone material.

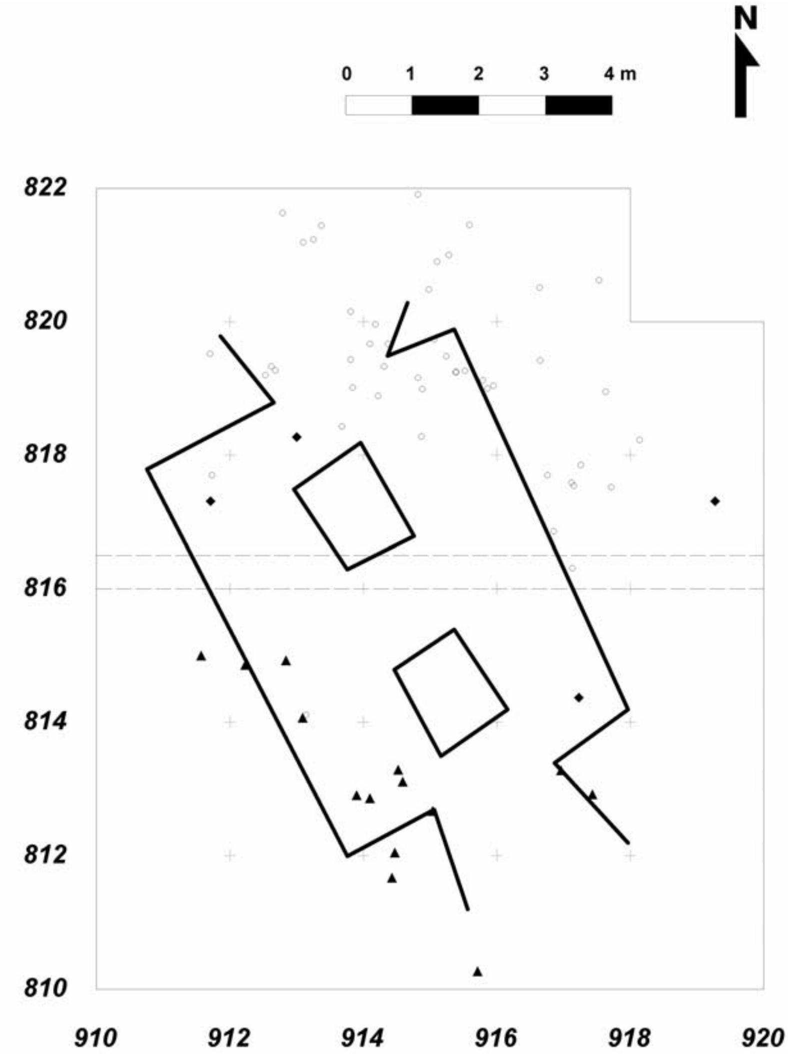

Fig. 8. The distribution of whetstone fragments, quartzite and slate artefacts. Triangles represent quartzite, circles are whetstone fragments and diamonds are slate artefacts.

Fine-grained quartzite flakes with one core and a scraper were found in the southwestern corner of the house, most of them inside the house, though some of them seem to be outside the wall (Fig. 8). Presumably all the quartzites came from the same source and perhaps belonged to only one occasion. Four pieces of slate artefacts were included in the find material: two chisels, a possible base-stone for stone knapping and a flake. The base-stone and one chisel were found near the northern hearth, the chisel fragment outside the house and the flake in the southeastern corner of the house. The amount of slate tools was very low compared to other Subneolithic sites in northern Finland, where the slate from Tervola-Rovaniemi area was a common tool material.

Winter waste

The distribution of all kinds of waste was strictly concentrated on the wall lines, hearths and entrance areas. This actually gives us a hint of the formation of cultural layer beside the walls and entrances. The discolouring may derive from the hearth areas, where food and fire were handled. The hearths had to be rebuilt constantly and it may well be that the sand, fire-cracked stones and eventually also the leftovers were carried by the walls and entrances. It is interesting that the areas around the hearths were almost void of finds. This indicates the actual working area, which was kept clean of the waste. In fact, quartz distribution does not follow bones very strictly, and the distribution was more scattered. Some of the quartz was in the working area around the hearths. It thus seems that handling of quartz did not affect much the formation of discoloured cultural layer.

The waste distribution in Kuorikkikangas house can be seen as a result of very pragmatic habits. There seems to be no difference between the disposal of small and big waste objects as so often recorded in ethnoarchaeological studies (see e.g. Grøn 2003: 699). In the Kuorikkikangas case, I find it easier to interpret the waste distribution so that the sand, cracked stones and waste (bones, organic matter) were carried from the hearths beside the walls and sometimes thrown outside the house. Some of the waste was naturally left in the hearth area. The quartzes around the hearths indicate the last use of quartz inside the house. Outside the northeastern corner there was a separate concentration of burnt bone fragments, which consisted of fish and apparently indicates only a single occurrence of deposition.

Let us hypothesize a little further and assume that the debris in the hearths reflects the last phase of the occupation of the house. We may notice that pine marten and beaver bones were found only in the hearth areas whereas reindeer bones concentrated near the walls and entrances (Fig. 9). The fish bones were found all around the house area. The distribution could thus be taken as an indication of shift from big game (reindeer) to smaller game (pine marten, beaver). Fish would have been consumed all the time. The problem is that we do not know certainly whether this kind of shift happened during one year or during years of occupation. The evidence indicates, however, that the house was inhabited only for a short time and presumably only for winters, in contrast to the view presented earlier by the author (Pesonen 1996: 25).

One house – two households?

So far, in Finnish archaeology, the interior of a pithouse has functioned merely as a means of reconstructing the house construction and the occupation phases of the site, though there is a lot of potential in the material for studying the social structure of the site's ancient population (e.g. Karjalainen 2002). The division of space in the pithouse, though, is an interesting question, which can give some insight into the population size of the site (e.g. Helskog 1984), the gender distribution (e.g. Engelstad 1991; Inkiläinen 1999) as well as the hierarchy of the population (e.g. Hayden 1997).

The house structures and the division of the artefacts and fire-cracked stones in two different parts are a strong indication of two households living under the same roof. The organisation of these households is then a more difficult question to answer on the basis of the find distribution. There are several possibilities of how the households could have been formed. There could have been two separate nuclear families or one extended family, where the space could have been divided according to age, sex or some other reason. It is even possible that the house was not inhabited by families at all, but perhaps even by two hunting or some other task groups.

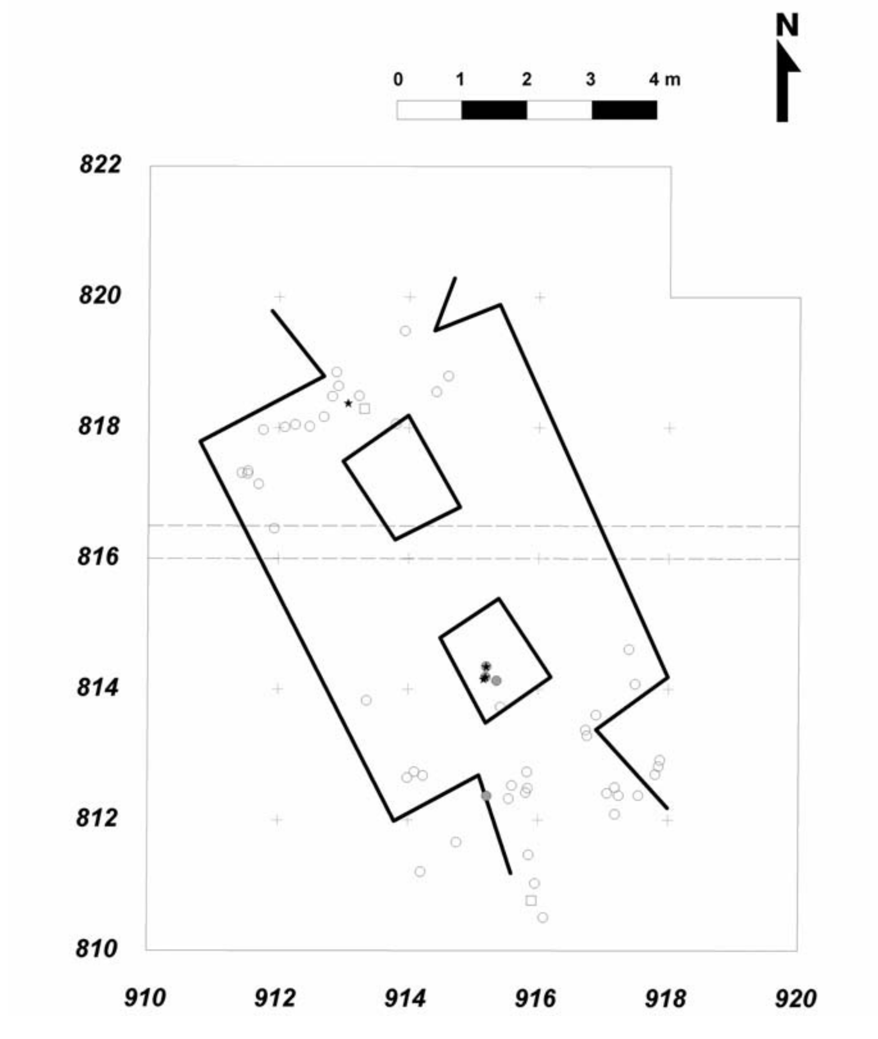

Fig. 9. The distribution of mammal bones in the pithouse area. Circles represent wild reindeer bones, stars are pine marten bones, filled grey circles are beaver bones and squares are hare bones.

The high phosphate content in the southern part of the house implies that a lot of organic matter was handled there. This could be taken as evidence of food preparing mainly in the southern hearth, though the difference between the phosphate values in the northern and southern parts is only statistical. In any case, phosphate remains at the location where it was originally deposited and quite reliably tells about the action taken place there and is often taken as evidence of a food preparing area (cf. Hayden 1997: 81). On the contrary, the bone distribution is more equal between the households. A simple conclusion would be that most of the food was prepared in the southern hearth area, but consumed both in the northern and the southern parts of the house. This interpretation leads us to an assumption that the southern part would have been occupied by women – at least it would have been a daytime working area of women. This view is somewhat supported by the fact that there is no significant difference between the diets of the households, as evidenced by the even distributions of the bone material of different species.

Although most of the quartz flakes and artefacts were dumped in the waste areas near the walls and the entrances, some of them seem to be left at the place where they were last used. There were some quartz tools between the both hearth areas and wall dumps in the suggested working area of the house. There were only 25 quartz implements in the material. Most of them were scrapers, but some cutting blades and one burin were also present. Most of the scrapers are heavily worn out, but some of the implements are in a better shape. The wear of the blades may tell about the function of the implement: the worn-out blades could have been used for wood or bone cutting and the ones in better condition could have been used in hide working, e.g. scraping. If this is the case, there does not seem to be any greater difference between the households, since both worn-out and undamaged tools were found in both ends of the house. The distribution of the scrapers in better condition is however slightly emphasized in the southern half of the house, which may be taken as an evidence of hide working, food preparing, plant cutting etc. in the southern household. Again, this evidence – however vague – would indicate women working in the southern half of the house.

A base-stone which may have been used in tool knapping was found in the northern part of the house where also a slate chisel with its slightly damaged edge was found. These both indicate ‘manly’ tasks: tool making and wood working. The pieces of whetstones form a somewhat equivocal find group. The distribution of these differs from the distribution of other artefact and material groups, because a large number of them were outside the house. This could be taken as an indication of tool grinding in the northern part of the house, but as stated above, the last service of the whetstones might actually have been in hearths as heating stones. The pieces of quartzite were all concentrated in the southern part of the house and some of them have been burnt in the fire. The only implement, a heavily worn-out scraper, was found outside the southwestern corner.

A two-family house?

Although the evidence is not unequivocal, I find it simplest to explain the Kuorikkikangas house as a dwelling of two households, not separated from each other but rather working together. Two entrances indicate a need to walk out of the door without interrupting another household. Two hearths were needed to keep a fairly large house warm, maybe in such a way that the northern hearth was used mainly for warming and the southern hearth mainly for food preparation. Most of the tool making and other heavier work was done in the northern half of the house. The spatial behaviour in the Kuorikkikangas house could perhaps be interpreted as an example of a larger dwelling where special activities were carried out in specific areas (Grön 1991: 101).

Although the division of tasks into men's and women's works is sometimes arbitrary, we may lean on ethnoarchaeological observations of human behaviour where certain rules have been said to exist. The phenomena observed in the Kuorikkikangas house suggest that there was a working area for women and there was a working area for men, but no indication of the actual composition of the households. There are a lot of ethnographic and archaeological examples for estimating the population size on the basis of the house floor area. For example, Knut Helskog suggests that the Gressbakken-houses in the Arctic coast of North Norway, which had a floor area of 25 m^2, were built for two or more, even for six families and housed 16-20 inhabitants (Helskog 1984: 65). I find it natural to associate the number of hearths with the number of families living in the house and thus Kuorikkikangas house would have been inhabited by two nuclear families. The families have not been static, but there must have been members of different age and also unrelated persons sharing the house for a while. We may estimate that if the house population consisted of two nuclear families with some extensions, there may have been 10-12 persons living in Kuorikkikangas house. As suggested earlier, the presence of two hearth areas does not necessarily mean that the families hung on constantly around their own hearths, but the division of work could have been practiced between the genders, and there could have been working areas in daytime which may have differed from the family lodging areas.

Corresponding pithouses in Finland and Norway

A pithouse with two or more fireplaces is still a rarity in Finnish archaeology. It is very common that the pithouses during the Middle and Late Subneolithic (ca. 3900–2500 cal. BC) do not contain any unequivocal hearths or fireplaces. However, many of these houses are so large in their floor area that they simply must have been multifamily houses. There are examples of houses that are as large as 80 m^2 or even larger (Leskinen 2002). For some reason, the pithouses in North Ostrobothnia and Lapland have often stone hearths, which are easily recognized. There also seems to be a tendency for hearths to occur more often in the houses of the end of the Late Subneolithic and the Early Metal Period than earlier (cf. Pesonen 2002).

The nearest counterparts to Kuorikkikangas house are found in Lapland, North Ostrobothnia and northern Norway. The houses at Poikamella in Sodankylä, Lapland, and at Myllymaa 2 in Enontekiö, Lapland, were almost similar in size and both of them contained two hearths and had two entrances. These are dated to the Early Metal Period, and thus they are perhaps only 200-300 years younger than Kuorikkikangas house. (Lompolo 2002: 100-106; Halinen 1995: 79-82.) An almost similar house foundation was excavated also at Kotaniemi E in Kuusamo, North Ostrobothnia and it is dated also to the end of Late Subneolithic (Viljanmaa 2004). In northern Norway, several house forms are featured during the Subneolithic. The most similar and also a contemporary house-type is the so-called Nyelv-house (Olsen 1994: 71-2).

It has been suggested that during the end of the Subneolithic, the number of houses in the villages decreased and larger, multifamily houses were taken into use in various parts of Europe. This is thought to be a result of increased stability of the settlements and more complex social relations brought with sedentism (see Leskinen 2002: 168-9 with references). Since we do not know the situation in southern Lapland before or after the use of the Kuorikkikangas house, it is premature to make any conclusions about sedentism on the basis of one house alone. The suggested use of the house only in wintertime, though, points to an economy which was not so sedentary. It is though possible that people occupied the house in the winter, but spent their summers by the shore of the lake. To check this possibility, the quartz material from the excavation areas closer to shore should be compared with the quartz finds from the house in order to find out if there are any refits to be found. This would give invaluable information also on the stage of sedentism in the site.

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Om socialt kön i Amhult: en tidigneolitisk boplats i genderperspektiv

Anna Gustavsson, Lillemor Olsson & Stig Swedberg

Abstract. *When archaeologists discuss neolithization and early Neolithic settlements, it is still often from a traditional point of view, in terms of schematic gender-roles and a strict separation of the distribution of work between the sexes. In our opinion the gender perspective is a necessary complement. The aim of this article is to present an alternative picture and to show how this can methodically be done, by using the results from the recently excavated settlement To 110 Amhult, Gothenburg. We also want to suggest a pattern of similar settlements along the Swedish and Norwegian coastline, where the symbols of agriculture were well-known, i.e. the use of pottery, even though cultivation of the land not yet had become part of the economy. The general picture shows a stable hunting and gathering economy in this area, while in the south of Sweden agriculture is already being adopted.*

Keywords: *Neolithic, social organisation, gender, method, Swedish west coast, regional context*

Inledning

När arkeologer diskuterar neolitiseringsprocessen och samhällets sociala strukturer under tidigneolitikum görs detta fortfarande alltför ofta utifrån traditionella, stereotypa och okritiska antaganden om arbetsfördelningen mellan könen. I dessa antaganden framställs män som den aktiva gruppen som jagar, fiskar, tillverkar redskap och är öppen för innovationer. Kvinnor tenderar att beskrivas som passiva, mer hembundna varelser vilka samlar växter, tillverkar keramik, passar barn och tar liten del av samhällsutvecklingen. I artikeln presenterar vi hur ett metodiskt undersökningsarbete kan ge alternativ till denna bild.

Fig. 1. Hisingen i Göteborg, där den undersökta boplatsen To 110 Amhult var belägen.

Under förberedelsearbetet inför undersökningen av To 110 Amhult var vi medvetna om att tillämpande av ett genderperspektiv var nödvändigt för att problematisera bilden av de tidigneolitiska samhällena. Lika viktigt var att koppla samman teori och metod på ett tillfredställande sätt. Metodologiskt innebar det, i enlighet med Susan Kents (1987, 1998, 2001a) teorier, en relativt noggrann insamlingsstrategi. Genom denna kan fyndspridningsskillnader, representerande förändrad aktivitet över tiden och rummet, identifieras. Detta intrasiteperspektiv kan sedan tolkas i ett regionalt såväl som interregionalt perspektiv.

Neolitisering

Neolitiseringsprocessen i Skandinavien har flitigt debatterats och flera förklaringsmodeller har tagits fram för utvecklingen i området. De bygger ofta på klimatologiska eller ekologiska argument (exv. Zvelebil & Rowley-Conwy 1986; Zvelebil 1998). I diskussionerna har ofta domesticering av djur och växter samt förekomsten och användandet av keramik använts som indikatorer på ett jordbrukande samhälle. I västsverige är det inte möjligt att hävda domesticering av djur från denna tid varför keramikintroduktionen får en avgörande betydelse för diskussionen om neolitisering. Det är därför viktigt att skapa förståelse för hur och varför den introducerades. Att därifrån automatiskt definiera boplatser med keramik som ”neolitiserade” är en annan sak.

Även teorier om ideologiskt bakomliggande orsaker för jordbrukets inträde har presenterats. Forskare som Julian Thomas (1988) och Christopher Tilley (1996) har argumenterat för att neolitiseringen ska ses som en ny ideologi som omformade de mesolitiska samhällena, medan Ian Hodder (1990) ser den som ett nytt uttryck för hierarkiseringen av det vilda och det tämjda. Att börja odla skulle i förlängningen kunna ha hört samman med social status och maktlegitimerande uttryck. Bröd och öl, exempelvis, kan ha haft rituell betydelse och fungerat som en form av socialt kapital (Petersson 1999: 78). Det har förmodligen varit mycket stora skillnader mellan olika grupper med avseende på vilka innovationer och idéer man anammade och hur snabbt detta skedde (Tilley 1996: 71).

Den generella bilden som ges utifrån de studier som gjorts, visar ett stabilt samlar- och jägarsamhälle på svenska västkusten under senmesolitikum. Under samma tid har vi i södra Sverige en jordbruksekonomi. Det finns alltså stressfaktorer för jägar- och samlarsamhällen under senmesolitikum. Dessa bör ha påverkat samhällenas interna sociala mönster. Inte desto mindre tar det närmare tusen år innan fyndmaterialet på västkusten ändras på ett sätt som indikerar en samhällsförändring. Enligt vår mening är genderperspektiv ett nödvändigt komplement till den rådande bilden.

Gender

En av de mest grundläggande premisserna inom genderteori är idén om socialt kön, där kön framställs som en social konstruktion och som något ickestatiskt. Den gemensamma utgångspunkten för de flesta riktningarna inom genderforskningen är att de anser att olika samhällsroller och även könsrelaterade roller uppkommer i ett samhällssystems ideal och normer. De tar avstånd från den förenklade synen på det biologiska könet som underlag för de roller individer innehaft i historiska såväl som samtida samhällen. Det finns alltså ingen ”naturlig” begränsning för de olika genuskategorierna. Begränsningarna som finns utgörs istället av olika kulturella uppfattningar om vad som är gender och är således föränderliga över tid och rum. Trots detta framställs förhistoriska samhällen ofta på ett stereotypt sätt. Det finns i den gängse litteraturen ett övermått av okritiska antaganden om arbetsfördelning mellan könen under förhistorien. Genom denna föreställning har man tolkat det arkeologiska materialet och på så sätt tilldelat objekt, redskap och sysslor gendertillhörighet. Ett sådant synsätt tenderar att generalisera mäns och kvinnors erfarenheter. Det finns t.ex. ingen anledning att anta att skinnberedarna –vilka de än var– inte tillverkade sina egna redskap eller att de som jagade inte tog hand om och passade sina barn. Enligt Louise Ströbeck (1999) är en av genderperspektivets roller inom arkeologin att problematisera arkeologiska föreställningar om gender enligt tidigare normer. Det är möjligt, med genderperspektivet som hjälpmedel, att främja nyanserade tolkningar och öka våra kunskaper om människors förhållande till varandra under förhistorien. Ett sätt att göra detta är att ställa frågorna ”Vem gör det?” och ”För vem görs det?” i en analys av samhällssystem i förändring. Detta bör kunna användas även i ett mer småskaligt sammanhang.

Den hypotetiska modell Kent (1998) föreslår utgår från två huvudantaganden: Social komplexitet bestämmer organiseringen av rummet, speciellt avseende uppdelning och segmentering. Studier har visat att ett samhälles sociopolitiska organisation kan avläsas i dess materiella kultur och beteende. När ett samhälles sociopolitiska komplexitet ökar blir kulturen, beteendet och rumsutnyttjandet mer segmenterat.

Genom att studera beteende, exempelvis rumsutnyttjande, kan detta således visa på samhällets sociopolitiska organisation. För att kunna göra detta måste en förståelse för platsens karaktär, kort- eller långvarig vistelse, funktionsspecifikt läger eller basläger uppnås. Detta eftersom syftet med vistelsen påverkar den materiella kulturen och därmed de artefakter som en gång kvarlämnades.

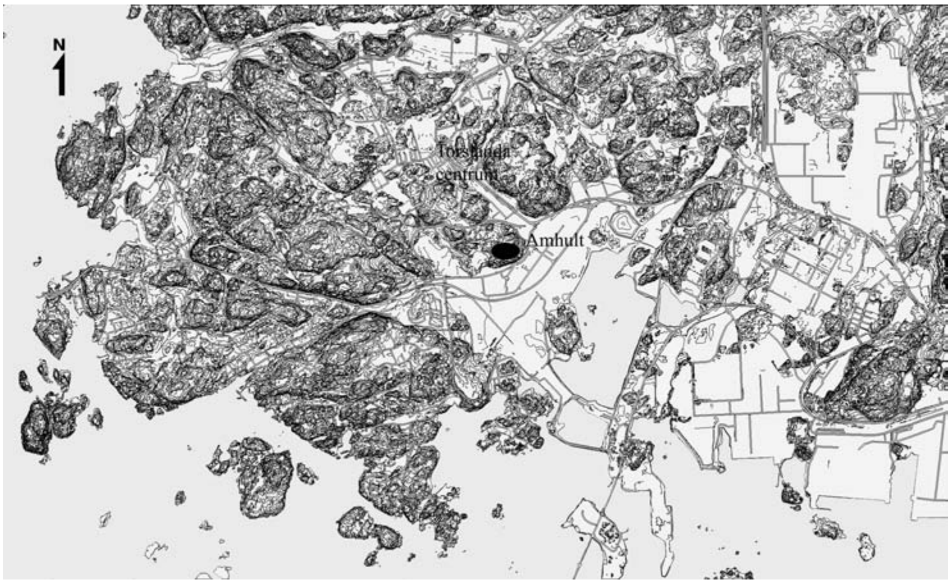

Fig. 2. Boplatsen idag.

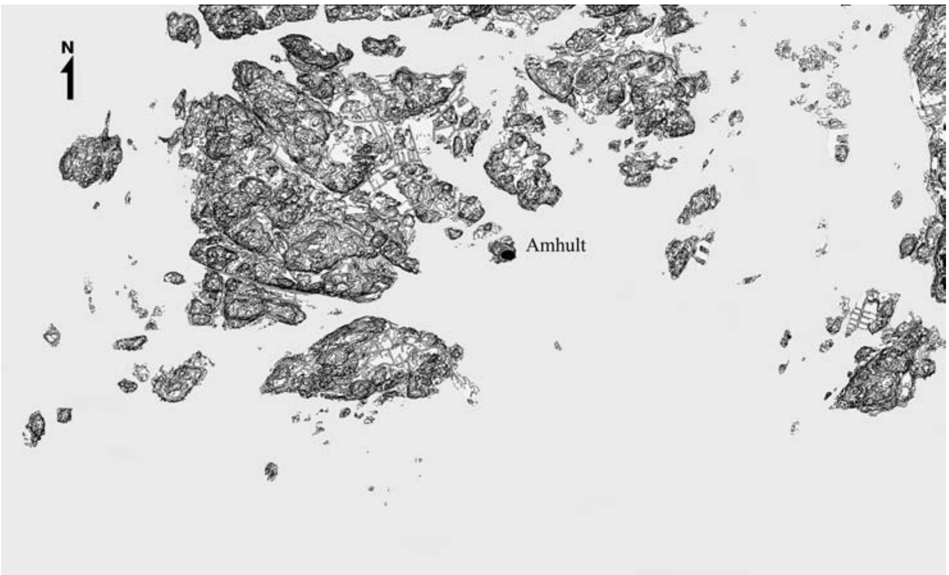

Fig. 3. Boplatsen i en stenåldersmiljö. Havsytan är simulerad till 18 meter.

To 110 Amhult

Våren och sommaren 2003 undersöktes den tidigneolitiska boplatsen i Amhult. Boplatsen låg vid yttersta udden av ett låglänt bergsparti på den sydvästra delen av ön Hisingen utanför Göteborg. Under neolitikum var boplatsen i Amhult belägen vid en väl skyddad strand på en liten ö i den dåtida skärgården.

Vid förundersökningen 2002 framkom på den cirka ett hektar stora boplatsytan anläggningar samt en mycket stor mängd fynd inom boplatsens högsta parti. Detta parti hade inte tidigare varit odlat. Utmärkande för fynden var tvärpilspetsar samt keramik. Vid slutundersökningen 2003 bestämdes att denna yta, motsvarande 500 m^2, skulle prioriteras.

Den primära boplatsytan avbanades genom att tre schakt, cirka 3 meter breda, togs upp. Inom denna framkom ett femtontal anläggningar. I den norra delen påträffades en hyddbotten och direkt nordost om denna fanns ett omfattande kulturlager samt en eldstad. Ytterligare en eldstad framkom sydost om dessa. De två eldstäderna samt kulturlagret har daterats till 5051±40 och 5175±45 BP. I den sydvästra delen framkom ett par svårtolkade anläggningar, mörkfärgningar, som eventuellt kan tolkas som kulturlagerrester. En av dessa har daterats till 5000±45 BP.

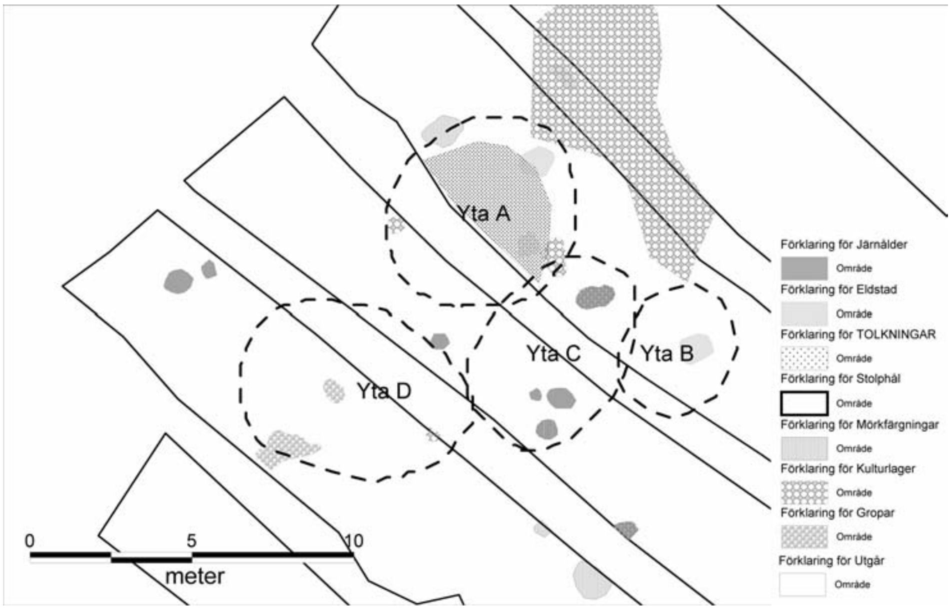

Fig. 4. Anläggningar inom boplatsens primäryta. Den halvcirkelformade anläggningen i övre delen av bilden är hyddbottnen. Dess västliga begränsning går förmodligen i området för profilväggen. Vid borttagandet av profilen kunde det dock inte fastställas med säkerhet. De streckade linjerna indikerar föreslagna aktivitetsytor.

Fyndmaterialet i de tre schakten var relativt homogent, då i stort sett alla fyndkategorier finns representerade över hela den undersökta ytan. Vid en närmare granskning av fynden och dess relation till anläggningarna har vi kunnat göra en preliminär urskiljning av några olika aktivitetsytor. Yta A – D (Fig. 4). Det bör påpekas att detta är en preliminär tolkning av materialet och dess spridningsbild. Den är enbart baserad på grävenhetstillhörighet, inte lager eller fyndnivå. Resultatet baseras således på en totalackumulation av fynd där mindre nyanser i aktivitetsutnyttjande inte kan urskiljas och inte heller förändring över tid.

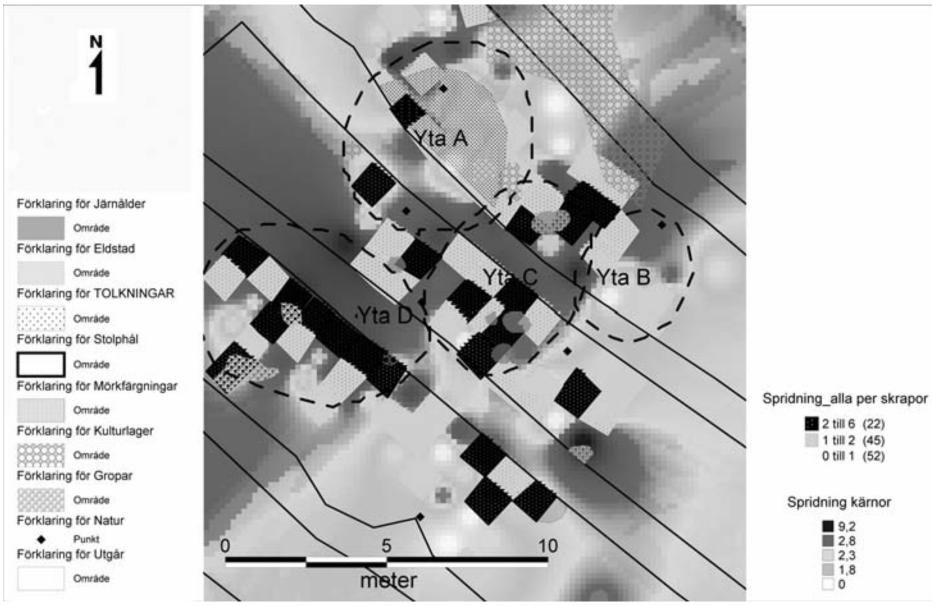

Fig. 5. Fyndspridningen i området illustrerat genom spridning av kärnor, som yttäckande färg med mörk nyans markerande högsta förekomst per enhet. Fyllning av respektive grävenheter markerar mängden skrapor per enhet, även här markerar mörkare nyans högre antal.

Yta A – bostaden

Yta A i den norra delen av undersökningsområdet, utgörs av området kring en hyddbotten. Anläggningarna består av en grop, en eldstad, en mörkfärgning och ett kulturlager. Den nordöstra eldstaden tangerar hyddbottnens nordöstra gräns och ligger i anslutning till kulturlagret. Detta har i sin tur legat direkt i anslutning till den dåtida stranden.

Inom hyddan förekommer betydligt färre fynd, framför allt vad gäller avslagsmaterial och splitter, än i området i övrigt (Fig. 5). De fynd som uppträder inom hyddan förekommer framför allt i hyddans utkanter vilket kan tyda på att man städat och därför sopat undan ”skräp” till mindre iögonfallande utrymmen. I hyddans mitt finns dock en koncentration av förarbeten till tvärpilar.

Nordväst om hyddan förekommer en koncentration av flinta och keramik i anslutning till en mörkfärgning. Den ökade förekomsten av splitter, kärnor och tvärpilar kan vara en antydan om att det är fråga om redskapstillverkning. Mörkfärgningen kan vara ett resultat av den specifika aktivitet som alstrat flintfynden, men den kan också vara orsakad av vittrad keramik. Detta skulle då föra tankarna till tillverkning eller förvaring av keramikföremål.

Yta B – matlagning

Yta B är orienterad omkring en eldstad och förefaller någorlunda städad. Det finns en mindre koncentration av knivar och skrapor vilka sammanfaller med varandra i ett mindre område (Fig. 5). Även en del keramik påträffades här. Ytans närhet till hyddbottnen, eldstadsanläggningen samt fyndsammansättningen antyder att det här kan röra sig om en aktivitetsyta som inbegriper matlagning.

Yta C – redskapstillverkning

Yta C är centralt belägen mellan yta A, B och D. Inom ytan finns en ökad koncentration av flera fyndkategorier, avslag, splitter, kärnor, tvärpilar, skrapor och i viss mån även knivar (Fig. 5).

Spridningsbilden kan tolkas som att man suttit och tillverkat sina redskap på en specifik plats, men tillverkningen verkar snarare ha skett i anslutning till de olika aktiviteterna. En sådan tolkning innebär att yta C i en kommande analys kan utgå till förmån för aktivitetsspecifika slagplatser i anslutning till de tidigare redovisade ytorna (se nedan samt Fig. 6).

Yta D – beredning av organiskt material

Det finns inom yta D en sammansättning av redskap som ger en indikation om bearbetning av organiskt material, nämligen knivar och skrapor (Fig. 5). Här påträffades en tredjedel av det totala antalet skrapor och knivar. En annan intressant kategori fynd som påträffades i större mängd inom yta D är kärnor, drygt en fjärdedel. Detta kan vara en indikation om att man slagit till sina redskap direkt på platsen även om det också skulle kunna vara ett tecken på att platsen ska tolkas som en regelrätt slagplats. Vad som framförallt talar emot detta är dock att den fyndkategori som ändå får sägas dominera boplatsen, tvärpilar, inte är representerad här i lika stor utsträckning som på övriga ytor. Detta indikerar en aktivitetsindelning där tillslagning av tvärpilar inte fyller en funktion.

Keramik förekommer inom yta D och har en relativt jämn spridning över ytan. Möjligtvis indikerar det att ytan i själva verket utgör ett utkastlager. Detta skulle kunna förklara att det inom ytan finns ett kulturlager, en jämn spridning av keramik men inga egentliga strukturer. Även denna tolkning innebär dock att den lägre frekvensen av tvärpilspetsar behöver förklaras.

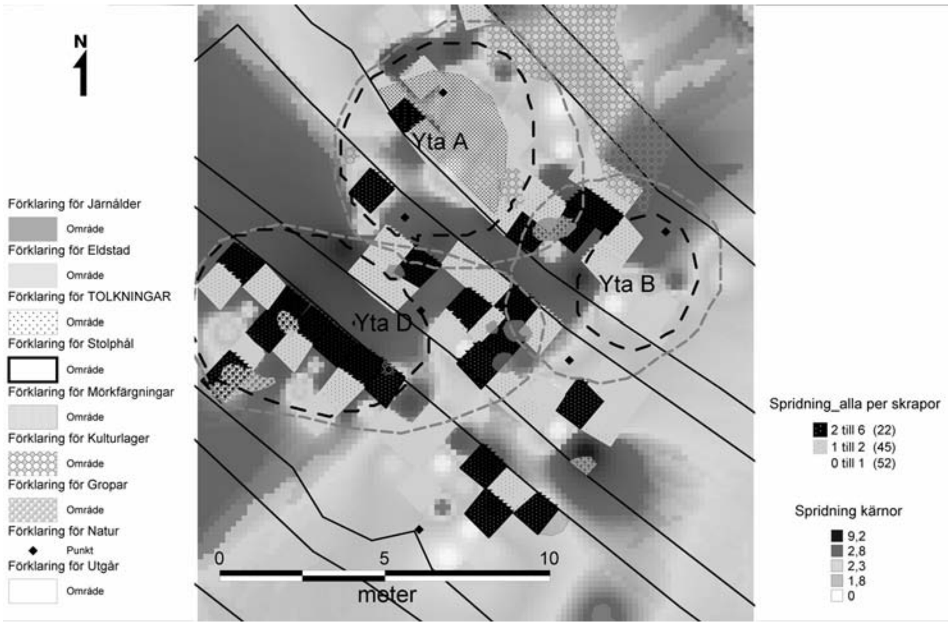

Fig. 6. Alternativt förslag till tolkning av aktivitetsytor inom boplatsen.

Det regionala perspektivet

Vår intention har även varit att belysa boplatsen i Amhult ur ett regionalt perspektiv. Nedan följer ett mindre urval av platser med ett jämförbart material som kan representera livet under den tidigaste fasen av neolitikum (Fig. 7). Frågan är om dessa lokaler även användes under senmesolitikum och om de kan sättas in i ett större sammanhang.

Inom Göteborgs kommun finns två boplatser som det ofta hänvisas till när övergången mellan SM och TN diskuteras, Ängås i Västra Frölunda (Andersson 1973b) och Lilleby i Björnlanda (Andersson 1973a). De undersöktes i början av 1970-talet av Stina Andersson och både boplatsernas läge och fyndmaterialet är slående likt det i Amhult. På båda platserna fanns ett tydligt kulturlager med neolitiska fynd och en stor mängd tvärpilar. Lagren föreföll avgränsade och fynden tycktes härröra från en sluten kontext – en boplatsfas. Under kulturlagren på Ängås och Lilleby fanns sandiga lager med svallad flinta. De bedömdes vara från mesolitkum, men grävdes inte ut på grund av tidsbrist. Enligt då rådande paradigm ges som väntat ingen utförligare tolkning av boplatserna. Utifrån de relativt knapphändiga uppgifterna skulle vi kunna anta att det på de här platserna existerat, om inte en obruten kontinuitet, så åtminstone ett återkommande användande av samma plats.

Den allra första boplatsen med en stor mängd tvärpilar som grävdes ut i Västsverige var Hallehög i Onsala söder om Göteborg (Alin 1923). Grävningarna leddes av Johan Alin och George Sarauw och pågick i tre säsonger under åren 1915–18. Bland fynden återfanns närmare 400 pilspetsar, samt keramik och redskap av samma typ som vid Amhult. Boplatsen var relativt stor och var strandnära. Lämningarna bestod av härdar och eventuella hyddlämningar. De flesta fynden hittades i ett enhetligt kulturlager, men själva boplatsen ansågs ändå svår att datera p.g.a. keramiken i kombination med vad som ansågs vara äldre flintföremål. De få föremål som typologiskt daterades till tidigare perioder låg inte underst i kulturlagret utan blandat med övriga fynd. Inget tyder på att människorna på Hallehög bedrivit jordbruk. Alin och Sarauw menade att den stora mängden keramik snarare tydde på kontakter med andra grupper. Vidare applicerade de faktiskt genderaspekter på materialet eftersom de poängterade att de genom keramikfynden kan synliggöra kvinnorna i stenålderssamhället.

Det finns naturligtvis jämförbara lokaler även utanför kommunens och landets gränser. I Haldens kommun i Norge grävdes boplatsen Berget 2 ut år 2001 under ledning av Vanja Törhaug. Enligt strandlinjekurvor, typologiska dateringar och paralleller till andra boplatser i Norge och Sverige, som Ängås och Lilleby, daterades boplatsen till SM/TN.

Boplatsen Berget 2 var kustbunden under tidigneolitikum. Det fanns inga spår efter kulturlager eller eldstäder, å andra sidan var marken kraftigt urlakad. Bland de relativt få fynden fanns tvärpilar och keramik. Keramiken liknar trattbägarkeramik i både form och dekor. Boplatsen tycks ha varit använd under en kortare period och under en bosättningsfas. Tolkningen av Berget 2 är primärt funktionalistisk, men Törhaug diskuterar lite kring regionalitet. Det finns inga tecken på att man ägnat sig åt jordbruk. Keramiken betraktas som ett exotiskt inslag och kan indikera att man ingått i ett regionalt system och haft utbytesrelationer med platser på Sveriges västkust (Törhaug 2002).

Av de fyra här nämnda lokalerna är det sannolikt Hallehög som är enklast att jämföra med Amhultboplatsen eftersom de båda i princip totalutgrävdes. Materialet från Hallehög i kombination med våra fynd och tolkningar från Amhult kan kasta ljus över andra boplatser av samma karaktär. De ovan nämnda svenska boplatserna kan ha nyttjats under tidigare perioder, men det bör poängteras att det inte fanns några indikationer på en tydlig Lihult-fas i en eventuell boplatskontinuitet. Boplatsmönstret och näringarna tycks vara ungefär de samma som under senmesolitikum, men förändras till viss del. Givetvis förekom en utbredd kontakt mellan olika grupper redan under mesolitkum, men kanske manifesteras detta, liksom förändringar i de sociala relationerna mer tydligt i fyndmaterialet från tidigneolitikum.

Fig. 7. Karta över västra Sverige och södra Norge med de boplatser som nämns i texten markerade.

Diskussion och konklusion

Genom att studera ovanstående spridningsbeskrivning och aktivitetsytornas sammansättning är det möjligt sätta in boplatsen i Amhult i ett gendersammanhang. I stort sett är alla fynd representerade över hela boplatsen. En av grundförutsättningarna för att urskilja stratifiering i ett samhälle är att det vi kan studera, d.v.s. de arkeologiska fynden, har en ojämn fördelning över den studerade ytan. Om boplatsens sociala organisation varit genderstratifierad borde man, trots den stora mängden fynd, ha kunnat se tydligare avgränsningar vad gäller de olika aktiviteterna och fyndens spridning. Hyddkonstruktionen är extra intressant då den enda avgränsningen av artefakter här verkar vara att de förvaras inom samma område i hyddan. Exempelvis återfinns tvärpilar, keramik och kärnor inom samma yta. Bostadskonstruktionen uppvisar således egentligen bara ett tecken på strukturering och det är städning och gemensam förvaring.

Slagplatser är ofta identifierade som manliga aktivitetszoner. Vid en preliminär analys av Amhultboplatsen kan ett mindre antal presumtiva slagplatser urskiljas men de ligger i eller i direkt anslutning till ytor med andra huvudfunktioner. Dessa utgörs av bostad, matlagning och beredning av organiskt material. Indikerar dessa slagplatser män, innebär detta att alla aktiviteter på platsen utförts av män, då inte heller aktivitetsytorna är strukturerade. En rimligare tolkning är emellertid att de personer som utfört de olika aktiviteterna, i anslutning till dessa även skapat och omskapat sina redskap. En befintlig uppdelning hade kunnat tyda på genderstratifiering men det skulle även kunna ha haft rent praktiska orsaker.

Det är dessutom omöjligt att dela upp gender i så strikta termer som man–kvinna. Det finns anledning att anta att gender kan ha utgjorts av många fler kategorier så som ålder, släktskapsgrupper, androgynitet etc. (Kent 2001a, 2001b). Kent talar i sina etnografiska analogier om genderstratifierade jägar/samlargrupper i södra Afrika, där gender framförallt har en social funktion. Gender har här en stor betydelse i baslägren. I de mindre säsongsbaserade ”familjelägren” är genderrollerna fortfarande ideologiskt viktiga men fungerar inte i praktiken. Då Amhult är en boplats som nyttjats under en relativt lång tid och är av förhållandevis stationär karaktär borde en genderstratifiering ha avspeglats i fyndmaterialet.

När det gäller det regionala perspektivet talar mycket för ett mönster av likartade kustnära boplatser i både Sverige och Norge med utbredda kontakter och utbyten, där man kände till jordbruket och dess symboler men inte själva odlade jorden. Det är känt från flera antropologiska studier att olika grupper inom samma region kan uppvisa relativt olika levnadsmönster sinsemellan, trots en likartad ekonomi. I materialet från svenska västkusten kan vi påvisa att även om boplatsen i Amhult uppenbarligen hade goda kontakter ur ett regionalt perspektiv, så uppvisar den inga tecken på vare sig ekonomisk eller socialt baserad förändring. De innovationer som accepteras är ett medvetet val av gruppen som överensstämmer med den sociala struktur man lever inom. Kanske är det kombinationen av en stark social organisation och en god ekonomi som gör att samhällena i denna region ser annorlunda ut än liknande samhällen i Skåne och Danmark vid samma tid.

Innebär en genderanalys att vi är hänvisade till en positivistisk bild där stenåldern befolkas av androgyna människor istället för kvinnor och män? Om så är fallet, har då arkeologin någon relevans som samhällsvetenskap? Vi vill hävda motsatsen! Vi kan och skall, precis som Alin och Sarauw, använda oss av vår kunskap och nutida samhällssyn för att tolka materialet. Deras tolkning av Hallehögsmaterialet är spännande eftersom den faktiskt är ett exempel på en mycket tidig genderanalys av ett stenåldersmaterial. Den utgör dessutom en källa till fördomsfulla tolkningar inom vår vetenskapsdisciplin och inte minst säger den oss mycket om det samhälle den skapades i:

> Boplatsens material i flinta och sten representera huvudsakligen männens verksamhet, med lerkärlen ha vi även fått vittnesbörd om stenålderskvinnornas arbete, ty säkerligen fingo dessa själva tillverka hemmets uppsättning av kärl. Allt vad den tidens flitiga husmödrar och 'hemmadöttrar' åstadkommit av flätning och vävnad är länge sedan multnat, men vad deras flitiga händer för mer än 4000 år sedan formade i lera finnes ännu delvis bevarat, vittnande om deras allvarliga strävan att skapa trevnad och skönhet vid hemmets härd *(Alin 1923: 111).*

Det finns således all anledning att diskutera gender- och samhällskonstruktioner om vi menar att arkeologin har en roll i dagens samhälle. Det är en utmaning att våga tolka ett material, att tydliggöra vad vi anser viktigt att diskutera samt att vetenskapligt belysa detta. Att inte kunna påvisa strukturer, så som gender, är ur detta perspektiv lika intressant som att kunna göra det.

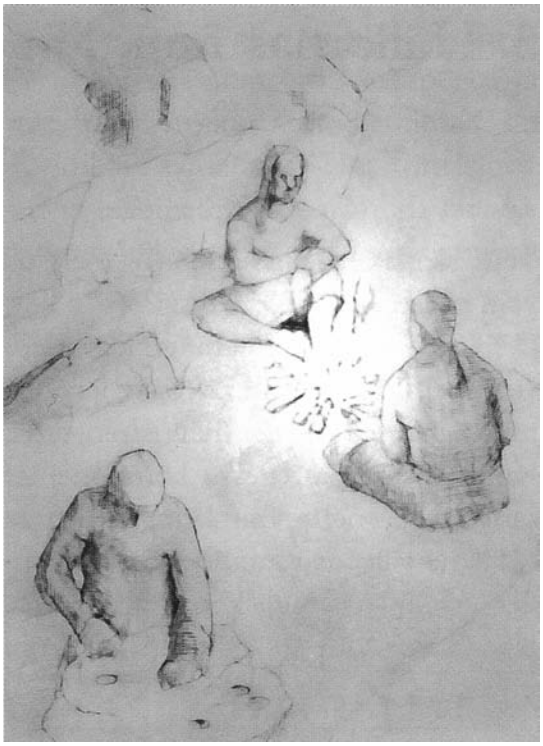

Fig. 8. Vilket gender illustreras? Illustration av Johannes Nieminen.

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Petsamo Maattivuono Rotojoki: two Late Stone Age dwellings excavated by Sakari Pälsi in 1929

Oula Seitsonen

Abstract. *The archaeological research conducted by Finnish researchers in Petsamo is briefly summarized in the article. The Maattivuono Rotojoki Late Stone Age dwelling site found in 1928 by geologist Väinö Tänner and excavated in 1929 by archaeologist Sakari Pälsi is described in more detail. The excavated dwelling depressions and their find material are presented, and some notes are made about the lithics use and intra-dwelling patterning. Also the environmental setting of the site is scrutinized and contrasted with a comparable site situated at the mouth of Drozdovka fjord on Kola Peninsula. Placement next to rapids and waterfalls seems to have had some relevance for the inhabitants of these sites. These kinds of places might have had both economical and spiritual meaning; especially the seasonal fish spawning runs might have been of importance.*

Keywords: *Stone Age, Arctic, Petsamo, Kola Peninsula, Gressbakken houses, lithics*

Geologist Väinö Tanner published in the journal *Finskt Museum [Finnish Museum]* 1928 some ‘arctic Stone Age’ remains he had observed on the shores of Maattivuono fjord in Petsamo. Inspired by Tanner's finds, archaeologist Sakari Pälsi excavated two of these dwelling remains in the summer 1929.

The archaeological research conducted by Finnish researchers in Petsamo is briefly summarized in this article. The 1929 research by Pälsi, the excavated dwellings, and their find material will be described in more detail. Some notes are also made about the lithics use and intra-dwelling patterning and the environmental setting of the site.

Archaeological fieldwork in Petsamo in the Finnish times

When Petsamo was joined to Finland in 1920, many scientists and ethnographers found there a new exciting field of work. Archaeologists, unfortunately, never really became interested in the area. Probably this was caused by its distant location, and the fact that there was only a limited number of working archaeologists in those times in Finland, occupied with fieldwork in more ‘central’ areas.

Already in 1922, conservator Matti Kampman had done some inspections and trial excavations on a tourist trip to Salmijärvi and Höyhenjärvi. Norwegian researchers Anders Nummedal, Gutorm Gjessing and geologist Väinö Tanner found in 1926 and 1928 a couple of sites that belonged to the ‘arctic Paleolithic’, the Komsa culture. In 1928, Tanner also mapped in the Maattivuono area the Late Neolithic Rotojoki site and one historical Sami-dwelling site (Fig. 1). (Carpelan et.al. 1998.)

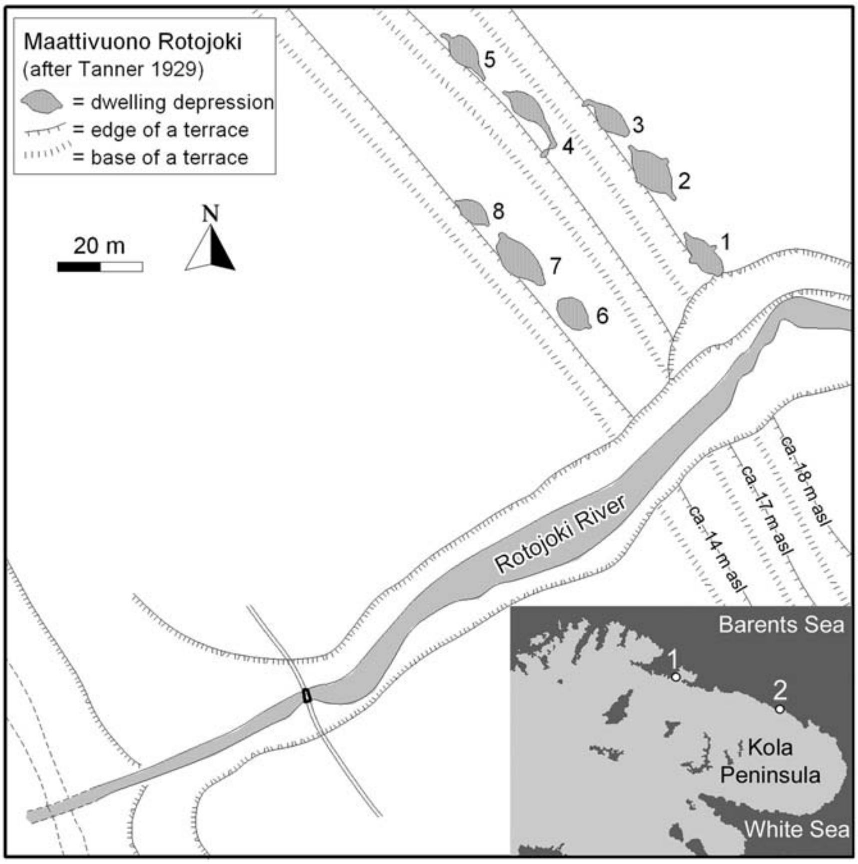

Fig. 1. General map of the Rotojoki dwelling site (illustration by O. Seitsonen after Tanner 1929: 14), and the location of the Maattivuono Rotojoki site (1) and a reminiscent site at the mouth of the Drozdovka fjord on the Kola Peninsula (2).

There were only actual archaeological excavations conducted by Finnish researchers in the Petsamo area when it belonged to Finland. Inspired by Tanner's observations, Sakari Pälsi made a field trip to Petsamo in the summer 1929. During the trip Pälsi collected stray finds, inspected find places, made a couple of small test excavations, and excavated two of the dwelling depressions at Rotojoki. Later Pälsi published a travel book, *Petsamoon kuin ulkomaille* (1931), of his field trip. The second and last archaeological expedition to Finnish Petsamo was made by Jorma Leppäaho in 1934. He also collected stray finds and conducted one small excavation. (Pälsi 1929; Carpelan et. al. 1998.)

The Maattivuono Rotojoki site

The Rotojoki site is at the mouth of the river Rotojoki (Gröttug) in the Maattivuono (Mädde'vuonn) fjord on the Fisher Peninsula on the shore of the Barents Sea. The site was found by Väinö Tanner in the summer of 1928. Eight dwelling depressions were observed on three beach terraces on the north side of the river Rotojoki and the adjacent waterfall. The terraces are situated at the elevations of about 14 m, 17 m and 18 m asl. (Figs. 1-2) (Tanner 1929.)

There are three depressions on the highest terrace, two on the middle terrace and three depressions on the lowermost terrace. The longitudinal axes of dwellings are parallel to the edge of the terraces. There are two or more doorways visible as slight depressions in the embankment of the dwellings. (Tanner 1929.) The depressions represent the typical late Stone Age dwelling remains found on the coast of Finnmark, so-called Gressbakken houses.

A preliminary shoreline displacement dating of the occupation terraces falls between about 4000 and 3000 BP based on the geological studies done at the Fisher peninsula (Møller & Holmeslet 1997). This is well in accordance with the general dating of the Gressbakken house type.

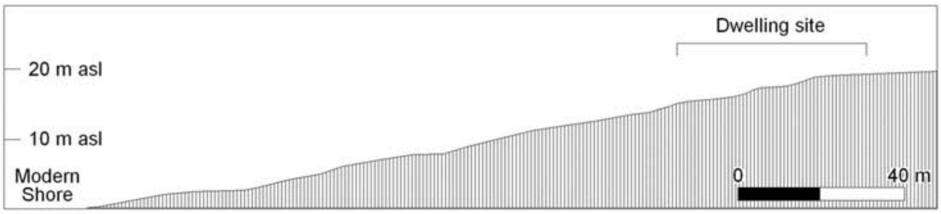

Fig. 2. Profile through the Rotojoki dwelling site.

Pälsi's excavation

Pälsi excavated the depressions number 6 and 1 in Figure 1. The former depression is situated on the lowest and the latter on the highest terrace. Both depressions were the southernmost ones in the lines of three dwellings. In both of these lines, the depression in the middle is the largest, and ones at the ends are a little smaller. (Pälsi 1929; Tanner 1929.)

Even though Pälsi probably excavated the depressions relatively rapidly using shovels as primary tools, he seems to have done this reasonably watchfully since there are plenty of small quartz pieces and faunal remains in the assemblage. Careful excavation methods are also witnessed by the photographs: Pälsi seems to have attempted to follow the stratigraphic layers while removing the deposits. Photographs also show that he revealed the observed structures vigilantly. In the following I have used the same names as Pälsi when describing the different parts of the dwelling remains (translations from Finnish by the present author).

Depression 6 was one of the smallest in the Rotojoki group, about 5 x 8 m. No structural remains were observed in the excavation. The finds from the dwelling included a bit more than one hundred quartz artefacts, faunal remains, soot and charcoal. The dwelling seemed to have been divided into two *rooms*. The floor of the *back room*, the northernmost part of the depression, was little higher than the floor of the *ante room*. (Pälsi 1929.)

Depression 1 was situated on the edge of the highest terrace, closest to the waterfall. River had eaten the terrace on the southern side of the dwelling and destroyed the southern *passage-way* of the dwelling. This could be the reason why Pälsi decided to excavate this specific depression. In the excavation a dwelling remain with exceptionally well preserved structural features was revealed. Find material from this dwelling was also more varied than in the former. (Pälsi 1929.)

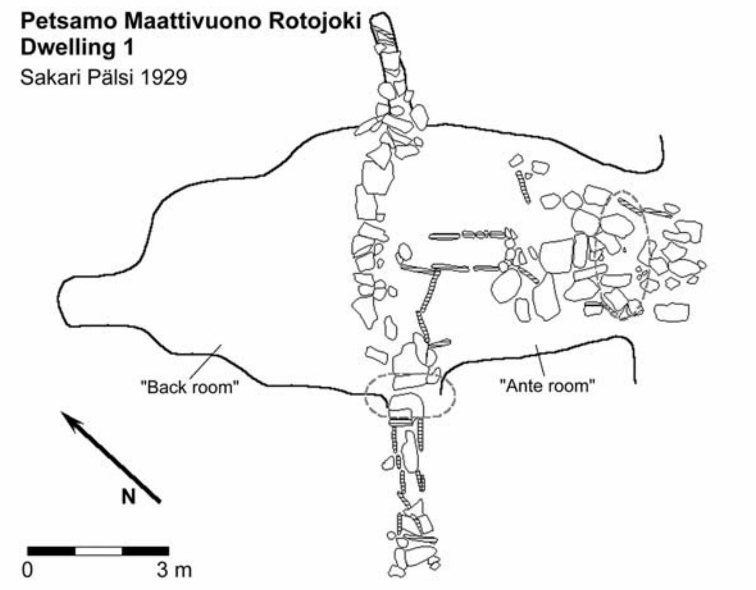

Fig. 3. Dwelling remain 1. Stone slabs raised on their edge are marked with the lineation. Approximate areas where raw material nodules were found are marked with grey ovals. (Illustration by O. Seitsonen after S. Pälsi's notes.)

Dwelling 1 was somewhat larger than dwelling 6, ca. 5,5 x 12 m. It had also been divided into two rooms, the southern ante room and the northern back room (Fig. 3). This division had partly been done with upright stone slabs. There were four passage-ways leading out of the dwelling, one in each wall. The passage-way walls were reinforced with stone slabs raised on their edge. The floor of the ante room had been paved with stone slabs, and a stone pavement also connected the SW and NE passages through the middle of the dwelling. In the center of the ante room, there was a rectangular fireplace constructed of raised stone slabs. On the NW side of the fireplace, there seems to have been a partition wall that had been partly constructed of raised stone slabs. Next to the SW wall appears to have been a doorway leading from the ante room to the SW passage. The floor of the back room was little lower than the floor of the ante room. (Pälsi 1929.)

All the slab constructions were made of natural stone slabs that are found along the shores of Maattivuono. At the time of Pälsi's excavation, similar stone slabs were used by the locals to construct floor pavements to ante rooms of sod houses and to pave front yards. (Pälsi 1929.) It is of special interest that neither of the dwelling remains represents the archetypal Gressbakken house type with two stone-lined fireplaces. Whether this is due to temporal and/or geographical variation is worth further examination.

Find material

Pälsi (1929) recorded the finds by the *room* or *passage-way* from which they were recovered. He also mentions that the finds mostly came from the floor levels of the dwellings. Based on this and assuming that the dwelling remains derive from one structural period, instead of being remains of several overlapping dwellings, we can make some cautious observations on the use of the different parts of the dwellings. At least Pälsi did not observe any signs of depressions being remains of overlapping structures.

Even though the diversity and number of finds is small, there are some interesting notes that can be made from the material. It is attention-grabbing that the general spatial distribution of finds follows similar trends in both dwellings even though they are situated on different terraces. This could mean that if they are dated to different periods, as is easily assumed on the basis of shoreline displacement, the intra-dwelling pattern has stayed roughly similar, or that they are dated to the same period of occupation.

All the faunal remains, burned bone fragments, came from the back rooms of the dwellings, apart from a single unburned bone found in the middle of the ante room in dwelling 1. Most of the faunal remains are remnants of the long bones of large mammals. The solitary bone found in the ante room of dwelling 1 was the first or second phalang of a large sea mammal (possibly walrus). There are hardly any fragments which are osteologically determinable in the whole assemblage (Puttonen, pers. comm.).

Two round pieces of pumice were recovered from the dwellings, in the back room of dwelling 1 and the ante room of dwelling 6. The one from dwelling 6 showed signs of use (Fig. 4a). A net sinker was also found in the mouth of the SW passage in dwelling 1 (Fig. 4b).

A majority of the quartz material came from the ante rooms (91 % in the dwelling 1 and 84 % in the dwelling 6). A vast majority of all the quartz material in both dwellings is flakes. There were no other formal tools found in the assemblage except for one scraper from the ante room of dwelling 1 (fig. 4c), but there were four pieces with informally retouched cutting edges and a number of flakes utilized for both scraping and cutting type of activities.

Table 1. Quartz artefacts in the assemblage.

	dw.1	dw.6	Σ (100%)
tools	3	2	5
	1 %	1 %	1 %
cores	1	6	7
	0,4 %	4 %	2 %
nodules	11		11
	5 %		3 %
flakes & utilized pcs	221	161	382
	94 %	95 %	94 %
Σ (100%)	236	169	405

Some large quartz nodules that had been roughly knapped, possibly to test the quality of raw material, were found in dwelling 1. Most of them were close to the mouths of SW and SE passages and a couple in the back room. All of these were water-rolled nodules that can typically be found on the stony beaches on Barents Sea shores. It is impossible to know without visiting the site whether the nodules have been brought to Rotojoki from some other location or if they could be found on the shores also there. In the back room of dwelling 6 two irregular cores knapped from various directions were found; they were also derived from water-rounded nodules. Bipolar cores were found from both ante and back rooms.

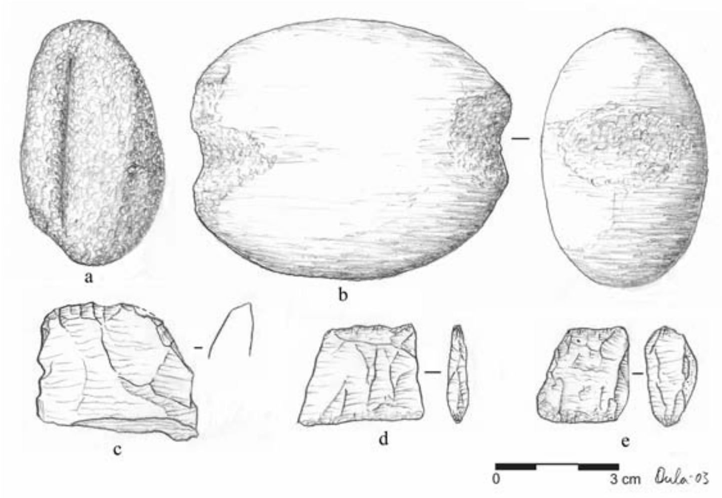

Fig. 4. Some artefacts from the Rotojoki excavation. a. grooved piece of pumice (dwelling 6); b. net sinker (dw. 1); c. quartz scraper (dw. 1); d-e. bipolar quartz cores (dw. 6). (Illustration by O. Seitsonen.)

Lithics use at the site

The lithics use pattern at the Rotojoki site seems rather informal. This is attested by the lack of formalized tool types, as well as the sole reliance on quartz, even though raw materials of better quality could have been available not far away (Hood, pers. comm.; Murashkin, pers. comm.). This might have been caused e.g. by the convention of using quartz, use of organic raw materials, or by the availability of metal tools. Quartz reduction is often described as being rather opportunistic in the sense that it lacks formal tool types: the functionality of a piece has been more important than its shaping. Therefore, quartz reduction differs notably from knapping of what archaeologists often label as ‘better’, more fine-grained and homogenous raw materials. Quartz knapping has required a completely different mental template regarding lithic reduction than other raw materials like chert. (cf. Rankama 1997: 115.) The informal appearance of Rotojoki assemblage might also be simply caused by the archaeologists' preconditions that are conventionally based on the ‘better’ raw materials; a stone worker accustomed to quartz reduction and not familiar with other raw materials could have treated it just as a normal, formal assemblage.

In general the used quartz is of a coarse-grained variant with relatively numerous internal cracks. There are only a couple of pieces of less coarse grained raw material in the whole assemblage, and a few flakes of rock crystal from the ante room of dwelling 6. There are no cores or raw material nodules that correspond to the fine grained flakes or rock crystal pieces, so it seems that these were either taken away from the site, or deposited outside the excavated areas. Most probably even a quartz knapper not familiar with other raw materials would have appreciated the better controlled fracturing properties of these finer grained quartz variants with less internal cracks.

The raw material acquiring at Rotojoki seems to have been simple: nodules from the beaches are the only archaeologically observable source. The first phases of the lithic reduction sequence are also evidenced by the high number of pieces with cortex. These have been flaked straight from the beach nodules with minimal preparation to the objective piece. Some of the flakes have also characteristics typical for platform reduction waste. These seem to derive from using the flake scars of subsequent removals as the striking platform. The bipolar flakes and cores represent probably the later phases of the reduction process; bipolar cores are in general smaller than the irregular ones. A couple of the bipolar cores have water-rolled cortex on them, thus they seem to represent the end of the reduction process of the nodules obtained from the beaches. The quartz assemblage suggests in general that the reduction has gone through a multidimensional continuum from flaking of minimally prepared beach nodules through platform reduction without a specially prepared platform and instead using flake scars as a striking platform, at least in the preserved pieces, to bipolar knapping at the end of the sequence. (cf. Callahan 1987; Rankama 2002: 87.)

The lithic production in general seems to have been restricted to the ante room in both dwellings; the amount of debitage from the back rooms is relatively low. The amount of cortex on the dorsal side of flakes was also examined. The cortex percentages in both dwellings follow each other relatively closely, which could evidence a similar type of lithic reduction sequence. Based on the quantity of flakes with high cortex percentage, some of the early phases of reduction sequence might have taken place in the back rooms, where raw material nodules could have been stored, but most of the flaking was done in the ante rooms.

Intra-dwelling patterning

Even though the finds have been recorded only roughly by the *room* or *passage-way*, some general observations can be made from their spatial distribution. Based on this information, it is possible to obtain information concerning the use of different parts of dwellings.

It is probably of importance that all the faunal remains (except one unburned bone) found in both dwellings came from the back rooms, whereas most of the quartz reduction waste was found in the ante rooms. Also all the retouched quartz pieces, most of the utilized flakes and one utilized piece of pumice were found in the ante rooms. The unused raw material pieces and the net sinker were found near the mouths of the passages.

From this evidence, a pattern of dwelling use could roughly be described, where the ante room has been used for lithic reduction and working with tasks demanding the use of lithic tools like scrapers. The only scraper in the assemblage seems to have been used for working some hard material based on the kind of edge-damage observed on the working edge (with a 16 times magnifying stereomicroscope). One preserved unburned bone could indicate that the handling of carcasses took place in the ante room side of the dwelling. Conversely, all the pieces of burned faunal remains derive from the back rooms, even though for example the fireplace is in the ante room of dwelling 1. More than half of the burned bones in dwelling 1 were found close to the middle of that dwelling, from the NW end of the fireplace. Perhaps cooking or at least the handling of waste has taken place in that end of the fireplace, on the back room side of dwelling. A couple of raw material nodules found in the back room of dwelling 1 could have been stored there. The back room could also have been used for sleeping, which might be attested by the raised floor of that side of the dwelling 6 and the lack of stone pavement in dwelling 1. The unpaved floor would most probably have been covered with twigs and branches, on the basis of ethnographic examples.

The quartz raw material nodules and the net sinker could have been stored on the sides of the doorways close to the mouths of the passages; perhaps also whole nets could have been stored at these places. If the roofing of dwellings was sloping towards the sides, the areas next to the wall could have provided good storage space.

Environmental setting and subsistence

The environmental setting of the Rotojoki site is remarkably similar to another Gressbakken site that lies at the mouth of Drozdovka fjord on the Kola Peninsula (see Fig. 1; also Hood n.d.). Both sites are next to a waterfall in the mouth of a river (see Figs. 5-6; cf. Tanner 1929). Both waterfalls would have been at least rapids in Late Stone Age times. This is probably evidence of the significance of this kind of ecological setting for the late Stone Age inhabitants of these sites.

Fig. 5. Left: Waterfall next to the dwelling site at the mouth of Drozdovka fjord on Kola Peninsula, photograph taken from the large dwelling depression visible in the figure 6. Right: Sanna Puttonen and Áile Aikio examine a storage pit (fi. purnu) cleared in the boulder field next to the dwelling site. (Photos O. Seitsonen 2000.)

The placement of sites in the landscape is directed by both the social and ecological factors (e.g. Barrett 1994; Tilley 1994). Since the 1980s the theoretical trends in archaeology have been trying to raise landscape from the role of a three-dimensional stage to an active, socially created agent (e.g. Tilley 1994). How a group perceives its environment affects the actions of all the members in the group. The way man uses his landscape is not random, and it is not exclusively connected to ecological adaptations. Natural resources define in their part the distribution of sites and routes; sites must have a certain ecological bearing capacity to attract occupation (e.g. Wilkinson 1981: 253). Also social and cognitive values affect the image a group perceives of its environment (e.g. Gould & White 1974), and affect the forms of spatial behavior in the environment. The formation process of a perceived environment is schematically presented in Figure 7 (cf. Butzer 1982: 256).

Fig. 6. Mouth of Drozdovka fjord, Kola Peninsula, Russia. Knut Helskog pointing to the north in a dwelling depression. Waterfall is situated behind the photographer. (Photo: O. Seitsonen 2000.)

The importance of rapids and waterfalls to prehistoric people has been speculated, for example, in the context of rock carving sites (Goldbahn 2002). Waterfalls could also have had some kind of spiritual meaning in association to the dwelling sites like Rotojoki and the site at the mouth of Drozdovka fjord alongside the economically drawing factors. Their economic importance has probably also affected the placing, e.g. linked to the periodic fish spawning runs. Overall there seems to be a strong reliance on aquatic resources at the Rotojoki site, though this might also be skewed by the limited excavation area and the rough excavation methods applied at the time.

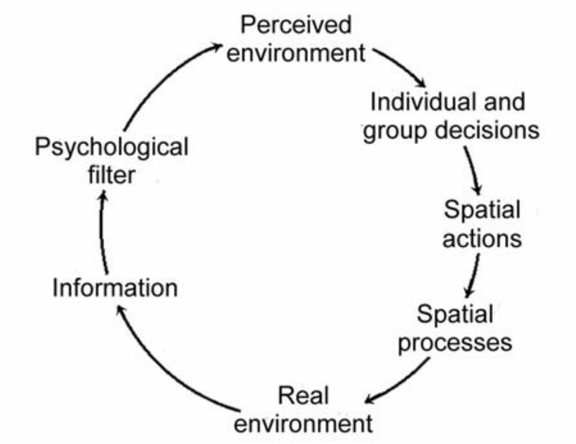

Fig. 7. Formation of a perceived environment and its effect on the spatial processes.

Conclusion

The archaeological research conducted in the Finnish period in Petsamo was briefly described in the article. Excavations done at the Maattivuono Rotojoki Late Stone Age site on Fisher Peninsula by Sakari Pälsi were described in more detail.

Some general notions about the lithic-use and intra-dwelling patterns at Rotojoki were generated on the basis of finds and their distribution. Lithic reduction sequence seems to have been mostly based on the obtaining of beach nodules as raw material. These were minimally prepared and reduced with both the platform method, using the scars from subsequent removals as the striking platform, and bipolar knapping. Used beach nodules are of a coarse grained variant with plenty of internal cracks. There have also been some finer grained quartz raw material pieces present at the site; these are represented only by flakes.

The intra-dwelling use seems to have followed a pattern where a majority of lithic reduction and tasks requiring lithic tools were performed in the ante rooms. Handling of carbonized faunal remains, storing of e.g. quartz raw material, and possibly also sleeping were conducted in the back rooms. The mouths of passage-ways seem to have been likely storage places for quartz raw material and also other implements as evidenced by the net-sinker.

Also the environmental setting of site was scrutinized and contrasted with a comparable site situated at the mouth of Drozdovka fjord on Kola Peninsula. Placement next to the rapids and waterfalls seems to have had some relevance to the ancient inhabitants of these sites. These kinds of places might have had both economical and spiritual meaning (cf. Goldbahn 2002); especially the seasonal fish spawning runs might have been of importance.

The Russian researchers who have visited the vicinity of Rotojoki site report that it is still in a preserved condition (Murashkin, pers. comm.). Further excavations of the dwelling depressions that were left untouched could reveal important information about the site in general, the intra-dwelling and lithic use-patterns, and the site dating. Also excavation of the middens surrounding the dwelling depressions could reveal new aspects of the material culture and subsistence economy at the site.

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Bejsebakken: a Bell Beaker site in northern Jutland

Torben Sarauw

Abstract. *In 1999-2000, Aalborg Historical Museum excavated a large site from the early Late Neolithic at Bejsebakken in nothern Jutland. The results are presented in this interim report. A total of 18 sunken floor huts and 5 two-aisled longhouses, a burial mound from the early Bronze Age, pits and comprehensive culture layers were excavated in a c. 77.000 sq. m large area. The find material contained large numbers of Bell Beaker influenced ceramics, pressure-flaked flint sickles, barbed flint arrowheads, type I flint daggers, flint waste, etc. Production of daggers and other flint tools is thought to have taken place at Bejsebakken. Approximately 750 meters north of Bejsebakken, a number of flint mines from the Late Neolithic Period has previously been excavated. Several dagger hoards are also known from this area, indicating its importance. This article suggests that people from Bejsebakken were involved in flint mining and export of daggers to Norway and Sweden.*

Keywords: *Late Neolithic, Bell Beaker, flint mines, flint daggers, sunken floor*

As early as the late 1950s, Bejsebakken was frequently visited by amateur archaeologists who collected artefacts from the area. This led to several excavation campaigns conducted by the National Museum in the late 1950s (Ørsnes 1966, 1976). These campaigns revealed parts of a Late Neolithic settlement and a large settlement from the Late Iron Age, and a later excavation showed that the latter settlement consisted of at least 400 pithouses, 50 longhouses, pits, culture layers and other settlement remains (Nielsen 2002). In the following, I will present the finds from the Late Neolithic settlement (Sarauw in press).

Bejsebakken is situated in northern Jutland near Aalborg on the Hasseris hill, which is a 4.5 km long and 2,7 km wide lime formation surrounded by raised seabeds (Fig.1). In the Mesolithic, the Hasseris hill and several other lime formations in the area were islands. We do not know what the relationship between land and sea was in the Late

Neolithic, but the raised seabeds have been a lot more swampy than they are today when they are kept dry by artificial draining. The streams of Hasseris Å and Østerå run west and east of the Hasseris hill respectively. The large sea-scape of Limfjorden is situated 2,8 km from Bejsebakken. The Bejsebakken plateau, situated up to 57 m above sea level, was until recently used for farming. The area surrounding Bejsebakken is occupied by modern houses and a churchyard. The subsoil consists mainly of sand and clayey sand even though white chalk and gravel also occur. Ploughing has left marks in the subsoil in various places.

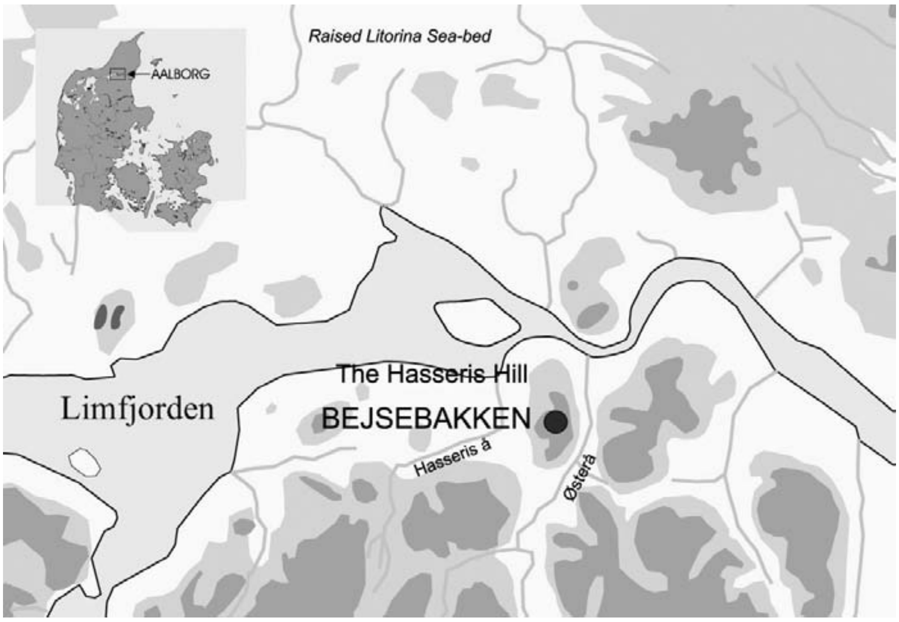

Fig. 1. Map of the area, showing the location of Bejsebakken and the raised Littorina sea-bed.

Excavations

In 1998 Aalborg municipality determined to use 62 hectare of the area for town development. The areas to be excavated were defined on the basis of 10 km of trial trenches, and in 1999-2000 the excavations took place. In total c. 77 000 sq. meters were excavated. Apart from the already mentioned settlement traces from the Late Iron Age, the location as a sort of by-product included 23 houses, culture layers, pits, a burial mound and other settlement traces from the Late Neolithic/Early Bronze Age (Fig. 2). The houses were placed in 3 or 4 concentrations within a c. 10 hectare large area. The settlement traces from the Late Iron Age were placed in the north-eastern corner of Bejsebakken, whereas the Late Neolithic settlement had a more western and southern distribution.

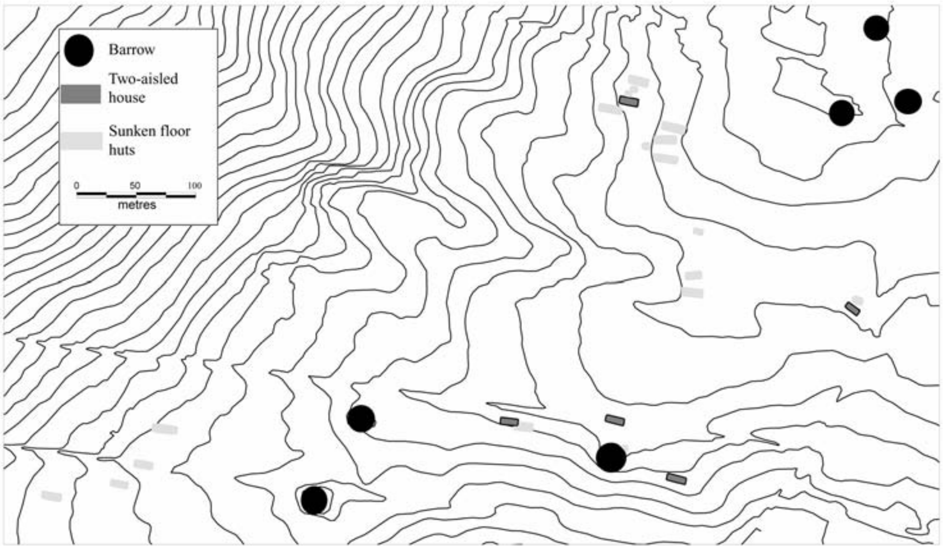

Fig. 2. Distribution of two-aisled longhouses, sunken floor huts and burial mounds. One meter equidistance.

The first group of Late Neolithic houses lay in the western part approximately 140 m west of two protected burial mounds. The four houses were all two-aisled longhouses with sunken or partly sunken floors. The second group lay east of the two burial mounds. Here three two-aisled longhouses and two longhouses with partly sunken floors were found. One of the sunken floor huts was found under a burial mound, which had been excavated in 1972. The burial mound concealed a disturbed stone cist, probably from the Early Bronze Age. In this group two houses, one with and one without sunken floor were overlapping each other, but it was not possible to say which one was the oldest one. The last group consisting of several concentrations of houses contained ten houses of which two are two-aisled longhouses and the rest have partly sunken floors. This area also yielded a burial mound with a disturbed stone cist, very similar to the one described above. The level under the barrow contained a pit and plough-marks after criss-cross ploughing.

The houses

In general the houses without a sunken floor were constructed very similarly, especially three two-aisled longhouses placed in the group east of the protected burial mounds (Fig. 3). The longhouses lay almost E-W, turned slightly to the north-west and measured c. 5,75 x 14-15,5 m. In the central axis of the houses five roof supporting postholes were placed, typically 1,4-4,5 m apart. In connection with some of the roof supporting posts minor posts were found that may also have had a roof supporting function. In two of the houses traces of a double post setting consisting of outer and inner wall posts were found to the north. To the south only a single row of posts were present, but that may be due to preservation. In the well-preserved houses the posts in the walls were placed c. 1-1,6 m apart. There was no sign of the entrances.

In one of the houses lay a small pit that contained a lot of charcoal and may have been used as a fireplace (Fig. 3). Another house contained two possible storage pits.

Artefacts found in the two-aisled longhouse are few, and they are too uncharacteristic to give a precise date within the Late Neolithic/Early Bronze Age. In one house (A210), two postholes contained four pressure-flaked flint sickles of various types. Such offerings are well-known from other sites, e.g. the Øster Nibstrup house in Northern Jutland where postholes contained two flint daggers of early type (Michaelsen 1989: 82).

In a Danish context, houses of similar construction are known from the late Single Grave Culture (Boas 1993) as well as continuing into the Late Neolithic and Early Bronze Age (e.g. Michaelsen 1989).

Houses with sunken, or partly sunken, floors involve two main types: longhouses and smaller buildings. The first mentioned type is to be regarded as independent farming units, while the smaller buildings are to be looked upon as store- or outhouses belonging to a larger farm. The borders between the two house types are, of course, diffuse. A house that has been damaged by ploughing for several years may look like a small economy building as already foreseen by Aarup Jensen in 1973 (p. 106).

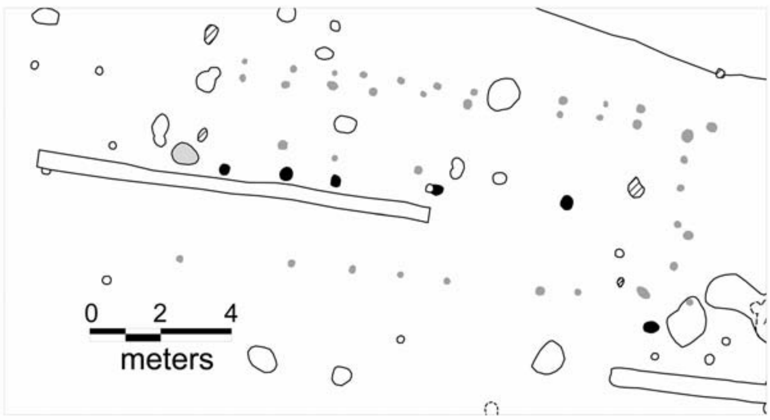

Fig. 3. Example of one of the two-aisled longhouses, A210. A possible fireplace is shaded.

House A539

In the following I have chosen to give a more detailed description of the construction of and the finds in the large two-aisled longhouse A539 (Fig. 4). The house lies E-W turned slightly to the north-west and is minimum 18,75 m long and 5-6,5 m wide as defined from the sunken part in the east and the roof supporting posts. It covers an area of c. 94-122 sq. m whereas the other longhouses with sunken floor on average cover c. 85 sq. m. Traces of the gables were not preserved, whereas traces of the walls were only sporadically visible. In the centre of the house traces of four roof supporting posts were seen laying 2,5-10 m apart. The great distance between the posts in the eastern part may be due to the fact that here a post was placed at the top of the subsoil where the subsoil in the sunken floor formed an elevation or platform. The postholes were 16-40 cm deep. Traces of the roof supporting postholes were in general very difficult to reveal especially in the sunken floor part and they were only rarely placed at regular intervals.

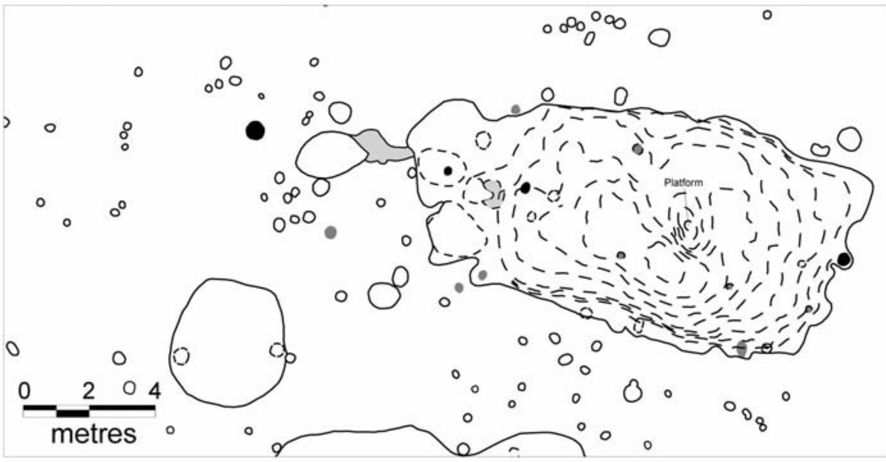

Fig. 4. House A539. The two fireplaces are shaded. The contour interval is 10 cm.

In the western part of the house traces of two fireplaces appeared as red colouring of the subsoil owing to heat. It was only possible to follow the colouring for a couple of centimetres down into the subsoil.

The sunken part was almost trapezoidal with the dimensions 14 x 5-7 m. The maximum depth of the sunken floor was 83 cm, but prior to modern (and prehistoric) cultivation the depth must at least have been 1 m. The above mentioned elevation in the sunken floor rose to 65 cm as compared to the lowest level of the sunken floor. Especially the southern side of the depression was very steep whereas the other sides were much less steep. The bottom of the sunken floor was not very even, but they seldom are in houses of this type and if so only in a minor part. The floors in this type of house are often characterised by one or several small depressions, which must be connected to specific activities taking place in the houses (Hvass 1978: 222; Simonsen 1983: 84; Asingh 1988: 146). At the bottom of the depression along the south-western side c. 49 kilos of fire-cracked stones were found. It was possible to follow the stones over a distance of 3 m. Some of the stones were pressed down into the subsoil whereas others lay on top of a very thin culture layer. It is not possible to say whether the stones were cleared from the centre of the house or originally were placed along the wall line.

The sunken part of the house consisted of several different layers, which were very difficult to separate horizontally. The central and low-lying layers entailed a series of thin layers with delimited and varying distribution. In one of these layers a large amount of flint debris were found. Another layer, which may represent a floor, consisted of homogenous reddish brown sandy clay and was placed directly on the subsoil. This interpretation could not be confirmed by any specific find such as for example part of a pot or an in situ-lying grinding stone. Most of the layers represent secondary fillings. The house pit must have been used as a refuse area by the nearby houses when house A539 was abandoned. The finds in the house therefore primarily date the secondary use of the house pit. But how long a period does the up to 83 cm thick culture layer represent? And what do the fillings, together amounting to c. 25 m^3 of soil, represent?

Fig. 5. Example of ornamented sherds from the culture layers in the sunken part of A539.

The finds

The majority of the finds in the housepit are worked flint and potsherds. No bones had been preserved. In the culture layers we also found charcoal and 505 kg of fire-cracked stones. The following is based on a preliminary examination.

In the house approximately 16,9 kg of ceramics or 2099[1] potsherds were found. Only 7 % of the potsherds were ornamented, and 7 % were rim sherds. Most of the ornamented sherds were found in the upper layers, but ornamented sherds of the same types also occurred in the lower layers. Sherds ornamented with toothed-stamped decoration predominate (Fig. 5, Table 1). Often the toothed-stamped decoration was placed in several horizontal lines. Only three sherds were decorated with horizontal zones with short oblique, toothed-stamped lines. Potsherds with several horizontal grooves or lines are also very common. Cardium placed in horizontal lines occur but less frequently. Many sherds are ornamented with 1-3 horizontal lines of fingergrooves or cordons placed near the rim.

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1 Only potsherds larger than 1sq. cm were counted.

Pottery - technique	Total
Grooves	26
Cardium	10
Toothed-stamped decoration	45
Fingergrooves	17
Cordoned rim	13
Fingergrooves/cordoned rim	3
Various	3
Total	117
Implements	
Scrapers	101
Sickles	9
Daggers	9
Pressure-flaked arrowheads	9
Axes	5
Preforms	23
Flake with edge retouch	11
Shafthole axe	1
Pressure-flaked item	5
Grindingstones	22
Hammerstones	17
Various	6
Total	218

Table 1. Frequencies of implements and ornamented sherds.

In seven cases, it was possible to fit ornamented sherds or to render that the sherds belonged to the same pot. In most cases the sherds came from the top layers. It was only possible to fit two sherds from the bottom layer.

In general, the decorated potsherds were very small, for which reason it was very difficult to determine the types of pots they belonged to. A few more characteristic sherds show that both straight-walled and curved beakers were present. Judging from the rim sherds, parts of at least 100 different pots are present.

In the upper part of the culture layer fragments of four loom-weights were found.

Besides, an enormous amount of flint waste, some of which lay in concentrations, 217 pieces of worked flint and parts of a stone shafthole axe were found (Fig. 6). The main part of the raw material consisted of senonian flint, which at the time could be extracted in the area about 750 metres north of Bejsebakken. Among the worked flint, scrapers predominate. 101 pieces were found. The house also contained pressure-flaked barbed arrowheads, flint daggers of type I, axes and sickles etc. Several dagger-preforms showing all the different phases of the flint knapping process were found. The scrapers were concentrated in the eastern part of the house, whereas barbed arrowheads and pressure-flaked items had a more even distribution. The vertical distribution of 68 scrapers from the eastern part of the house showed that they were found at all levels and layers within the culture layer. This analysis together with the distribution of the ornamented potsherds shows that the culture layers in the sunken part of the house cannot represent a very long period, perhaps as brief as 10-20 years. Part of the culture layers may represent mixtures of top- and subsoil from digging new sunken floors in other houses. Other layers such as the top layer may represent layers formed by erosion and cultivation.

The presence of type I daggers and Bell Beaker inspired ceramics, especially the zone-ornamented pottery and the use of cardium and toothed-stamped decoration, clearly place the house in the early part of the Late Neolithic (LN I). Likewise do the horizontal grooves, which are present on a lot of early sites: for example Myrhøj, Tastum and Stendis, all placed in the area around Limfjorden (Jensen 1973; Skov 1982; Simonsen 1983).

However, how shall we interpret the sunken parts of the two-aisled longhouses? Are they stables, store-rooms, habitation or perhaps working areas, or is part of the house just dug down to improve the indoor climate in the cold periods? In order to answer some of these questions, 259 samples of the subsoil were taken inside the house to make a phosphate map. High concentrations of phosphate were rare and scattered. The sunken part was, thus, not used as a stable but should rather be seen as connected with some of the other, aforementioned possibilities (Sarauw in press).

Fig. 6. Example of flint implements from the culture layers in the sunken part of A539.

Conclusion

Almost all the sunken floor huts at Bejsebakken, of which several have a similar construction to the one described above, contained an analogous find material, clearly placing a large part of the site in the early Late Neolithic. It is likely that one or two single farms had inhabited Bejsebakken within a period of 200-300 years and been moved within a large resource area (Fig. 2). Plough-marks under a barrow and at the bottom of three sunken floors show that the area was intensively used for cultivation. The five two-aisled longhouses may have been contemporary with the longhouses with sunken floor or they may represent a later phase. The existence of several barrows in the area of which only one has been dated and to the Early Bronze Age period III imply that at this time a settlement is present outside the excavated area.

The presence of a large amount of flint waste at Bejsebakken and the fact that the Late Neolithic flint mines at Skovbakken occur only 750 m to the north of Bejsebakken indicate a possibility that the people living here were involved in mining (Fig. 7). At Skovbakken, where the mines are estimated to have covered an area of at least 5000 sq. m., some of the flint-nodules are placed just below the topsoil in the white chalk (Becker

1993: 112). The importance of the mines is emphasized by the fact that several hoards of type I daggers in total containing 83 or 84 pieces are found around Bejsebakken.

It has earlier been shown that daggers of early types were exported in large amounts to places such as Norway and the western parts of Sweden (Becker 1993: 127; Apel 2001: 279). This export may have brought wealth and impelled the region around the Limfjorden to take up new traditions of profane and ritual character from the Beaker cultures in western Europe (Vandkilde 2001).

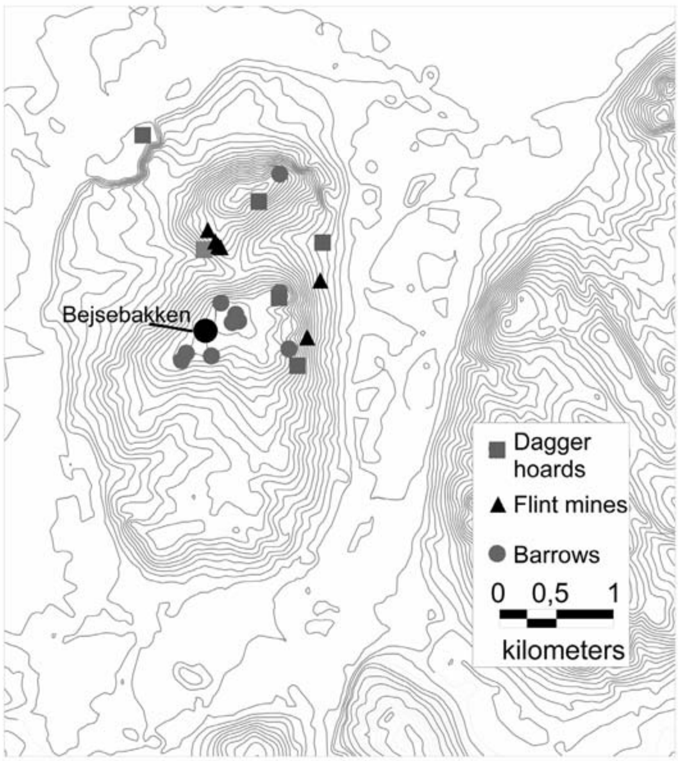

Fig. 7. Distribution map showing the Hasseris Hill and the settlement area at Bejsebakken, dagger hoards, flint mines and barrows. The contour interval is 2,5 m.

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Senneolitiskt bondeliv i Sydskandinavien

Gundela Lindman

Abstract. *I det sydskandinaviska skogslandskapet finns bevarade lämningar som ger konkret information om odling, bostäder, kontaktvägar och kult under senneolitikum/äldre bronsålder. En särskilt innehållsrik lokal är Räppe i Växjö, där undersökningar har visat en särskilt komplex fornlämningsmiljö. Lokalen ligger på södra delen av en skogbevuxen åsrygg i närheten av ett större vattensystem. Den har inte varit utsatt för ingrepp under historisk tid, utan lämningarna ligger oförstörda i sina ursprungliga sammanhang. Området innehåller hundratals odlingsrösen som i stora drag kunnat dateras till bronsålder–äldre järnålder. Man har dock varit verksam i området redan ifrån tidigneolitisk tid och framåt. En hällkista från senneolitikum/äldre bronsålder bildar centrum i odlingsområdet som också innehåller talrika boplatslämningar, bl.a. en huslämning med datering till senneolitikum. Av särskilt intresse är också en annorlunda huslämning omedelbart intill hällkistan, de i området ingående skålgropsförekomsterna samt ett mycket välbevarat hålvägssystem som anknyter till lämningarna och tycks ha ett organiskt samband med hällkistan och de övriga lämningarna.*

Keywords: *hällkista, hålväg, husgrund, odlingsröse*

Inledning

De flesta arkeologiska undersökningsinsatser i Sverige sker i de expansiva och folktäta kustområdena. Samtidigt som exploateringarna där skapat förutsättningar för utgrävningar, har det intensiva bruket av markerna, både genom odling, byggnation och industrier, medfört stora skador på det arkeologiska lämningarna. Inte minst drabbas de hela fornlämningsmiljöerna av fragmentisering och uppsplittring. De inte lika hårt utnyttjade inlandsområden kan ge betydligt bättre förutsättningar för arkeologisk forskning, genom att där finns möjligheter att studera mera ostörda sammanhang. Ett sådant välbevarat område är Räppe, beläget på det sydsvenska höglandet i det inre av Götaland (Fig. 1). Det skall här få bli ett exempel på hur det senneolitiska samhället bevarats i en sammanhängande struktur med lämningar av boende, gravläggning, odling, kult och kommunikation.

Fig. 1. Räppe är beläget utanför staden Växjö på det sydsvenska höglandet.

Det sydsvenska höglandet

Det sydsvenska höglandet utgör den sydvästligaste utlöparen av den sammanhängande skogsregion som sträcker sig i den tempererade zonen genom Ryssland, Finland och Sverige. Landskapet ligger ett par hundra meter över havet och karaktäriseras av stor rikedom på sjöar och av en mager, stenig moränmark.

Växjötrakten i södra delen av det sydsvenska höglandet utgörs av talrika skogbevuxna, långsträckta åsar. De bebyggda och uppodlade åkermarksområdena ligger kring sjöar och dalgångar. Denna uppodling har sannolikt tagit sin början under yngre järnålder, medan de äldre odlingarna under neolitikum, bronsålder och äldre järnålder i stor utsträckning ägt rum på åskrönen. Trots de steniga markerna har dessa erbjudit goda förutsättningar för odling. De nutida barrskogarna utgjordes nämligen tidigare av lövskogar, vilka skapade näringsrika brunjordar (jfr Lagerås 2002: 14).

Hällkistorna

Hällkistorna har stor spridning i södra och mellersta Sverige. Det finns både megalitiska hällkistor med stora stenkistor och något de mindre. Hällkistorna dateras till senneolitikum–äldre bronsålder. Hällkistorna som i Götaland konstituerar de bebyggda områdena under senneolitikum är spridda över hela landsändan. Jämfört med äldre megalitgravar av typerna dös och gånggrift finns ett betydligt större antal hällkistor.

Spridningsbilden visar en förskjutning mot inlandet och särskilt framträdande är de sydvästra delarna av Småland (Jonsäter 1984: 41).

Enbart i Kronobergs län där Räppe är beläget finns drygt 500 kända hällkistor vilket utgör den största koncentrationen i landet. Många av dessa kistor ligger i skogsområden utanför nu bebyggda områden.

Den första indikationen på fornlämningar i Räppe var en hällkista som registrerades vid en inventering redan 1911 (Kjellmark 1911). Den är av typen stensättning med hällkista. Stensättningen är 15 m i diameter och i dess mitt finns en kistkonstruktion som är 5,5 x 0,5 meter. Kistan är inte undersökt, men många andra undersökta hällkistor i västra Sverige har gett information om benmaterial och gravgåvor, även om undersökningarna oftast bara berört de centrala kistkonstruktionerna.

Weiler har presenterat de undersökta hällkistorna i västra Sverige (Weiler 1994). I Västergötland är drygt 20% av hällkistorna undersökta eller har dokumenterade fynd (Weiler 1994: 25). En hällkista vid Fredriksberg i Falköping innehöll skelett efter minst 30 män, kvinnor och barn (Iregren 1977). Undersökningar av småländska hällkistor (Linderoth 2000: 48) har gett material som dateras till senneolitikum och äldre bronsålder. I analogi med de andra hällkistor kan man alltså förmoda att också den i Räppe bör dateras till perioden senneolitikum/äldre bronsålder.

Odling

Först på 1980-talet började man i större utsträckning intressera sig för agrarhistoria i arkeologiska sammanhang. I centrum för uppmärksamheten hamnade då de talrika områdena med odlingsrösen i skogsmarkerna i södra Sverige. Vid inventeringar på 1980-talet registrerades för första gången områden med odlingsrösen runt omkring hällkistan i Räppe. Det rör sig om ett mycket omfattande område på totalt ca 40 ha utspritt längs krönet av en låg ås (jfr Fig. 2). Den ovan nämnda hällkistan ligger i områdets södra del.

Området karterades i samband med att man planerade för utbyggnad av ett industriområde (Nylén 1998, 1999) och senare utfördes provundersökningar för att fastställa områdets innehåll (Lindman 2001, 2003, 2004).

Odlingarna har daterats genom undersökningar av några odlingsrösen. Odlingsröseområdets storlek talar för att det tillkommit i omgångar. Matjordens tjocklek tyder samtidigt på intensiv odling under lång tid. Dateringarna från rösena pekar mot att flertalet odlingsrösen bör ha tillkommit under perioden yngre bronsålder–romersk järnålder.

Såväl pollen- som vedartsanalyser visar att området varit lövskogsbevuxet. Inte förrän under historisk tid får den ursprungliga lövskogsvegetation ge vika för granskog (Lagerås 2000). Ett fåtal makroprover har analyserats (Regnell 2003). En härd innehöll en lång rad bestämbara växtrester – brödvete, skalkorn, obestämd cerealia samt losta, gräs och ett obestämbart frö av en nejlikväxt. Sädesslagen tillhör de för tidsperioden dominerande grödorna i Sydsverige. Två fragment av hasselnötskal ingick också.

I några prov fanns fragment av en typ av förkolnat organiskt material som utifrån sitt utseende karaktäriserats som bröd/gröt eller gödsel. I de sparsamma fynden från de övriga proven förekommer hallon, målla, åkerpilört samt oljedådra.

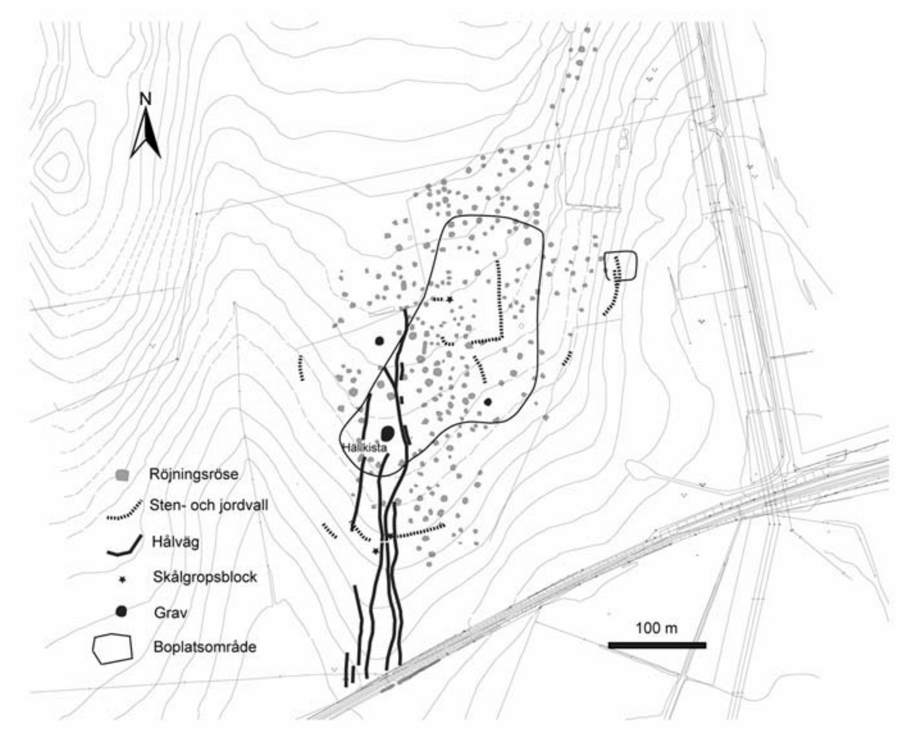

Fig. 2. Plan över området i Räppe, Bergunda socken, Växjö, Sverige.

Boende

Generellt sett finns det få undersökta boplatser från senneolitikum (Holm et al. 1997: 215). De allra flesta stenåldersfynden i södra Småland utgörs av lösfynd medan boplatsundersökningar endast har skett i ett fåtal fall (Westergren 1979: 98).

Man har förutsatt att den fossila åkermarken indikerade en kontinuerlig bebyggelse från sen stenålder och fram i järnåldern, men bebyggelsens läge och utformning har dock varit mycket dåligt känd.

Indikationer på bosättning inom områden med fossil åkermark finns dock från andra håll (t.ex. Jönsson et al. 1991; Connelid et al. 1993; Cronberg et al. 2000).

Förundersökningarna i Räppe visade att boplatslämningar är talrika inom den fossila åkermarken. Vid förundersökningen påträffades boplatsanläggningar spridda över stora ytor. Av den provundersökta totala ytan på ca 8 ha finns uppskattningsvis boplatslämningar inom ca 3,5 ha. Totalt har ca 150 anläggningar påträffats i förundersökningens provschakt och ca 40 fynd har tillvaratagits.

Boplatsanläggningarna utgörs av stolphål, härdar och väggrännor. Totalt inom det provundersökta området har sex väggrännor tillhörande hus eller hyddor konstaterats. Stolphålen och väggrännorna indikerar en mängd långhus inom området.

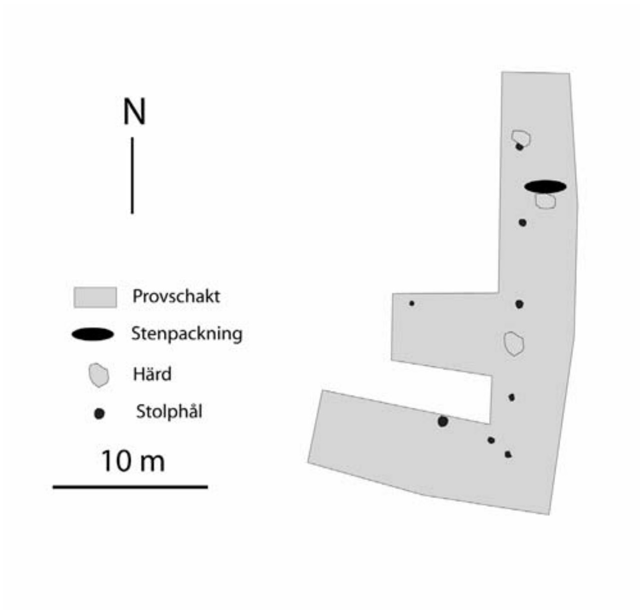

Fig. 3. Provschakt med vägglinje av ett neolitiskt hus, sannolikt senneolitiskt, som daterats genom att en daterad härd överlagrar ett av stolphålen.

Den äldsta dateringen totalt inom området är från mesolitikum. För närvarande finns inga konkreta indikationer på bosättning under denna tid, men man kan inte utesluta att området varit bebott redan då.

Merparten av boplatslämningarna härrör sannolikt från bronsålder och äldre järnålder. Inga boplatslämningar har hittills daterats till yngre järnålder eller medeltid men hela den neolitiska perioden är representerad av ^{14}C-dateringar, från tidigneolitikum via mellanneolitikum till senneolitikum. Samtliga dessa dateringar kommer från olika typer av boplatsanläggningar.

Ca 200 m nordost om hällkistan hittades en huslämning i ett provschakt. Huset är inte framtaget i sin helhet. Men man kan se att det har en närmast rak vägglinje av mindre stolphål. Ett av dessa stolphål är överlagrat av en härd som daterats till senneolitikum, 3682±26 BP (KIA20099). Stolphålet ingår i en rad om fem stolphål, i nästan exakt nord–sydlig riktning (Fig. 3). Huset är därmed från senneolitikum eller möjligen äldre.

Boplatsanläggningarna förekommer på olika nivåer stratigrafiskt belägna ovanför varandra, en del djupt ner i mineraljorden, andra direkt unders matjordslagret. Boplatsanläggningar har på flera håll inom området konstaterats ligga under odlingsrösen.

Bland fynden finns ett fåtal föremål, bl.a. en slipsten med överliggare, knackstenar, bränd lera och föremål av flinta och bergart, bl.a. en skrapa.

Dateringarna av odlingslämningarna överensstämmer väl med dateringen av boplatslämningarna. Det tyder på att odling och bosättning stegvis utvecklats över området i samband med varandra.

En så pass talrik anläggningsfrekvens inom ett så stort område som det här är frågan om betyder med stor sannolikhet inte att hela ytan varit bebodd samtidigt. Troligen har bosättningarna efter hand förflyttats inom området.

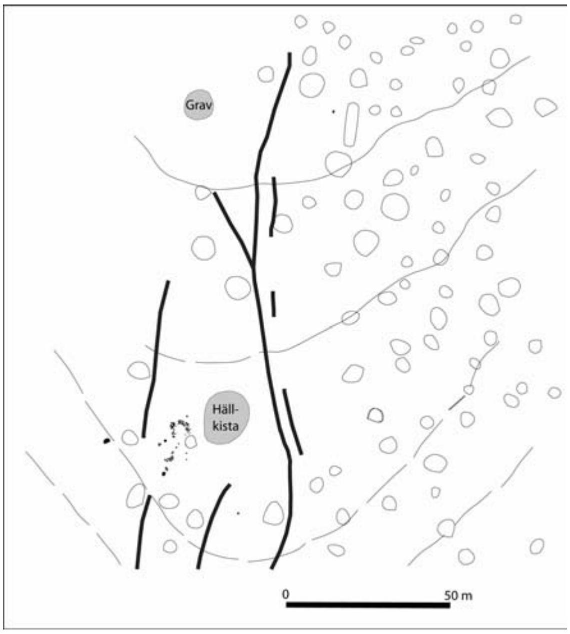

Fig. 4. Detalj av hålvägssystemet i Räppe. Odlingsrösena, två av gravarna och det förmodade kulthuset är också markerade.

En viktig mötesplats

I Räppeområdet fanns förutom gravar, bosättningsspår och talrika lämningar efter odling också lämningar av en annan karaktär. Det är lämningar som närmast pekar mot kult och ceremoniell verksamhet. Det finns skålgropar inom området, men också en särskild husanläggning som skänker en ytterligare dimension till hällkistan.

Endast ett par meter sydväst om hällkistan framkom en stenanläggning (Fig. 4) med kraftiga stenar i en packning av jord och småsten. Denna tolkades som en svagt rundad gavel. Från denna utgick två parallella rader av större stenar. Lämningarna tolkas som en husanläggning. Huset bör ha varit ca 13 x 5 m. Det är orienterat i riktningen NO–SV.

På flera sätt har anläggningen en annorlunda karaktär vilket tyder på att det kan ha varit ett hus med särskild funktion. Först och främst gäller det kraftfulla anslaget med ett byggmaterial av delvis mycket kraftiga stenar. Därtill kommer läget omedelbart intill hällkistan, vilket också antyder ett kronologiskt sammanhang. ^{14}C-dateringen av en härd som otvetydigt överlagrar stengaveln visade förromersk järnålder. Det bör betyda att huset i alla fall inte är yngre än bronsålder.

Även något yngre lämningar finns i närområdet, då en väggränna som ligger något sydost om husanläggningen med stengavel är daterad till romersk järnålder. Likaledes låg en mycket stor härd ca 15 m längre västerut som också daterades till romersk järnålder. Detta nämns för att påpeka områdets komplexitet.

På andra håll i landet har studiet av s.k. kulthus från bronsåldern visat vissa genomgående likheter. Det rör sig om husanläggningar, som man ej velat tolka som boningshus (Victor 2002). I de flesta fall rör det sig om kraftiga stengrunder av kämpagravstyp som är byggda intill en större gravanläggning. Kriterierna är bl.a. fyndtomhet, att huset saknar ingång och att det har mycket tjocka väggar.

I och med anläggningen tätt intill hällkistan poängteras områdets dominerande nyckelposition i samhället. Hällkistan är inte undersökt och vi vet inte om den innehållit ett snävt urval av särskilt framstående personer eller om det varit en släktgrav. Det är dock möjligt att tolka den som ett regionalt, ceremoniellt centrum som haft betydelse som riktpunkt i det dåtida samhället, både rent geografiskt och på ett mera ideellt plan där t.ex. tillbedjan eller hyllning av förfäder kan pågått.

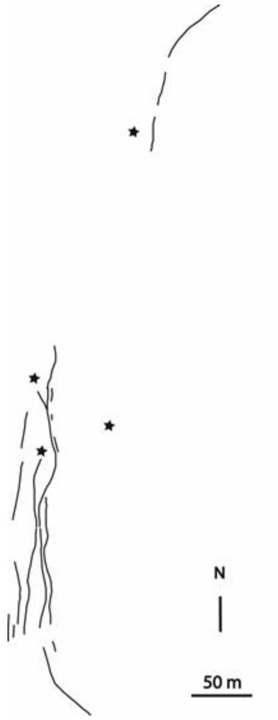

Fig. 5. Hålvägssystemet omfattar i sin helhet närmare en kilometer. Gravar är markerade med stjärnor.

Hålvägssystemet

I området finns omfattande rester av ett större hålvägssystem som lett igenom området (Fig. 5). Det bevarade hålvägssystemet i Räppe visar konkret på områdets förbindelse med omvärlden.

Hålvägssystemet har sannolikt ingått i en ännu länge vägsträckning som lett från vattensystemet i söder fram till fornlämningsområdet, vidare längs åsen intill gravarna och fortsatt i riktning norrut mot den större sjö, Helgasjön, vid vilken Växjö är belägen. På grund av skador av skogsbruk och markvägar är hålvägen bitvis förstörd. I söder skär järnvägen mellan Växjö och Alvesta igenom hålvägssystemet. Här är marken i det närmaste plan och hålvägen är svagt utbildad och tonar ut i intet strax innan marken övergår i uppodlade åkermarker.

Hålvägssystemet delar vid undersökningslokalen upp sig på upp till fem parallella leder. Detta har ingen särskild terrängmässig förklaring, som att det är särskilt brant där, utan bör ha sin förklaring i områdets betydelse, d.v.s. många människor har på delvis olika rutter haft anledning att söka sig till platsen.

Totalt omfattar den synliga hålvägssträckningen närmare 1 km. Hålvägarna har en svagt vindlande, mjukt svängd form i plan och är en halv till en meter breda. De är förhållandevis grunda och når som mest ett djup på ca en halv meter.

En detaljerad kartläggning av hålvägarna inom fornlämningsområdet visar hur vissa platser *inom* lokalen haft särskild stor betydelse. I fornlämningsområdet syns ”avtagsvägar” som leder fram till två av gravarna inom området (fig. 4). Hålvägarna slutar där intill gravarna. Det förefaller alltså som om hålvägarna använts fram till gravarna vilket ger en indirekt bild av gravarnas betydelse.

Åldersbestämning av hålvägar är problematisk, men flera samverkande faktorer pekar tydligt på att hålvägarna i Räppe är förhistoriska, sannolikt ända från neolitisk tid.

En faktor som talar för hålvägssystemets höga ålder är den organiska samhörigheten med fornlämningsområdet i stort. Hålvägarna skär aldrig in över gravar eller odlingsrösen utan stryker smidigt fram genom terrängen direkt intill rösena.

På några få ställen har överplöjning av hålvägens övre del konstaterats genom att hålvägens ursprungliga sträckning kunde ses i förundersökningsschaktens profilväggar. Genom att odlingarna som yngst har daterats till romersk järnålder ger överodlingen en datering på hålvägssystemet till förhistorisk tid.

Hålvägsrännorna har bildats genom att de trampats ner i tät siltig morän. Eftersom höjdskillnaderna är blygsamma (en stor del av hålvägssystemet går igenom i det närmaste plan mark) har regn och rinnande smältvatten inte i någon högre grad kunnat bidra till urholkningen av markytan. Istället måste de ha använts flitigt under långa tider vilket också bidrar till tolkningen att de måste ha hög ålder.

Avtagsvägarna

Till det mest fascinerande med Räppe hör att det som nämnts ovan finns avtagsvägar från hålvägssystemet som leder fram till två av gravarna inom området. Än mer märkligt är att det tycks finnas en rumslig anknytning mellan den stora husgrunden vid hällkistan och hålvägssystemet genom att det finns en helt omotiverad lucka i hålvägen där husgrunden ligger (Fig. 4). Det är här av vikt att påpeka att inmätningarna av hålvägen gjordes helt och hållet innan husgrunden påträffades vid provschaktsgrävningarna.

Detta är en lucka som skulle kunna komma sig av att vägen lett fram till huset dels från söder och dels från norr. Förhållandet kan förklaras på flera sätt. En möjlighet är att hålvägen inom det aktuella området helt enkelt blivit överodlad. En annan förklaring är att husgrunden är yngre än hålvägen, vilket skulle ge en förvånansvärt hög ålder på hålvägen. Det tredje och mest spektakulära förklaringsalternativet är att husgrunden och hålvägen är samtida. En väg kan ha lett fram till husgrunden och en annan kan ha lett därifrån. Det skulle stärka uppfattningen att det är något särskilt med huset, som gjort att många människor haft anledning att ta sig dit.

Senneolitiskt bondeliv

Räppe är en orörd fornlämningsmiljö i det inre av Småland. Vi har pekat på några särskilt intressanta drag i detta omfattande fornlämningskomplex.

Dateringen för hela komplexet är från tidigneolitikum till och med äldre järnålder. Under denna tid har man rört sig inom området och byggt bostäder och odlat på olika platser. Sannolikt har här skett många kontinuitetsbrott och upptagande av nya odlingar. Intensitet och karaktär har sannolikt skiftat genom årtusendena. Vi kan här se en koppling mellan olika objekt. Särskilt illustrativ är relationen mellan olika objket under tiden senneolitikum/äldre bronsålder då hällkista, hålvägar, husgrunder, boplatslämningar, odlingsrösen och skålgropar ingår i en samtida rumslig struktur.

Det senneolitiska samhället förefaller vara centrerat kring gravarna. Räppe visar oss gravens centrala ställning i ett område där man bott, dyrkat gudarna, odlat och levt sina liv. Samtidigt har vägen lett både dit och därifrån som en garanti för utveckling, mottagande av yttre impulser och plats för nya trender, både på vardagslivets och religionens områden.

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Materiell kultur fra senneolitikum/bronsealder – av forskjellig karakter i ulike landskap? En drøfting med utgangspunkt i enkeltfunn og boplasser fra Hedmark fylke i det østnorske innlandet

Hilde Rigmor Amundsen

Abstract. *Arkeologisk materiale fra senneolitikum og bronsealder er ulikt fordelt mellom de mange landskapene i Hedmark, et stort fylke i det østnorske innlandet. Det er et interessant regionalt mønster i materialets landskapskontekst mellom flatbygder, dalfører, skoger og fjell. Distribusjonsmønsteret viser til regionale grupper med tilknytning til forskjellige kulturtradisjoner utover dagens fylkesgrenser. En vestlig kulturtradisjon knyttes opp mot de sørskandinaviske jordbruksgruppene. En østlig kulturtradisjon utgjøres av fangstgrupper i skogs- og fjellområdene. Fra bronsealderen har innflytelser fra henholdsvis sørskandinaviske og østlige metallkulturer gjort seg gjeldende. Materialets karakter og romlige fordeling, sammen med Hedmark sin geografiske beliggenhet, tyder på at det både var grenser og møtepunkt mellom de store kulturtradisjonene i dette – eller disse – landskapene.*

Keywords: *senneolitikum, bronsealder, regionale grupper, kulturtradisjoner, bosetningsmønster, landskap*

Innledning

Enkeltfunn og boplassmateriale fra senneolitikum og bronsealder er ulikt fordelt mellom de mange landskapene som i dag utgjør Hedmark, et stort fylke på det indre Østlandet i Norge. Ved å koble enkeltfunn og boplasser fremkommer et interessant regionalt mønster i materialets landskapskontekst mellom flatbygder, dalfører, skoger og fjell. Distribusjonsmønsteret viser til regionale grupper med tilknytning til henholdsvis vestlige og østlige kulturtradisjoner utover dagens fylkesgrenser. Det arkeologiske materialet sin karakter og romlige fordeling, sammen med Hedmark sin geografiske beliggenhet, tyder på at det både var grenser og møtepunkt mellom de store kulturtradisjonene i dette – eller disse – landskapene.

Det arkeologiske materialet sin landskapsmessige fordeling

Hedmark er et stort innlandsfylke med en sentral geografisk beliggenhet. Søndre del av fylket ligger nær de store jordbruksområdene og kysten i Sør-Norge. Nordre del ligger nær tilsvarende bygder i Trøndelag. Vestover grenser fylket til øvrige innlandsområder i Akershus og Oppland. I øst grenser fylket til Värmland og Dalarna i Sverige. Helt i nordøst, i dagens Engerdal kommune, grenser Hedmark i tillegg mot Härjedalen (se Fig. 1).

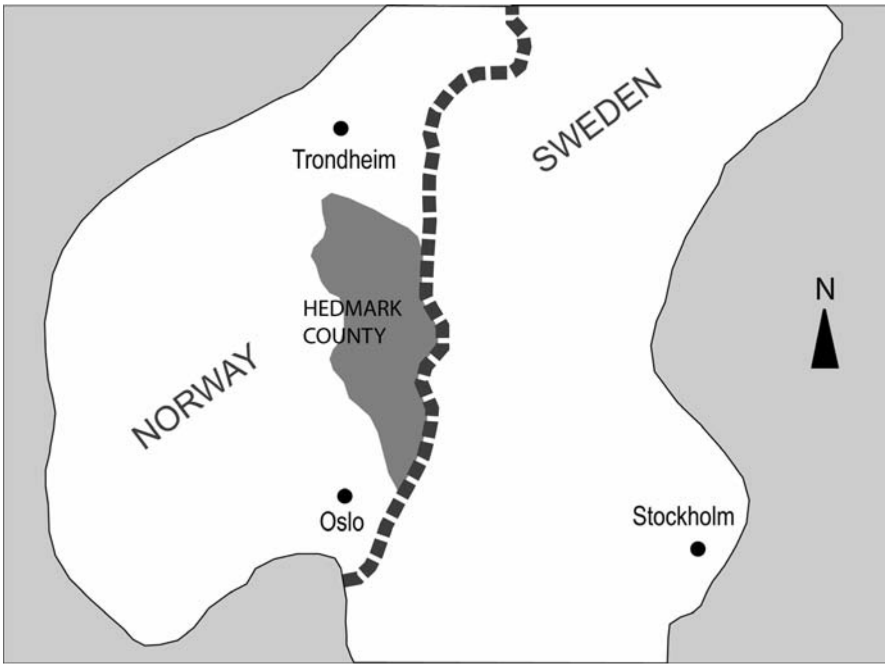

Fig. 1. Kartutsnitt over Norden med Hedmark fylke markert.

I sørvestre og søndre deler av Hedmark utgjør bygdene ved den store innsjøen Mjøsa på Hedemarken og bygdene langs den store elva Glomma dagens fruktbare kambrosilur- og sand/løssområder. Lenger nord og nordøstover ligger de tre største dalførene Østerdalen, Rendalen og Trysil-Engerdal. Her råder de store skogene og helt i nord også fjellene grunnen. Samtidig er det spredte jordbruksbygder, gode beiter og setergrender innenfor de store utmarksområdene.

Arkeologisk materiale fra senneolitikum og bronsealder er ulikt fordelt mellom disse regionene og landskapene. Enkle skafthulløkser, flintdolker og nordiske bronsegjenstander er konsentrert til dagens jordbruksbygder i sør og sørvest. Motsatt er skaftfurekøller og flateretusjerte piler/spyd i kvartsitt konsentrert til de nordlige og nordøstlige regionene. En bronsegjenstand av østlig karakter, en Mälardalscelt (C 18973), er funnet helt øst i Trysil.

Denne uensartete funnfordelingen ble tidlig ilagt kulturhistorisk betydning i norsk arkeologi (Bjørn 1934; Brøgger 1942; Hagen 1946). I sitt studie av Hedmarks steinalder i 1940-åra postulerte Anders Hagen en kultur- og næringsgrense som fulgte det regionale skillet mellom jordbruksområdene i sør på den ene siden og taigaen, det store barskogbeltet i nord på den andre. I neolitikum og bronsealder var det jordbrukskulturer i sør. I skogene og fjellene i nord rådet fremdeles fangstkulturene. Hagen mente at dette representerte en kulturdualisme innenfor Hedmarks grenser (Hagen 1946: 66, 84-8).

Jeg mener at den uensartete funnfordelingen viser mot regionale grupper tilknyttet henholdsvis vestlige og østlige kulturtradisjoner. En vestlig kulturtradisjon knyttes her opp mot de sørskandinaviske jordbruksgruppene, som ekspanderer til det østnorske innlandet fra og med senneolitikum. En østlig kulturtradisjon utgjøres av fangstgrupper i skogs- og fjellområdene. Disse inngikk i kontaktnett med likeartete grupper østover og nordover i Sverige, og videre til Finland og Russland (Bakka 1976). Fra bronsealderen har innflytelser fra henholdsvis sørskandinaviske og østlige metallkulturer gjort seg gjeldende. Hedmark sin geografiske beliggenhet tyder på at det var vesentlige grenser mellom de store kulturtradisjonene innenfor dette området. Grensene utgjorde på samme tid møtepunkter.

Til tross for klare tendenser i funnfordelingen, er det samtidig mer blandete og komplekse forhold. Noe materiale er funnet innenfor landskap som bryter med hovedmønsteret, som flintdolker langs innsjøer og elver i skogene og skaftfurekøller i dagens jordbruksbygder. I disse "skjæringspunktene" åpnes det for tolkninger og analyser omkring kulturmøter, etniske relasjoner, spenningsforhold og endringer i samhandlingen mellom kulturtradisjonene.

Dette overordnete bildet er i hovedsak skissert på grunnlag av de mange enkeltfunnene av storredskaper. I det følgende vil de regionale tendensene drøftes på grunnlag av foreliggende boplassmateriale.

Boplassproblematikken

Det finnes mye boplassmateriale langs Hedmarks mange og store vassdrag. Av dette er det mye senmesolittisk materiale. Det er videre et stort antall lokaliteter der en ikke kan gi en nærmere dateringsramme enn innenfor steinbrukende tid. Lokaliteter med blandet materiale fra flere perioder er også svært vanlig.

Lokaliteter fra senneolitikum/bronsealder lar seg sikrest definere ut fra flateretusjert materiale i flint og kvartsitt, noe som også er grunnlaget i denne sammenheng. Samtidig viser de mange storredskapene, som flintdolker, skafthulløkser, bronser, skaftfurekøller og enkeltfunn av kvartsittpiler/spyd, til bosetning og aktiviteter i disse periodene. Det samme gjør sannsynligvis gravrøyser av bronsealderkarakter langs Mjøsa og skålgropsteiner i tilknytning til dagens jordbruks- og seterområder. Flere pollenanalyser er utført i ulike deler av Hedmark og viser i varierende grad til husdyrbeite og åkerbruk både i dagens jordbruksbygder og i skogs- og fjellområdene i neolitikum og bronsealder (Hafsten 1958; Holm 2002; Høeg 1996; Risbøl et. al. 2000, 2002a).

Nye kulturelle forhold, ikke minst nye næringer som husdyrhold og jordbruk, medførte et endret bosetningsmønster og kulturspor av en annen karakter enn de mesolittiske fangstlokalitetene. Samtidig var det fortsatt utstrakt fangst og fiske i senneolitikum og bronsealder. En kombinasjon av jordbruk og utmarksnæringer var antagelig et vanlig mønster. Høyst sannsynlig var det også en mer ensidig fangsttilpasning i deler av Hedmark. Større funnområder med flateretusjert materiale langs flere vassdrag tyder på dette.

I det følgende vil jeg presentere noen eksempler på kjente lokaliteter fra senneolitikum/bronsealder i Hedmark. Foreliggende materiale viser en interessant regional fordeling.

Lokaliteter fra senneolitikum/bronsealder i Hedmark

I søndre del av fylket er det to hovedtrekk med hensyn til funnfordelingen i landskapet. Flere strandnære lokaliteter langs Mjøsa på Hedemarken i sørvest har høyst sannsynlig et tidsspenn fra mesolitikum til bronsealder (Boaz 1997b). Kun en av disse lokalitetene er nærmere undersøkt. Den ligger på Sotenodden i Stange kommune. Her ble det funnet to flateretusjerte flintsplinter (C 51421 a-b) under registreringen. Funn gjort under en nærmere undersøkelse synes å bekrefte en dateringsramme innenfor neolitikum–bronsealder. En mer presis datering lar seg ikke utlede av det foreliggende materialet (Amundsen 2004a). Lokaliteten ligger i tilknytning til flere gravrøyser av bronsealderkarakter.

Det andre hovedtrekket i bosetningen i sør er representert ved de mange enkeltfunnene av skafthulløkser, flintdolker og bronser i jordbruksbygdene ved Mjøsa. Her er landskapet et annet enn langs den skogkledde strandsonen. Funnene er gjort innenfor dagens gårdsbebyggelse og i områder som *ikke* er standbundet. Her er vi på sporet av lokaliteter av en annen karakter enn de strandnære lokalitetene, noe jeg vil komme tilbake til.

I Østerdalen og i Trysil-Engerdal i nord og nordøst er hovedmønsteret et annet enn i sør. Med få unntak er artefaktene funnet langs de store elvene og innsjøene. Fra senneolitikum og bronsealder består materialet i hovedsak av skaftfurekøller og flateretusjerte kvartsittpiler/spyd, samt avfall etter flateretusjering i både flint og kvartsitt. Enkelte steder er det funnet sørskandinaviske gjenstander, som skafthulløkser og flintdolker.

To store arkeologiske prosjekter i Åmot kommune i Østerdalen har fremskaffet enkelte lokaliteter fra senneolitikum/bronsealder. Det første prosjektet på Rødsmoen ble utført fra 1993 til 1997 (Bergstøl 1997; Boaz 1997a; Høeg 1996; Narmo 1997). Det andre, Gråfjellprosjektet, hadde sin oppstart i 1999 og pr 2004 pågår fortsatt arkeologiske undersøkelser i området (Risbøl et. al. 2000, 2001, 2002a, 2002b, 2003; Stene 2004).

På Rødsmoen ble det avdekket en lokalitet med et særegent funnmønster sammenlignet med mesolittiske lokaliteter i nærområdet (C 38970 a-d). Lokaliteten besto av et stort areal med kokstein og kun få artefakter. Flateretusjerte kvartsittpiler tidfester den innenfor senneolitikum/bronsealder. En ^{14}C-datering ga mellomneolitikum (4455 +/- 80 BP) (Boaz 1997a: 109-13). Tre øvrige og nærliggende lokaliteter inneholder flateretusjert avfallsmateriale i både flint og kvartsitt (C 38967 a-f, C 38968 a-k, C 38969 a-g).

Ved Deisjøen sør i Gråfjell er det en lokalitet med et fragment av en flateretusjert pil og flateretusjeringsavfall i flint (C 53078). En ^{14}C-datering her falt innenfor bronsealderen (2790 +/- 55 BP) (Risbøl et. al. 2000: 24-5, 67). På en annen lokalitet, ”Tjernpytten”, ikke langt fra Deisjøen er det også framkommet flateretusjert flintavfall under utgravninger i 2003 og 2004 (Stene 2004: 33-7, endelig rapport under utarbeidelse).

Lokalitetene i disse mer ”indre” skogsområdene på Rødsmoen og i Gråfjell viser til virksomhet ved små elver og vann i en viss avstand fra de sentrale elvene og innsjøene i området, som i Åmot er Glomma, Renaelva og Osensjøen. Et større landskap ble utnyttet av folk med en flateretusjeringsteknologi med både flint og kvartsitt som råstoff. Aktivitetene var ikke kun tilknyttet de store vassdragene, som tidligere enkeltfunn av storredskaper gir inntrykk av. Boplassmaterialet på Rødsmoen og i Gråfjell utdyper bildet av Åmot som et viktig regionalt grense- og møtepunkt, noe jeg vil komme tilbake til.

Øst for Åmot er det et annet hovedmønster. Spesielt i Engerdal kommune helt i nordøst er det mange lokaliteter med flateretusjert kvartsittmateriale langs store innsjøer som Engeren, Femunden og Isteren med Galtsjøen (Amundsen 2004b; Bolstad 1980). Det er i hovedsak den samme mørke kvartsitten en finner i alle disse områdene, med materiale i ulike stadier av tilvirkningsprosessen – fra emner til ferdige piler/spyd. Lokalitetene er spesielt kjennetegnet med mengder av avfall etter flateretusjering. Samtidig er det ofte blandete boplassfunn med råstoffene jaspis, kvarts og kvartsitt. Kun noe flint foreligger. En senmesolittisk fase er representert ved jaspisen (se Sjurseike 1994), senneolitikum/bronsealder ved kvartsitten. På lokalitetene i Engerdal er kvarts funnet sammen med flateretusjert kvartsitt flere steder. Det er derfor mulig at kvartsmaterialet kan knyttes til senneolitikum/bronsealder.

Et likeartet materiale er funnet ved nordenden av den store innsjøen Storsjøen i Rendalen kommune like vest for Engerdal. Det såkalte Svarstadfunnet herfra (C 23031 a-f, C 23361) består av flere store emner i kvartsitt, og er forarbeider til flateretusjerte piler/spyd. På en annen lokalitet ved Storsjøen er det funnet flateretusjert kvartsitt sammen med kvarts - et liknende mønster som lokalitetene i Engerdal (Amundsen 2004b). Ved nordenden av Storsjøen er det videre funnet to flintdolker (C 20940, C 21778) og en skaftfurekølle (C 22574 a). Dette området vil jeg komme tilbake til.

Regionale forskjeller i bosetningsmønsteret

Med disse eksemplene har jeg forsøkt å vise til ulike regionale mønstre i foreliggende materiale fra senneolitikum/bronsealder i Hedmark. Det er klare kontraster mellom regionene i antall og typer enkeltfunn, i boplassmateriale, i råstoffbruk og ikke minst i funnenes landskapstilknytning.

I søndre del av Hedmark er skafthulløksene, flintdolkene og bronsene knyttet til dagens jordbruksområder, uten at det er en direkte sammenheng med vannveiene. Funn og funnomstendigheter tyder på at denne regionen var bosatt av en jordbrukende befolkning med tilknytning til en sørskandinavisk kulturform. Et stort og ubesvart spørsmål er hvilken karakter en mer regulær jordbruksbosetning kan ha hatt i dette området.

Pr i dag er det ikke funnet langhus fra disse periodene i Hedmark. Dette har etter min mening sin årsak i manglende arkeologiske undersøkelser etter denne type kulturspor.

Langhus inngikk høyst sannsynlig i den materielle kulturen i denne delen av fylket. Jeg tror det er et samsvar i distribusjonsmønstrene til skafthulløksene, flintdolkene og bronsene og utbredelsen av de antatte langhusene. Med andre ord er storredskapene en lokaliseringsfaktor. Langhus fra senneolitikum og bronsealder er i de senere årene påvist flere steder i Norge (Prescott, under publisering). Et nytt og godt eksempel er avdekkingen av to senneolittiske langhus på Svinesund i Halden kommune, Østfold fylke. I nærområdet var det tidligere funnet en enkel skafthulløks og en tykknakket flintøks. Undersøkelser av fossil åkermark og pollenanalyser viser til samtidig jordbruksvirksomhet (Rønne 2003a: 187-222, 2003b: 143-86).

Noe nærmere jordbruksboplassene og med dette muligens langhusene kan det likevel tenkes at en allerede er kommet i Hedmark. I åkerlandskapet ved Mjøsa er det fremkommet en del flateretusjert avfallsmateriale i flint i de samme gårdsområdene som de nevnte storredskapene er funnet (Pilø 2002). Det samlete materialet og dets beliggenhet i landskapet peker mot en lokalisering av langhusene, som kan ligge bevart under dagens dyrka mark.

Samtidig med jordbruksvirksomheten var det fangst og fiske i den søndre regionen. Denne type virksomhet er det spor etter langs vannene i de nærliggende skogene. Materiale fra den nevnte lokaliteten på Sotenodden ved Mjøsa, og sannsynligvis også flere lokaliteter, kan tolkes inn i et mønster med en variert og differensiert landskapsbruk med jordbruk, husdyrhold, fangst og fiske.

I Østerdalen og i Trysil-Engerdal viser materialet et annet hovedmønster med få funn av sørskandinavisk karakter og med et utpreget materiale av fangstkarakter. Det er samtidig noen viktige regionale forskjeller innenfor disse store skogs- og fjellområdene.

Kvartsittlokalitetene i Engerdal viser til utstrakt fangstvirksomhet i denne nordøstlige delen av Hedmark i senneolitikum og bronsealder. I nabokommunene Trysil og Åmot kunne en kanskje forvente tilsvarende mange kvartsittlokaliteter. Noe slikt materiale foreligger, spesielt ved nordenden av Osensjøen og til dels langs Renaelva i Åmot, men ikke i like store mengder som i Engerdal. Et annet mindre område med slike lokaliteter er som nevnt nordenden av Storsjøen i Rendalen. Til tross for dette er det først og fremst langs de store innsjøene i Engerdal en har mer distinkte funnmiljøer med mange kvartsittlokaliteter.

Et annet poeng er de nevnte lokalitetene med flateretusjert flint på Rødsmoen og i Gråfjell i Åmot. I Engerdal er det så langt ikke funnet flateretusjert flint blant de mange lokalitetene med flateretusjert kvartsitt. Dette er en kontrast som også kan ses i forhold til funn av flere flintdolker i Åmot og Trysil mot kun en enkelt flintdolk (C 351) i Engerdal. I nordre del av innsjøen Femunden, ved Langtjønna innenfor Røros kommune i dagens Sør-Trøndelag fylke, foreligger det interessant nok en flateretusjert dolk i kvartsitt (T 19723). Den er funnet i boplasskontekst sammen med øvrig kvartsittmateriale (Bolstad 1980: 41, 141). Valg av råstoff og derved tilknytningen til flintbrukende grupper er en viktig forskjell mellom disse nærliggende regionene.

De skisserte forskjellene mellom Åmot og Trysil på den ene siden og Engerdal på den andre siden er sentralt. Det er viktig å ikke bare se på de store forskjellene mellom Mjøsbygdene i sørvest og Engerdal i nordøst, men også trekke inn de mellomliggende områdene – som Åmot og Trysil representerer i denne sammenheng. Som nevnt mente Hagen at det var en kulturdualisme innenfor Hedmarks grenser. Han anså at skillet mellom jordbruks- og fangstkulturen gikk omtrent ved Åmot (Hagen 1946: 66). Dette resonnementet bygde på utbredelsen av enkeltfunnene. Det kan se ut som om boplassmaterialet, som er fremkommet i etterkant av Hagens studier, kan være med å underbygge Åmot som en form for grensesone – og samtidig som et møtepunkt.

På grunnlag av skisserte forskjeller i både enkeltfunn og boplassmateriale tolker jeg Åmot og vestre del av Trysil som et felles, utvidet bruksområde for to ulike kulturtradisjoner; henholdsvis en sørskandinavisk jordbruks- og metallkultur med basis i søndre Hedmark og Värmland og en østlig fangst- og metallkultur i Engerdal som strakte seg videre nord og nordøstover. Mobilitet og sesongmessig bruk av utstrakte områder var et viktig trekk knyttet til begge kulturtradisjonene.

I en slik ”mellomsone” eller ”mellomlandskap” kan en forvente at møter og markeringer mellom regionale grupper med tilknytning til de to kulturtradisjonene fant sted. Kulturmøtene var sannsynligvis både symbolske og fysiske. Lar det seg gjøre å skille ut møtesteder i dette ”mellomlandskapet”? Ved nordendene av Osensjøen i Åmot og Storsjøen i Rendalen er det en særegen funnvariasjon. Begge steder er sørskandinaviske flintdolker, samt en enkelt flintsigd (C 33112 a) ved Osensjøen, funnet sammen med flateretusjert kvartsittmateriale og skaftfurekøller. Osensjøen og Storsjøen er de to største og sentralt beliggende vannene mellom Mjøsa i sørvest og Femunden i nordøst. Det blandete og symbolsk ladete gjenstandsmaterialet viser at disse to innsjøene var viktige regionale og kulturelle møtesteder i senneolitikum/bronsealder.

Avslutning

Arkeologisk materiale fra senneolitikum og bronsealder i Hedmark viser en interessant regional og landskapsmessig fordeling. Distribusjonsmønstrene gir grunnlag for å postulere vesentlige grenser, men også møtepunkt mellom regionale grupper med tilknytning til henholdsvis vestlige og østlige kulturtradisjoner. Kulturtradisjonene utgjorde forskjellige mentaliteter, hvor bevissthet og myter omkring ulikt historisk opphav sto sterkt. Sosiale handlinger og etniske relasjoner som oppsto i møtene mellom dem, har satt spor etter seg i utforming, spredning og utveksling av materiell kultur i landskapene. Hedmark er et område som åpner opp for studier og analyser omkring sentrale kulturhistoriske dannelses- og endringsforløp i de to siste årtusener før Kristi fødsel.

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Neolitiska samhällen och landskap i Västskåne

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Abstract. *I min studie har jag syftat till att förstå de tidig- och mellanneolitiska samhällenas framväxt, organisation och förändring kring de västskånska ådalgångarna vid Saxån-Välabäcken och Lödde å-Kävlingeån. Arkeologiska undersökningar och fornminnesinventeringen har visat att området hyser omfattande lämningar av neolitiska bebyggelsekomplex – i form av bosättningar, gravfält, megalitgravar, depositioner i våtmarksmiljöer och centrala platser – som sträcker sig från äldsta till yngsta fasen av trattbägarkulturen samt stridsyxekulturen. Omgivningen kring de två dalgångarna har således haft ett långvarigt utnyttjande under neolitisk tid. De senaste årens arkeologiska undersökningar i samband med Västkustbanans utbyggnad har inneburit nya och värdefulla insikter i hur den neolitiska människan organiserade sig i det social rummet, dels inom platserna men också mellan platserna i landskapsrummet.*

Keywords: *tidig- och mellanneolitikum, boplats, megalitgrav, offerplats, landskap, social organisation*

De senaste årtiondenas infrastrukturella investeringar i Västskåne har inneburit stora ingrepp i vår omgivande miljö. Landskapsbilden har under de senaste åren drastiskt förändrats. Samtidigt har utbyggnaderna givit tillfälle för oss arkeologer att dokumentera tidigare okända delar av vår förhistoria. Västkustbanans ombyggnad till dubbelspår mellan Helsingborg och Kävlinge medförde att Riksantikvarieämbetet UV Syd under åren 1995-1999 kunde genomföra omfattande arkeologiska undersökningar i Västskåne. Platser från brons- och äldre järnålder dokumenterades utmed hela bansträckningen, medan spår av stenåldersbebyggelse främst koncentrerades till Saxå- och Välabäckens dalgångar (Andersson 2003; Svensson 2003).

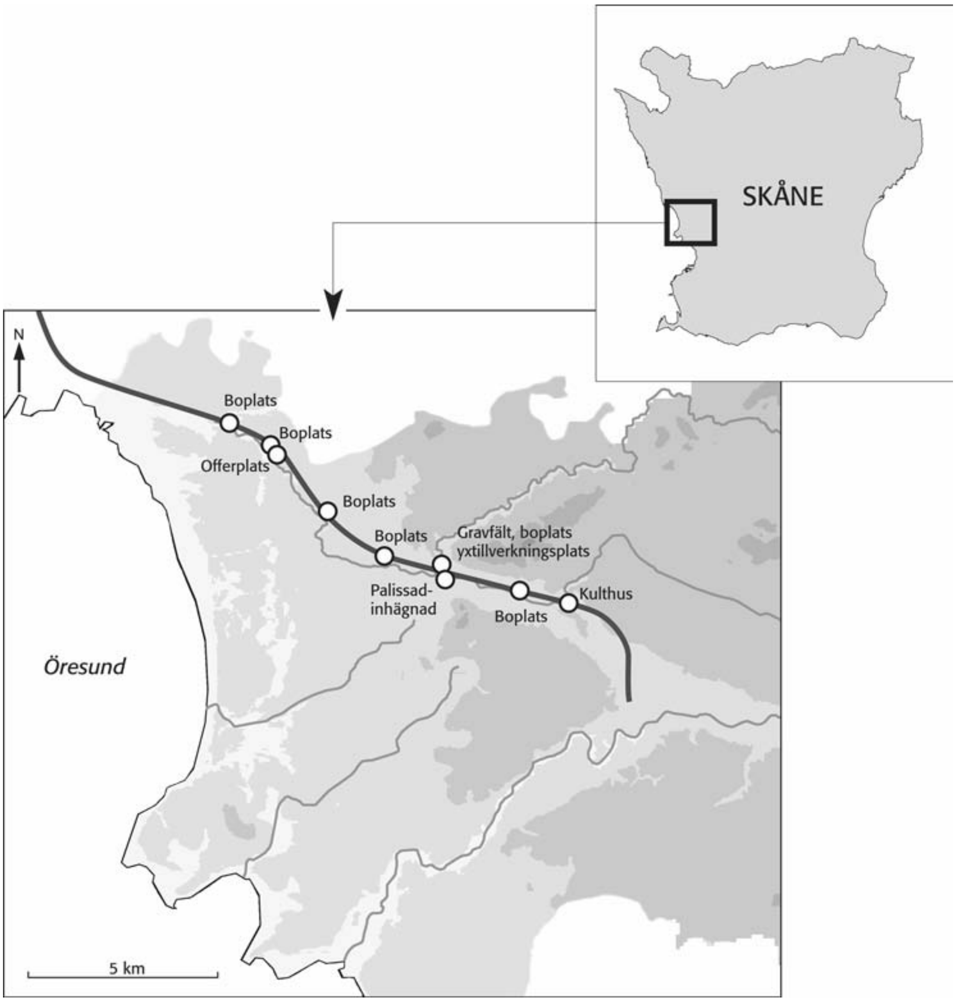

Fig. 1. Neolitiska lämningar utmed Saxå-Välabäcksdalgången.

Flera av stenåldersplatserna som berördes av våra undersökningar var ovanligt väl bevarade och av skiftande karaktär. Utmed den planerade bansträckningen inom dalgångarna undersöktes företeelser som motsvarar olika aspekter av det neolitiska samhället – i form av bosättningar, gravar, en palissadinhägnad och fynd i våtmarksmiljöer. Lämningarna sträcker sig från äldsta till yngsta fasen av trattbägarkulturen samt stridsyxekulturen (Fig. 1) (Andersson 2003; Svensson 2003). Saxå- och Välabäcksdalgångarna utgör tillsammans med Kävlingeåns dalgång en av Skånes centrala neolitiska bygder med en koncentration av megalitgravar, neolitiska boplatslämningar och fynd av depositioner i våtmarker (Fig. 2) (Hårdh 1990; Karsten 1994).

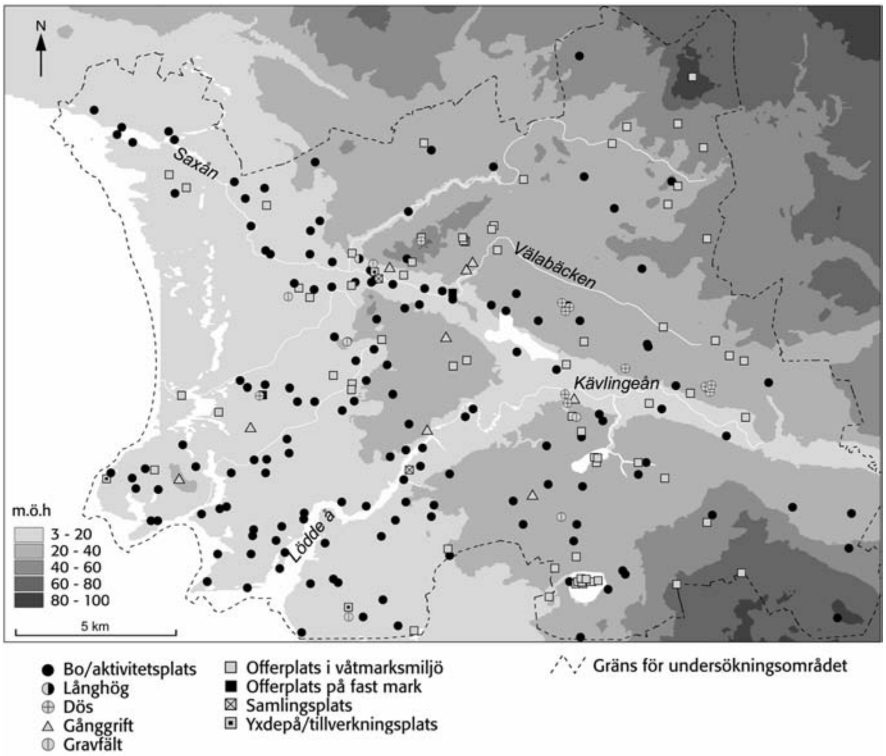

Fig. 2. Tidig- och mellanneolitiska platser inom undersökningsområdet.

Riksantikvarieämbetets arkeologiska undersökningar gav mig således möjligheten att studera tidig- och mellanneolitiska samhällens framväxt, organisation och förändring i västra Skåne. Min studie har bedrivits på två olika rumsliga nivåer.

- Hur organiserade människorna sina aktiviteter på de enskilda platserna? Även om ett flertal forskare har utarbetat system som beskriver den äldre trattbägarkulturens bosättningsmönstren är det få försök som tidigare gjorts för att förstå verksamheterna på boplatsytorna. Resultaten från de senare årens exploateringsgrävningar har, som vi ska se, emellertid visat att det finns ett mönster i hur den neolitiska befolkningen organiserade sig på boplatserna. Även om vi inte i detalj kan klargöra hur de utförde sina vardagliga aktiviteter går det att utläsa flera underliggande motiv hur platserna utnyttjades.
- I vilken relation har de olika platskategorierna stått till varandra? Kan människans uppfattning och utnyttjande av landskapet förstås genom platsernas funktion och mening samt deras topografiska läge och rumsliga relationer? Genom att studera arrangemangen på olika neolitiska platser inom undersökningsområdet och deras fördelning i landskapet har målsättningen varit att förstå formen för den sociala organisationen. På vilket sätt och varför förändrades rumsuppfattningen över tid och hur kan detta relateras till samhällsorganisationen?

Människornas levnadsätt, såväl under neolitikum som idag, varierar över tid och i rum. Även om det fanns gemensamma överregionala strukturer inom de områden som befolkades av bärarna av trattbägarkulturen kan regionala skillnader i hur innovationer spreds och mottogs observeras i det arkeologiska materialet. Lika uppenbart är att den enskilda regionens identitet förändrades under den period över cirka 1500 år som tidig- och mellanneolitikum utgjorde. Människans landskap har betydelse i varje specifika kulturhistoriska sammanhang och har således en dynamisk, meningsbärande roll i samverkan med de människor som lever i detta. Vid sidan av – och som en del av – de ekologiska förutsättningarna är landskapet fyllt av sociala minnen och betydelser skapade genom tidigare generationers verksamheter (t.ex. Bradley 1993, 1998, 2000; Ingold 1993; Tilley 1994). Det historiska landskapet måste därför läsas, tolkas och uppfattas inte enbart utifrån olika mönster i rummet utan även i form av tidsperspektivet. Min tolkning av samhällsorganisationen inom undersökningsområdet har tagit sin utgångspunkt i regionens neolitiska lämningar och sättet som det neolitiska levnadssättet här anammades och utvecklades har beaktats utifrån de särskilda regionala förutsättningarna och senmesolitiska bakgrund.

Betydelsefulla traditioner avsätter spår i landskapet och i den materiella kulturen eftersom bevarande av den sociala ordningen måste befästas genom upprepande sociala handlingar och ritualer. Innebörden i seder och bruk överförs till efterföljande generationer genom bebyggelse, sociala relationer och ritualer. På så sätt uppstår mönster på olika platser i landskapet som kan betraktas som tecken att sammanfoga och läsas av arkeologen. Rumsliga mönster som upprepar sig i det arkeologiska materialet har därför utforskats i avsikten att urskilja samhällens underliggande strukturer och skapa förståelse åt människornas handlingar. Den sociala organisationen är emellertid inte statisk och beständig utan en interaktion mellan handlingar och de underliggande strukturerna fortgår oupphörligt (Giddens 1984). Formen för de sociala relationerna och maktstrukturen har i studien därför analyserats i förhållande till samhällsutvecklingen och avbrott i de rumsliga mönstren har ansetts som lika viktiga att beakta som de regelbundenheter vi uppfattar.

Undersökningsområdet som är svagt kuperad till sin karaktär avbryts av tre markanta höjder eller höjdområden. I norr, mellan Saxån och Välabäcken, sträcker sig ett höjdparti i sydväst-nordostlig riktning. Söder om Välabäcken ligger Karaby backar. I undersökningsområdets sydvästra del reser sig en markerad kulle i ett för övrigt flackt kustlandskap. Regionen ramas in av höjdområdena längst i nordost och sydost. Landskapet domineras av dalgångarna vid Saxån och Lödde å-Kävlingeån. Mellan dessa större vattendrag flyter Välabäcken som rinner ut i Saxåns breda dalgång vid Dösjebro. Välabäckens och Kävlingeåns dalgångar sammanbinds av den breda och flacka Dösjebrodalen som tidigare utgjort ett stort sammanhängande våtmarksområde. Vid inledningen av tidigneolitikum låg havsnivån omkring två till tre meter högre än idag. Under slutet av perioden steg nivån ytterligare för att vid övergången till mellanneolitikum nå ett transgressionsmaximum på närmare fem meter över dagens nivå (M. Regnell, muntlig uppgift) (Fig. 3).

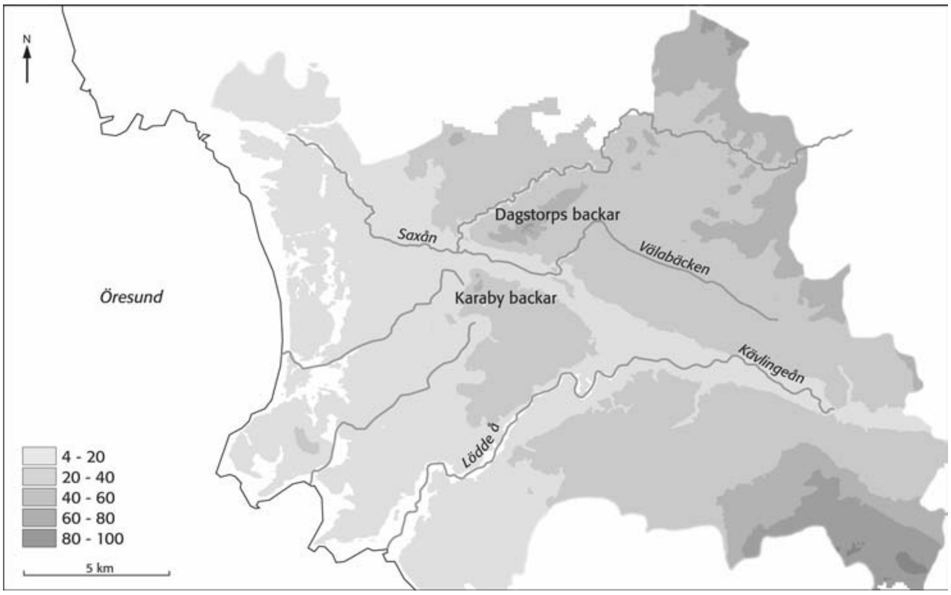

Fig. 3. Topografisk karta.

I undersökningen har det visat sig att den sociala och ekonomiska organisationen i Västskåne under tidigneolitikums inledningsskede i stort sett följde i samma banor som under mesolitikums slutskede. Övergången var inte någon dramatisk och plötslig händelse utan snarare en långdragen och kontinuerlig process. Samhället präglades av seglivade strukturer och förändringar kom stegvis och långsamt. Förbindelserna med de kontinentala jordbrukssamhällen ledde ändå till att innovationer och tankar oundvikligen kom att successivt spridas tillsammans med utbytesvarorna. Det var således inte ett fullständigt ”neolitiskt koncept” som anlände till Sydskandinavien utan olika uttryck från kontinenten, vars mening mottogs och omvandlades på skilda sätt inom Sydskandinaviens olika regioner (Andersson 2003).

I flera fall kan det påvisas att tidigneolitiska bosättningar lades på platser som tidigare utnyttjats under senmesolitisk tid (Fig. 4). Traditionen var synbarligen viktig när boplatser upprättades. Kustbosättningarna övergavs inte vid övergången till neolitisk tid, utan flera av de stora senmesolitiska lokalerna befolkades även under tidigneolitikum. På så sätt fördes förfädernas känsla och kunskap om landskapet vidare och ett socialt landmärke skapades som utgjorde ett permanent ställe i ett, till delar, mobilt levnadssätt. Denna förståelse handlade inte bara om det fysiska landskapet utan om landskapet som en social konstruktion. Arrangemangen på bosättningarna visar också snarare på likheter i den sociala och ekonomiska organisationen än på några väsentliga skillnader. Lämningar av långhus och stora boplatsytor är arkeologiska spår som belyser att befolkningen blivit alltmer bofast (Andersson 2003; Andersson et al. 2004; Karsten & Knarrström 2003).

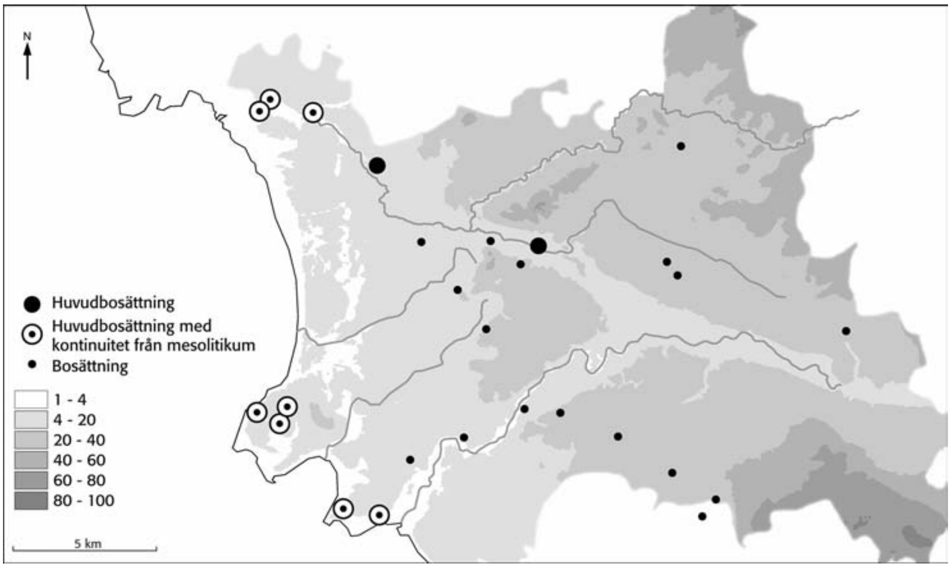

Fig. 4. Tidigneolitiska platser inom undersökningsområdet.

En del av de tidigneolitiska huvudbosättningarna har således varit ytmässigt betydligt mera omfattande än vad tidigare forskning visat för skånskt vidkommande. Såväl stora som små boplatser tycks ha existerat parallellt. Åtminstone Dagstorp och Saxtorp i Västskåne verkar kunna ha bebotts av grupper större än en enstaka familj, kanske en hel släktaskapsgrupp. Boplatsstorleken visar att utrymme krävts för olika aktiviteter och att en successiv utbyggnad försiggått (Andersson 2003; Artursson et al. 2003).

På en höjd, som under förhistorisk tid bildat ett näs mellan två vattendrag, låg den tidigneolitiska bosättningen Saxtorp med verksamheter som omspänt en yta av flera tusen m^2. Under åtminstone delar av tidigneolitikum, i samband med transgressionsmaximum, nådde en utlöpare av havsviken ända fram till platsen (M. Regnell, muntlig uppgift). Lämningarna, som undersöktes av Riksantikvarieämbetet UV Syd åren 1997-98 i samband med Västkustbanans utbyggnad, är belägna centralt på höjdens sandiga del (Andersson & Pihl 1997). Inom en yta av ca 15 000 m^2 identifierades samtida lämningar av hus, brunnar och flatmarksgravar (Fig. 5). Huset var rundovalt och i den södra delen av konstruktionen fanns ett svart, sotigt lager som täcktes av ett kompakt skikt av bränd lera – eventuellt en rest av en enkel ugn. Byggnaden hade uppförts på en terrass i den svaga sluttningen ned mot ett vattendrag. Fynd av lerklining i gropar och kulturlager ger en antydan om att fler hus kan ha stått på platsen, men utanför den undersökta ytan. Fynd av rikt dekorerad keramik antyder att en del av anläggningarna kan ha varit offergropar. Aktiviteterna vid brunnarna har försiggått en bra bit från huset. Av naturliga skäl har brunnarna grävts där grundvattnet stod nära markytan. Den kraftiga dominansen av skrapor i redskapsinventariet i anknytning till brunnarna ger vid handen att en specialiserad arbetsprocess försiggått kring dessa. Det paleobotaniska materialet som analyserats i brunnarna visar på att skogsvegetationen bl.a. bestått av hassel, lind, ek, tall, al och björk. En stor procent av gräs- och örtpollen tyder dock på att området lokalt varit röjt och eventuellt utnyttjats som betes- eller åkermark (M. Regnell, muntlig uppgift). Högre upp på platån, omkring 80 m söder om huset, påträffades tre flatmarksgravar. Inga skelettdelar var bevarade men tydliga kist- och kroppsfärgningar kunde urskiljas.

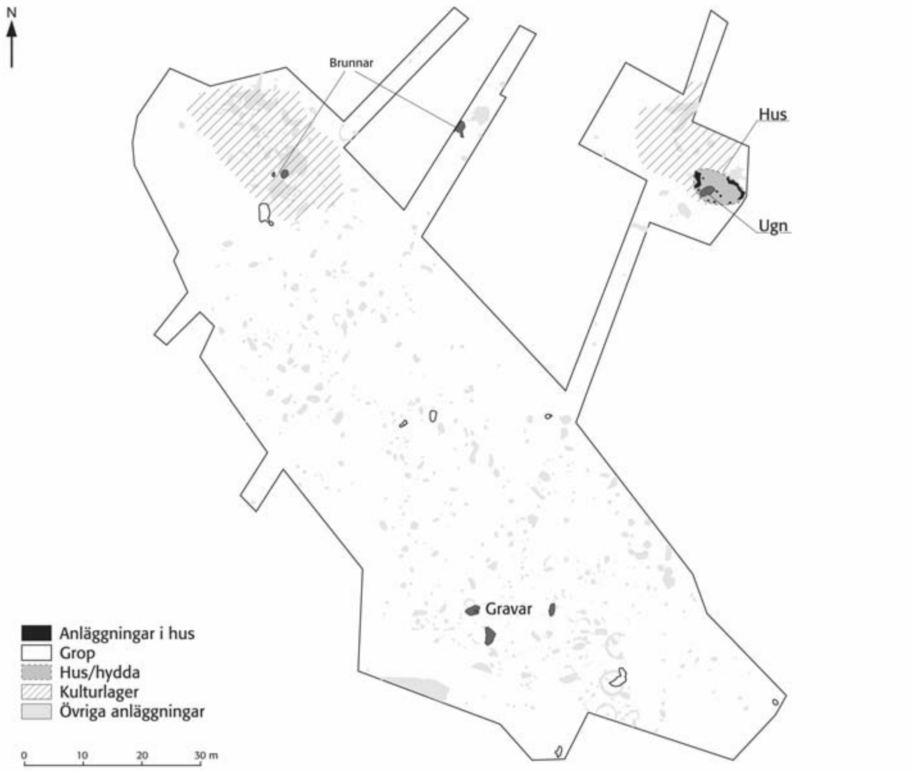

Fig. 5. Saxtorp under tidigneolitikum.

Några kilometer längre in i ådalgången låg bosättningen Dagstorp. På platsen, som undersöktes i samband med utbyggnaden av Västkustbanan år 1998, påträffades resterna av 15 huskonstruktioner från tidig- och mellanneolitikum. Antalet hus är det största från denna tidsperiod i Sverige som hittills dokumenterats på en plats (Lagergren-Olsson & Linderoth 2000; Artursson et al. 2003).

Dagstorpboplatsen ligger på svaga sluttningar och näs ut mot områden som under förhistorisk tid utgjort våtmarker i anslutning till Välabäcken. I norra delen av undersökningsområdet sluttar terrängen svagt ner mot ett sankare parti (Lagergren-Olsson & Linderoth 2000). Till den äldsta neolitiska fasen vid bosättningen i Dagstorp fanns två långhus av Mossbytyp och en hyddkonstruktion (Fig. 6). Omfattande kulturlager och gropar kunde också dateras till tidigneolitikum. Förekomsten av flera byggnadskonstruktioner indikerar att två eller flera familjer, kanske en hel släktskapsgrupp, vistats på samma plats.

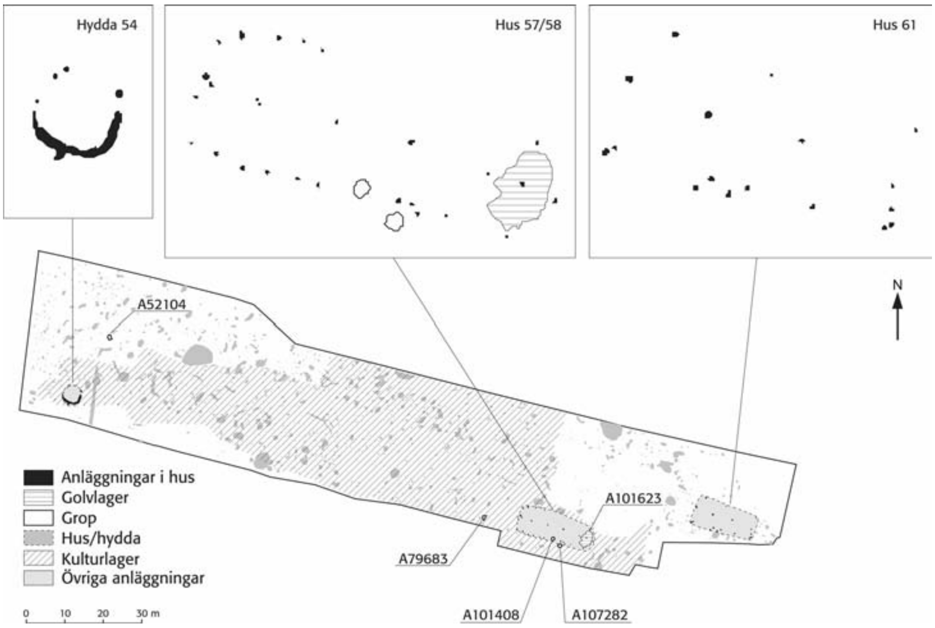

Fig. 6. Dagstorp under tidigneolitikum.

Organisationen på en del av de tidigneolitiska bosättningarna inom undersökningsområdet ger vissa, om än vaga, antydningar kring hur maktstrukturen kan ha sett ut. En tydlig och medveten uppdelning i olika aktivitetsområden har förekommit inom boplatsen. De stora bosättningarna under tidigneolitikum var nämligen inte bara platser för boende utan här försiggick även begravningar och offerceremonier vilket innebar att större ytor togs i anspråk. Begravningen och ritualer i anslutning till denna har skett i närheten av boytorna. Det nära sambandet mellan boplats och gravplats kan ses som revirmarkeringar där de konkreta lämningarna av förfäderna motiverar samhällets hävdande av rätten till platsen. Förfäderna etablerade inte bara samhällets samhörighet, de hävdade dessutom samhällets rätt till resurserna. Troligt är att den dominanta gruppens makt inom det tidigneolitiska samhället legitimerades och fördes vidare genom ritualen i anslutning till begravningen. De upprätthöll sin sociala dominans genom att kontrollera den andliga och sociala världen. De gemensamma kollektiva, både profana och sakrala, aktiviteterna utfördes på bosättningen. Länken mellan gruppen och platsen, mellan de vardagliga aktiviteterna och de sociala processerna i samhället som helhet framträder tydligt på bosättningarna. Bosättningarnas fördelning i landskapet och organisationen på platserna avslöjar inget som opponerar mot den vedertagna meningen av det tidigneolitiska samhället som organiserat i ett släktskapssamhälle. De strukturella principerna bakom de sociala relationerna etablerades och bevarades genom olika släkt- och vänskapsband mellan individer och grupper (Andersson 2003).

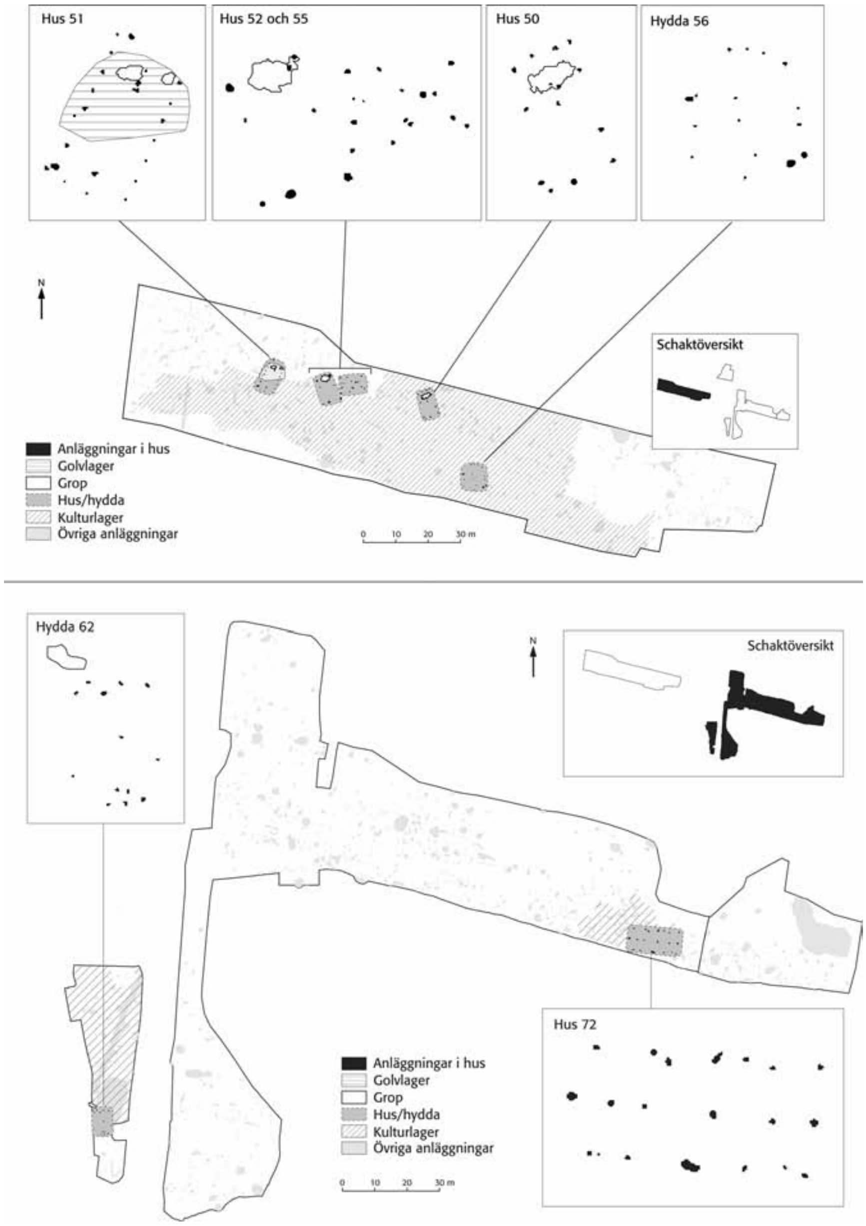

Fig. 7. Dagstorp under tidig mellanneolitikum.

När bofastheten blev större under senmesolitikum och tidigneolitikum ökade också befolkningen och därmed även den sociala enheten. Den alltmer stationära livsföringen tillsammans med en ny neolitisk mentalitet medförde möjlighet till nya produktionsförhållanden och att landskapet så småningom omdanades. Röjda ytor för odling och boskap, om än i begränsad omfattning, skapades. I detta landskap intensifierades behovet ytterligare av att hävda platstillhörighet. De sociala traditioner förstärktes vilka nyttjade tidsdjupet och det sociala minnet på en plats. Under slutet av tidigneolitikum och början av mellanneolitikum ser vi tendenser att en del av bosättningarna i Västskåne växer ytterligare och bildar små byar (Andersson 2004).

Redan under tidigneolitikum etablerades vid Dagstorp en större bosättning där flera hushåll tycks ha samexisterat. Under tidig mellanneolitikum märks åter en koncentrerad bebyggelse till denna plats. Fyra trapetsoida och ett rektangulärt hus tillhör denna fas (Fig. 7). Det är en frapperande homogenitet i konstruktionen av de fyra trapetsoida husen. Åtminstone två av husen har en indelning i två utrymmen, ett större mellan den södra gaveln och de takbärande stolparna i norra delen av huset, samt ett mindre norr om dessa takbärare. Tre av husen har gropar placerade i deras norra del, i de mindre rummen. Husen kan mycket väl vara samtida eftersom de har placerats bredvid varandra utan någon överlappning. Det finns inte heller något i fyndmaterialet som tyder på tidsskillnad mellan byggnaderna, dvs. att det skulle röra sig om en omflyttning på samma boplats. Inom Dagstorp identifierades dessutom stolphålsansamlingar som inte verkar vara regelrätta bostadshus utan mindre hyddor eller vindskydd som tjänat andra syften än boende. Till skillnad från förhållandet i boningshusen märks en förhöjd flint- och keramikkoncentration inuti hyddorna. Det är troligt att de har fungerat som verkstäder och aktivitetsytor vilka har förlagts en bit ifrån boningshusen. Organisationen på Dagstorpsboplatsen tycks ha utformats så att boningshusen placerats längst i norr medan de olika allmänna aktiviteterna förlagts i söder, ned mot Välabäcken. Inom den undersökta ytan anas en tendens att hus, hyddor och verkstäder kan ha placerats i en halvcirkel som begränsats av Välabäcken i söder. Den inre, öppna ytan, skulle då var byns gemensamma plats. Denna teori stöds av att ytinventeringar av åkerarealerna mellan undersökningsområdet och bäcken visat att bosättningen omfattat även denna yta (Andersson 2003).

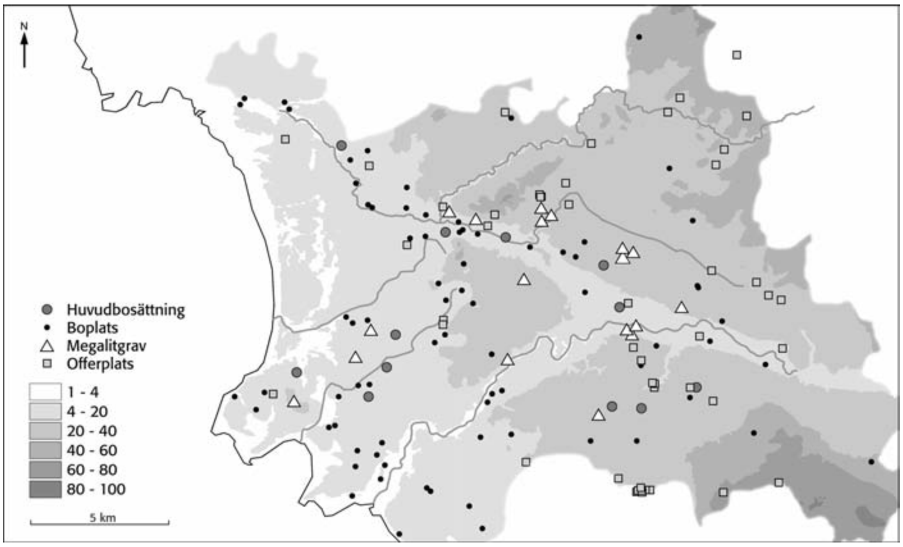

Fig. 8. Platser under tidig mellanneolitikum inom undersökningsområdet.

Bybildningsprocessen och det alltmer permanenta boendet ledde efterhand också till en etablering av fasta bygder inom de traditionella kärnområdena utmed kusterna. Kring byarna och de större boplatserna växte andra platser fram ämnade för sociala och rituella aktiviteter. Landskapet socialiserades eller tämjdes således genom att en del av de aktiviteter som tidigare varit knutna till huvudbosättningarna flyttade ut i omgivningen. Efterhand nöjde sig människorna inte med att begrava sina döda i flatmarksgravar vid boplatsen utan stora gravmonument uppfördes. Offerverksamheten utanför bosättningen tilltog betydligt i form av nedläggelser i våtmarker, dvs. sedvänjan att deponera föremål i gropar fick en vidare innebörd. Hela landskapsrummet, inom vilket människorna rörde sig, kan på grund därav ses som en slags makroboplats (Fig. 8).

Konstruerande av megalitgravarna illustrerar en ny syn på landskapet (fig. 9). För första gången gjordes större ingrepp utanför själva bosättningen och odlingsytorna. Det var en aktivitet som innebar att människan modellerade om landskapet – flyttade stenblock, röjde skog och planade ut en yta. Till skillnad från flatmarksgravarna blev megalitgravarna på ett nytt sätt synliga i landskapet. *Monumentens beständighet är en påminnelse om att de neolitiska människorna inte bara var engagerad i det förflutna utan även i framtiden*. Avsikten att definiera platser med monument kan primärt ha syftat till att skapa en känsla av varaktighet mellan samhället, landskapet och förfäderna.

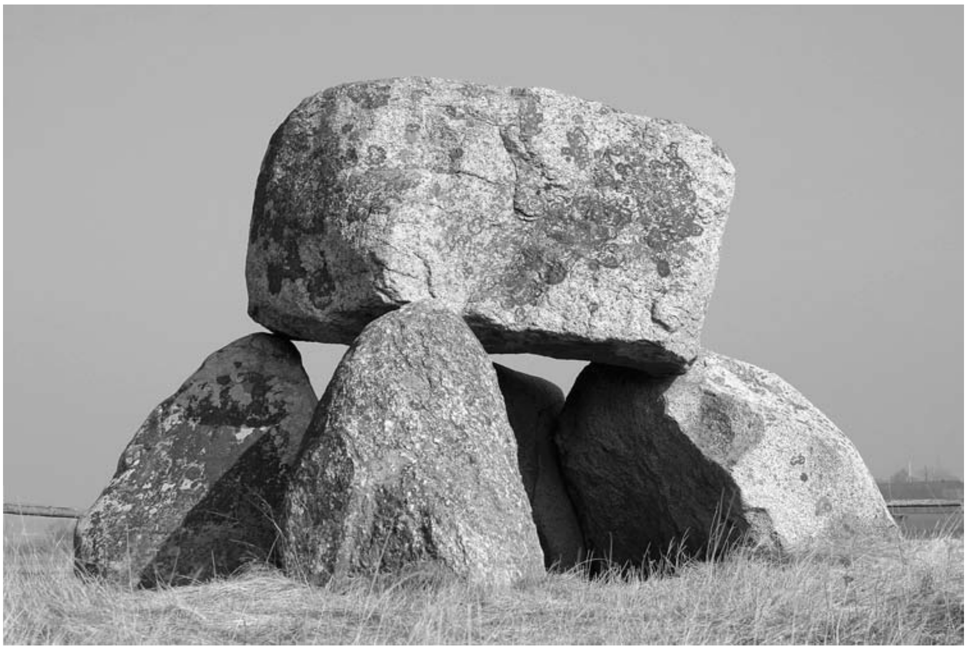

Fig. 9. Hofterupsdösen i Västskåne (Foto: Thomas Hansson).

Offerplatserna, inte sällan belägna lite avsides från boplatserna, var viktiga för den neolitiska människan. Bruket att nedlägga föremål i våtmarker är ett återkommande drag genom hela neolitikum. Det tidigneolitiska offerskicket hade sina rötter i senmesolitikum då valet av offermetod och offermiljö var densamma under senmesolitikum. Studier av neolitiska offerfynd visar att det är yxor som dominerar i de skånska offervåtmarkerna. Att vanligen endast yxor påträffats kan naturligtvis till delar bero på att nästan ingen av våtmarkerna har varit föremål för arkeologiska undersökningar och att fyndomständigheterna därför aldrig helt klarlagts. Det är ju framför allt hela stenföremål som uppmärksammats vid markarbeten. Per Karsten visar i sin studie av neolitiska offerfynd i Skåne att övergångsperioden tidig- och mellanneolitikum, i samband med etableringen av bygder, karakteriseras av en betydligt högre frekvens offernedläggelser i jämförelse med föregående och den närmast efterföljande perioden. Utvecklingen går från en situation där en offerplats används för ett enda offertillfälle till en situation där återkommande offerhandlingar utförs på samma plats (Karsten 1994).

Medan makten tidigare hade byggt på ritualer vid bosättningen var dessa nu utlokaliserade i ett större rum – makroboplatsen eller det sk. landskapsrummet. Avsaknaden på exceptionellt monumentala lägen låter förstå att det inte varit meningen att gravarna skulle ses från långa avstånd utan de var istället exponerade mot bosättningarna och den egna gruppen. Megalitgravarna kan snarare betraktas som styrande de sociala förhållandet mellan och framför allt inom olika lokala grupperingar än som territoriella markörer. De har fungerat till att definiera gruppens sociala identitet och verkat som en stabiliserande faktor symboliserande den sociala identitetens fortbestånd (Andersson 2003). Döden är givetvis en individuell händelse men samtidigt en social tilldragelse. Samtidigt som döden betyder att en individ separeras från det samhälle han en gång varit en del av återskapas eller reproduceras den sociala ordningen i beständig form genom begravningsritualer (Huntington & Metcalf 1979: 122).

Denna period, slutet av tidigneolitikum och början av mellanneolitikum, utgjorde den klassiska trattbägarkulturens höjdpunkt. Treenigheten – som bo-, grav- och offerplatserna konstituerade – fungerade som garant för stabilitet och bekräftade och reproducerade samhällsideologin.

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Tack till Henrik Pihl på Riksantikvarieämbetet UV Syd för hjälp med bildbearbetning.

Referenser

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Insect fossils from Yli-Ii Kierikki Purkajasuo (northern Finland): landscape indicators

Anne-Mari Tranberg

Abstract. *Insect fossil samples were taken from the Yli-Ii Purkajasuo ancient seabed to produce information about the environment of the Korvala (ca. 3300-3000 cal. BC) Stone Age settlement. The results were compared with other palaeoecological studies (diatom, pollen) and also with archaeological and geological studies from the site. Although the samples were smaller than usually, the research yielded supporting information about the Korvala surroundings. Insect fossils gave also information about the landscape and the soil, which is difficult to obtain using other palaeoecological data.*

Keywords: *Yli-Ii, Purkajasuo, insect fossils, archaeology*

Introduction

The palaeoentomological research in Yli-Ii Purkajasuo was a part of a methodological study. Yli-Ii Purkajasuo was chosen because it is an extensively studied archaeological site. The results of the insect analysis were compared to the results of palaeoecological (diatom and pollen), archaeological and geological studies (Schulz 1997, 2000, 2001; Karinen 2000).

Usually the equivalent sample size of nonanthropogenic sediments produce fewer fossils than deposits under direct human influence. In this case, the precise sampling spots in relation to the prehistoric landscape were uncertain. Therefore the insect fossil samples were taken from an ancient seabed sediment, which contained fishing equipment (Leualanpelto, research areas 1-2). Because of favourable conditions, most of the organic matter has preserved in this silt deposit. The artefacts from the site are carbon dated to

3344-2924 cal BC and 3084-2883 cal BC. On the basis of radiocarbon datings and stratigraphy, the insect fossil samples can be associated with the Korvala Stone Age site dated to ca. 3300-3000 cal BC (Schulz 2000: 42). A younger settlement phase, Vuornos (55), is not represented in the assembly.

The aim of this study was to find out whether there were any fossils between the fishing gears and whether they provide any information concerning the environment of the Stone Age Purkajasuo. Because the sample size was smaller than usual (2 kg each), the produced fauna was inadequate for comprehensive environmental reconstruction.

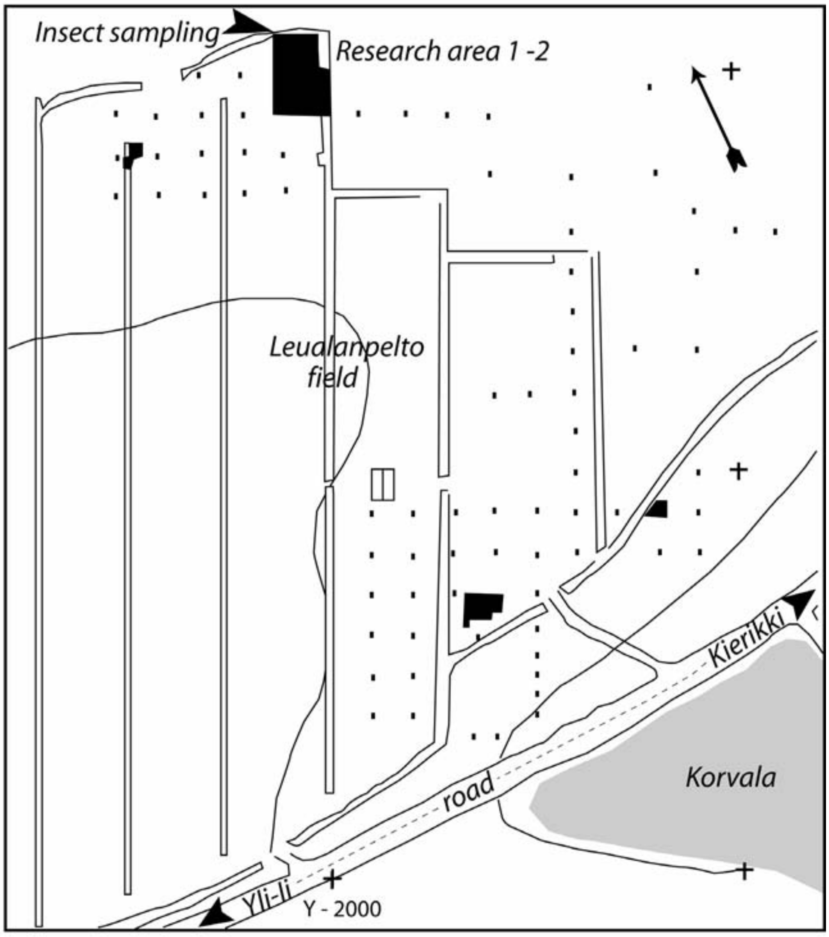

Fig. 1. Yli-Ii, Purkajasuo (12) Leuanpelto and a part of the Korvala (38) settlement (Redrawn from Schultz 1997).

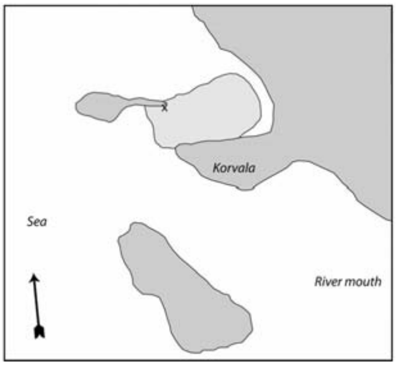

Fig. 2. Purkajasuo 3200 B.C. Sampling place = x.

Results

Deposition processes

The sampling spots were not optimal, as the seabed layers in question were partly re-deposited in the estuary. Currents cause substantial erosion and river transports huge amounts of soil. The seabed silt strata were mixed with coarse sand during the formation process. Therefore the sediments include also fauna from the local shore (the good condition of some fossils indicates local fauna that has flushed by the river and seawater from the shore) and from banks further inland. The seaside also gathers flying insects from further away. However these accidental visitors are unlikely to be present in a small assembly. Apart from these facts, the Stone Age settlement area and its economically important surroundings, which comprise of the river mouth and river valley area, are probably represented in this fossil assembly.

The fishing equipment found at the site had been used in river fishing (Schulz 1997: 29), and was either stored in the sea for the wintertime or had drifted by the river water. Insects may as well have arrived with the fishing equipment, but in any case, the fauna associated with them should nevertheless represent the same river conditions.

The seabed is covered by fluvial strata. The older layers just above the seabed have been stratified by flood in a relatively short period, which is also indicated by the fossil assemblies. In these strata there were no insect fossils and only some pollen and diatoms. The pollen data indicates field vegetation and more dense woods (Karinen 2000: 54-5). Only the seabed sediments, underneath these fluvial strata, yielded insect fossils.

Landscape

Insects are actively changing their living areas according to the demands of their living conditions. An insect can indicate landscape, food (vegetation or animals) and/or climate. The identified insects from the Purkajasuo Stone age environment include Heteroptera (true bugs, water-boatmen), Hymenoptera (ants) and Coleoptera (beetles) species.

The insect assembly gave some information about landscape which is not provided by other palaeoecological research. For example Coleoptera Dryobidae *Elmis aenea* (Müll.) and Coleoptera Dryobidae *Limnius tuberculatus* (Müll.) demand river water as their living environment. Also Coleoptera Elateridae *Zorochros minimus* (Bois. & Lac), being sandy bank species, live near rivers. Coleoptera Dytiscidae *Hydrobius fuscipes* (L.) and Coleoptera Dytiscidae *Potamonectes depressus* (F.) (Chinery 1994: 292) indicate - among other things - brackish water. Coleoptera Carabidae *Clivina fossor* (L.) alludes to seashore meadows and clayed soil (Renkonen 1934: 20; Buckland et al. 2002).

Table 1. Samples 7-12.

Species list	**Min**
Sample 7 (younger silt layer)	
Hymenoptera Formicidae *Camponotus herculeanus*	1
Cocoon	9
Sample 8 (sand layer between silt layers)	
Cocoon	10
Sample 9 (older silt layer)	
Coleoptera Chrysomelidae *Bromius*	1
Hymenoptera Formicidae *Lasius niger*	1
Cocoon	2
Sample 10 (younger silt sediments mixed with sand)	
Coleoptera Carabidae *Clivina fossor* (L.)	1
Coleoptera Curculionidae *Rhynchaenus*	1
Coleoptera Dryobidae *Elmis aenea* (Müll.)	1
Coleoptera Lathridiidae *Stephostethus*	1
Cocoon	2
Sample 11 (older silt sediments mixed with sand)	
Coleoptera Dryobidae *Elmis aenea* (Müll.)	2
Coleoptera Dryobidae *(Ou)limnius tuberculatus* (Müll.)	1
Coleoptera Dytiscidae *Hydrobius fuscipes* (L.)	1
Coleoptera Dytiscidae *Potamonectes/Nebrioporus depressus* (F.)	1
Coleoptera Elateridae *Athous subfuscus* (Müll.)	1
Coleoptera Elateridae *Dalopius marginatus* (L.)	1
Coleoptera Elateridae *Zorochros minimus* (Bois. & Lac)	1
Coleoptera Lathridiidae *Enicmus planipennis*	1
Coleoptera Scolytidae *Tomicus minor* (Hartig)	1
Cocoon	5
Hymenoptera Formicidae *Formica rufa*	1
Heteroptera Corixidae *Sigara*	1
Sample 12 (sample from the whole seabed stratum)	
Cocoon	5
Total	**52**

The sampled layers: samples 7-9 correspond to 10-11, 12 correspond to 7-11

Vegetation

Some of the identified species indicate the vegetation type of the area. The pollen from the seabed sediments implies that the vegetation was birch, pine and alder. The share of the alder increases towards the upper part of the seabed. The lower parts of the seabed sediments include pollen of spruce, which is not local (Karinen 2000: 64). The insect assemblies consist of a few species (Hymenoptera Formicidae *Camponotus herculeanus* and Coleoptera Scolytidae *Tomicus minor* (Hartig)), which exploit spruce as a main food plant. In the absence of spruce, they will also use pine (Itämies & Viro 1999: 33; Harde 2000: 55; Buckland et al. 2002). Therefore, the data do not provide proof of local spruce vegetation then. Pine woods are also indicated by ant species group Formicidae *Formica rufa* (Chinery 1994: 234; Zahradnik 1990: 226). Otherwise insects indicate same kind of sparse coniferous and deciduous wood (rosebay willowherbs) environment (for example Chrysomelidae Bromius – and Curculionidae Rhynchaenus –families, Buckland et al. 2002; Harde 2000: 274; Renkonen 1934: 112) with heaths, open seaside and meadow vegetation, like buttercups and dandelions.

Climate

The species suggesting warmer climate conditions (except *Clivina fossor* (L.)) at that time (Eronen 1991: 265) were found in the older seabed layers. A Coleoptera species Lathridiidae *Enicmus planipennis,* which does not live in present Yli-Ii Purkajasuo area and is now rare in southeast Finland (Lindroth 1960: 298), and Scolytidae *Tomicus minor* (Hartig), which presently populates mostly the southern part of Finland (Chinery 1994: 288), indicates climate different than today. The MCR (Mutual Climate Range) analysis also gives a confirmation of more favorable, less continental conditions (Buckland et al. 2004).

Conclusion

The fossil sample assemblage alone gave information about the environment, which could be double-checked against other, archaeological and biological, data. The landscape was interpreted as estuary and a seaside with brackish water. The main vegetation of the dry, sandy and gravely riverbanks were heaths, pine and deciduous trees and meadows. Pine was the main tree. In addition the insect species indicate clayed soil with open area and rich undergrowth. This refers to the seaside and rapid isostatic uplift.

Locating a suitable sampling spot is a very important phase in palaeoentomological research. In this case, fishing equipment in the ancient seabed had stored fossils under and between them. It seems that the landscape did not change significantly during the period the site of Korvala was settled. This can, in fact, suggest the re-deposition of the sampled sediments. In any case, the assembly contained both local and non-local fossils. The reconstruction of the ancient Purkajasuo surroundings requires more extensive sampling around the site.

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Bones from Sápmi: reconstructing the everyday life of two ancient Saami households

Eeva-Kristiina Lahti

Abstract. *The archaeological material of two historical period Saami sites, one located in Enontekiö and the other in Utsjoki, both in Finnish Lapland, are discussed. In both sites Saami winter markets were held during the 17th and 18th century. These annual markets played an important role in the economic life of northern Fennoscandia and were visited by the local Saami population, as well as merchants from the town of Torneå. A comparison will be made between the excavated bone materials of two traditional Saami dwellings, goahti. The main focus will be on reindeer (Rangifer tarandus) bones. Questions on the handling of the carcass and butchering methods will be brought up. Special attention is paid to the age structure of the butchered animals. Finally the livelihood of the Saami in Enontekiö and Utsjoki is discussed.*

Keywords: *archaeology, Saami, osteology, historical archaeology, Lapland, reindeer, bones*

When the livelihood and everyday history of peoples who were hunter-gatherers, pastoralists or reindeer herders is considered, the bone material becomes the most valuable source of information (Itkonen 1948a: 117-19, 256-7). The distribution and provenance of the bone finds in Saami archaeology is a matter of high interest. With the help of osteological analyses livelihoods can be studied and questions such as the beginning of reindeer herding examined (Roslund 1989: 196). One of the main aims of osteology is to explain the interface between human population and fauna (Lyman 1987: 94). With the help of taphonomy (Lyman 1987: 94), post-mortem, pre- and post burial histories of faunal remains, the treatment of the carcass and butchering methods can be clarified (Sten 1989: 172; Lahti & Mannermaa 2002).

My main aim was to try to reconstruct the carcass utilization practised at two separate Saami dwellings – *goahti*. The following questions were asked: How does the anatomical representation look: Were the animals slaughtered near the settlement or were only parts of the carcass brought to the *goahti* and its surroundings? In the latter case, which parts were brought to the settlement? Are there anatomical parts that dominate? I also wanted to do some preliminary research on the nature of reindeer keeping. Therefore, the age structure of the individuals was studied. In modern reindeer herding communities the flocks are kept in a certain structure.

The sites

My paper deals with two sites, both located in northernmost Finland. The first site, Markkina, is situated in north-western Lapland, right by the Swedish border in the municipality of Enontekiö (*Enodat*). The second site, Pappila is situated in north-eastern Lapland, in the neighbourhood of the Norwegian border in the municipality of Utsjoki (*Ochtchejohka*). The National Board of Antiquities excavated both sites in 1990-2004.

Enontekiö Markkina

Enontekiö Markkina lies at the crossroads of the three rivers Könkämäeno, Lätäseno and Muoniojoki. The vegetation of the site consists mainly of mountain birch and meadow. Petri Halinen excavated the site during 1990-1991 and 2000-2001. The *goahti* discussed was excavated in 1990, when 70 square meters consisting of the *goahti* and its immediate vicinity was unearthed. The material was fairly typical for a site of the historical period consisting of artefacts related to the structure of the turf *goahti* such as a hinge and hook, iron nails and window glass. Artefacts related to the everyday life of the inhabitants included a pewter button and a dress hook, two glass beads, iron needles, kitchen glass, faience, a gun and also a striking flint. Artefacts related to the function of the site as a market place included clay pipes and coins (Halinen 1991, 1992a: 46-9, 1992b: 39-44; Lahti 2004b: 104-107). A total of 13 Swedish coins date the settlement to 1694-1735 (Sarvas 1991). However, probably a more accurate dating can be made with the help of clay pipes from Holland, England and Sweden. They were in use from 1715 to 1750 (Halinen 2002a: 31-4, 2002b: 47-49; Mellanen 2001). The largest find group consisted of bones (see Fig. 1). Altogether 4863 fragments of unburnt bone and 792 fragments of burnt bone were collected during the excavations. Pirkko Ukkonen carried out the analysis of the bone material. The bone finds in Markkina consists of reindeer (*Rangifer tarandus*), sheep/goat (*Ovis aries*/*Capra hircus*), cow (*Bos taurus*), ptarmigan (*Lagopus* sp.), perch (*Perca fluviatilis*), whitefish (*Coregonus lavaretus*), pike (*Esox lucius*) and cod (*Gadus morhua*) (Ukkonen 1991).

Markkina was established by the royal order of King Carl the IX in 1604. Due to the Ice Sea politics of the nation-state, a church was erected probably in 1607. The Swedish crown controlled the taxation and markets from then on (Korpijaakko 1989: 139-41; Slunga 1993: 293). Yearly markets were held at the site between the end of January and the beginning of February, during which also the taxation, annual court sessions and church services took place (Bergling 1964: 129, 161-4). Markkina became the centre of the Rounala, Suonttavaara and Peltojärvi Lapp villages (*siida)* (Korpijaakko-Labba 1999: 103) and approximately 16 cottages owned by the Torneå merchants, the so-called burghers, were established at Markkina (Bergling 1964: 167; Clarke 1997: 258-287). According to the written information, the population of the Rounala *siida* practised reindeer herding already at the end of the 16th century, Suonttavaara at the beginning of 17th century and finally the Peltojärvi *siida* by 1750 (Korpijaakko 1989: 132-6). The site was abandoned in 1826 when the church was moved further south to Palojoensuu due to the new state border being now situated by the river Muonionjoki (Itkonen 1948a: 73).

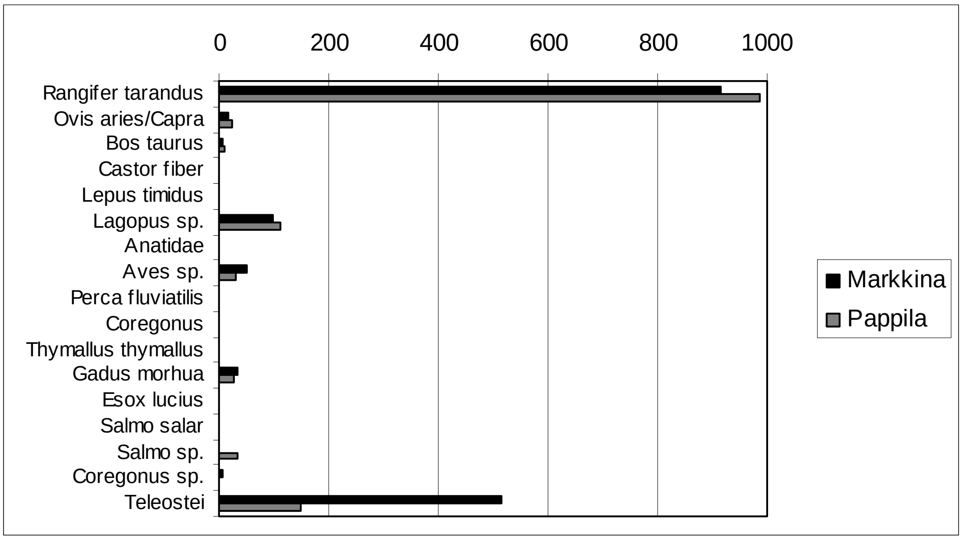

Fig. 1. The Number of Identified Species per number at Enontekiö Markkina and Utsjoki Pappila.

Utsjoki Pappila

Utsjoki Pappila is situated by the lake Mantojärvi, which is a stillwater of the river Utsjoki. The vegetation in the area is mainly mountain birch, moss and sedge weed. Taisto Karjalainen excavated the site in 2003-2004. The *goahti* discussed was excavated in 2003, when 56 square meters covering a partly destroyed *goahti* and its immediate vicinity was unearthed. The material consisted of artefacts related to the structure of the turf *goahti* including iron nails and window glass, as well as artefacts related to everyday life such as scissors and other sewing artefacts made of antler, a strike a light flint, kitchen glass and faience. Also artefacts related to the livelihood of the inhabitants such as a pewter bullet and a net sinker made of antler were found. The clay pipes and two silver coins are related to the markets held at the site. Two Danish silver coins originate from 1659 and 1668 (Talvio 2003). However, the clay pipes date the settlement to the beginning of the 18th century. As in Markkina, the biggest find group is unburnt bones (see Fig. 1). Altogether 5979 fragments were found. Only 288 fragments were burnt (Karjalainen 2003). The author herself did the analysis of the bone material. The bone finds from Pappila consist of reindeer, sheep/goat, badger (*Castor fiber*), hare (*Lepus timidus*), ptarmigan, whitefish, cod, pike and salmon (*Salmo salar*) (Lahti 2004a).

According to written information, markets existed at the Pappila site already in 1640. The annual markets, taxation and court sessions took place at the end of February. The church was erected at the site in 1700, hence making the church services part of the action at Pappila (Itkonen 1948a: 303, 1948b: 59). The Pappila site became the centre for the Utsjoki *siida* and a total of nine cottages were erected for the need of the merchants, Torneå burghers. Finally, by 1820 the market was brought to an end due to the vicinity of the Ice Sea markets such as Tanabru and Mortensnes and the inland market site at Inari (Itkonen 1948a: 206-208, 1948b: 203). However, the church is still situated in the area. According to written information, the majority of the Utsjoki *siida* practised reindeer herding in the 17th century. Otherwise the livelihood was based on hunting. By the 18th century some of the inhabitants had cows and sheep. Agriculture was pursued mainly at the Teno area and additionally seasonal fishing was practised (Itkonen 1948a: 236, 1948b: 287).

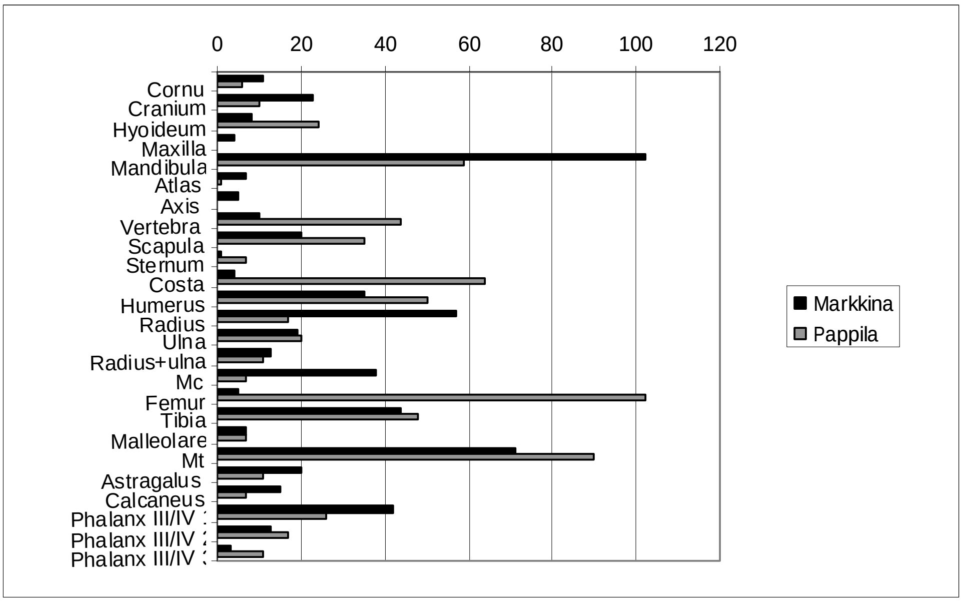

Fig. 2. The Number of Identified Specimen (*NISP*). Reindeer (*Rangifer tarandus*) at Enontekiö Markkina and Utsjoki Pappila.

Quantification of the bone material

In an osteological analysis the material can be quantified in many ways. Normally the fragments identified per species are referred to as *NISP* (*Number of Identified Specimen*). This is a very simple way of handling the material but it is, however, not without problems. When comparison between sites is done based on *NISP*, the fragmentation and taphonomical conditions should be similar (Hambleton & Rowley-Conwy 1997: 57; Lyman 1994: 502-15). When the actual amount of identified species is wanted, the so-called *MNI* (*Minimum Number of Individuals*) is counted. This happens normally by counting the times that a certain bone element from a certain section (for example left humeral) is present. When the *MNI* is counted, the *Minimum Number of skeletal Elements* (*MNE*) (for example the total amount of humeral in the material) comes as a by-product. Due to the fact that the *MNI* can falsify the amount of whole animals in the material the *MNE* gives a more accurate picture of the carcasses present (Hambleton & Rowley-Conwy 1997: 57; Lyman 1994: 502-15).

The material at both sites was fairly well preserved and there was often no difficulty in identifying the fragments as long as certain morphological details were present (Lahti 2004a; Ukkonen 1991). The problem with my study was that the two materials were analysed by two different people and therefore the results were not altogether comparable. The analysis made in 1991 by Pirkko Ukkonen did not contain the mass of the bones and therefore I had to rely on fragments alone (see Fig. 2). However both *MNE* and *MNI* results counted by the author are given here (see Figs. 3-4).

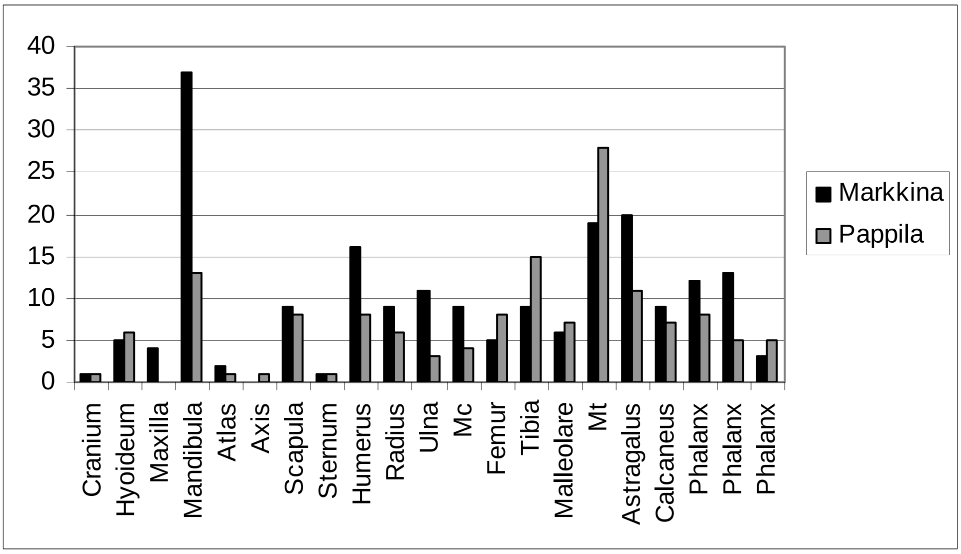

Fig. 3. The Minimum Number of Elements (*MNE*). Reindeer (*Rangifer tarandus*) at Enontekiö Markkina and Utsjoki Pappila.

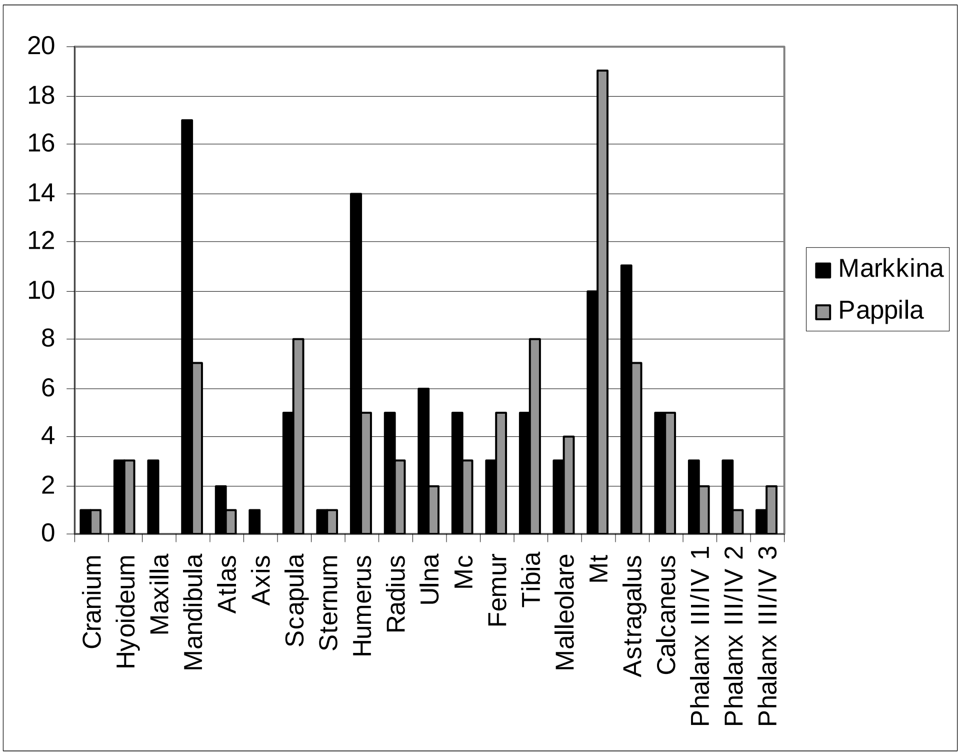

Fig. 4. The Minimum Number of Individuals (*MNI*). Reindeer (*Rangifer tarandus*) at Enontekiö Markkina and Utsjoki Pappila.

Results and discussion

Handling and butchering

Given the presence of all parts of the carcass in both sets, a conclusion can be made that the primary butchering was in most cases done in the immediate vicinity or at least in the near neighbourhood of the dwellings (see Fig. 2). In some cases the cranium was left at the primary butchering site. The smaller amount of cranial elements in Pappila is probably related with the fact that the excavation area around the *goahti* was more limited than in Markkina. However, at both sites the two first cervical vertebrates *atlas* and *axis* are under-presented when compared with other parts of the carcass and thus it is probable that they, along with the cranial elements were in several cases left at the kill-site (see Fig. 3). The sites were occupied in January and February and the butchering was done mainly outside the dwelling and only some parts were further processed inside.

The large amount of mandibles (lower jaw) in Markkina is noteworthy, a total of 37 elements originating from 17 individuals are present in the material (see Figs. 3-4). The reason was the utilisation of marrow inside the mandible (Itkonen 1948b: 258; Hambleton & Rowley-Conwy 1997: 62; Outram 2001: 401-402). The tongue was in earlier days as well as nowadays considered to be a delicacy (Itkonen 1948b: 258). This explains the presence of hyoid bones (tongue bones) in both materials.

When the postcranial elements are studied there is some inequality in the presence of different elements. According to the material, approximately five animals were in both cases taken to the dwelling site and further processed there. However, some parts are present more often and an imbalance can be seen in both materials. In several cases only left or right-sided elements were brought to the site (see Figs. 3-4). The most startling difference relates to the humerus and metatarsus. There are altogether 16 humeral in Markkina, and these elements come from at least 14 individuals. The humerus is a steak bone. These elements were taken to the market place in order to use them as merchandise. Probably other parts of the carcasses were eaten outside the market place where the flock pastures were situated. In Pappila, the largest individual bone group was the metatarsals. A total of 28 elements, originating from 19 individuals, were identified. These large amounts of butchered metatarsals indicate that marrow consumption was practiced and valued (Hambleton & Rowley-Conwy 1997: 62; Outram 2001: 401-402).

In my material epiphyses (long bone articulations) are identifiable and whole, which indicates that the inhabitants hardly suffered from malnutrition since there was no need to crush the bones for ultimate consumption of the fat (Outram 1999: 103). The material does not argue against the selling of the fillets, because when filleted the epiphyses remain identifiable (Binford 1981: 91). The diaphyses (shaft of long bone) are not well represented, although they can be so fragmented that they remain invisible in the material. The butchering of the phalanges (toe and finger bones) for bone marrow indicates very intensive use of the carcass (Hambleton & Rowley-Conwy 1997: 62). Small amounts of identified metacarpals are related with the fact that this bone as well as the antlers were used as a raw material for artefact production (Itkonen 1948a: 501, 1948b: 299). Radioulna (upper front limb bones) and tibia (shinbone) were sliced and cooked, which is clearly visible in both materials, especially in Pappila (Itkonen 1948b: 501). The small amount of costa (rib bones) and vertebrae is noticeable in both materials (see Fig. 2). The vertebrae are of low utility and were probably already abandoned at the site where the primary butchering occurred (Hambleton & Rowley-Conwy 1997: 62-3). However, the vertebrae contain a lot of marrow and thus a lot of nutrient value, perhaps they were enjoyed further away where the flock was situated. It is a well-known fact that the ribs and fillets were sold and the less valuable parts were consumed (Itkonen 1948b: 259). This is the reason for the low amount of costae.

Age structure

According to the fusion of the long bones, most of the animals have been adults (see Fig. 5). In Markkina only one animal is sub adult and in Pappila the amount is three. The fusioning of the long bones of reindeer has been studied by Hufthammer (1995). After a preliminary survey the majority of the slaughtered animals in my materials are older than 1,5 years. The youngest animal in Markkina was under 18 months (the fusioning of the distal epiphysis of the humerus happens at the age of 18 months). In Pappila the youngest individual was under 2,5 years of age (the fusioning of the distal part of the tibia takes place at an age between 1,5-2,5 years).

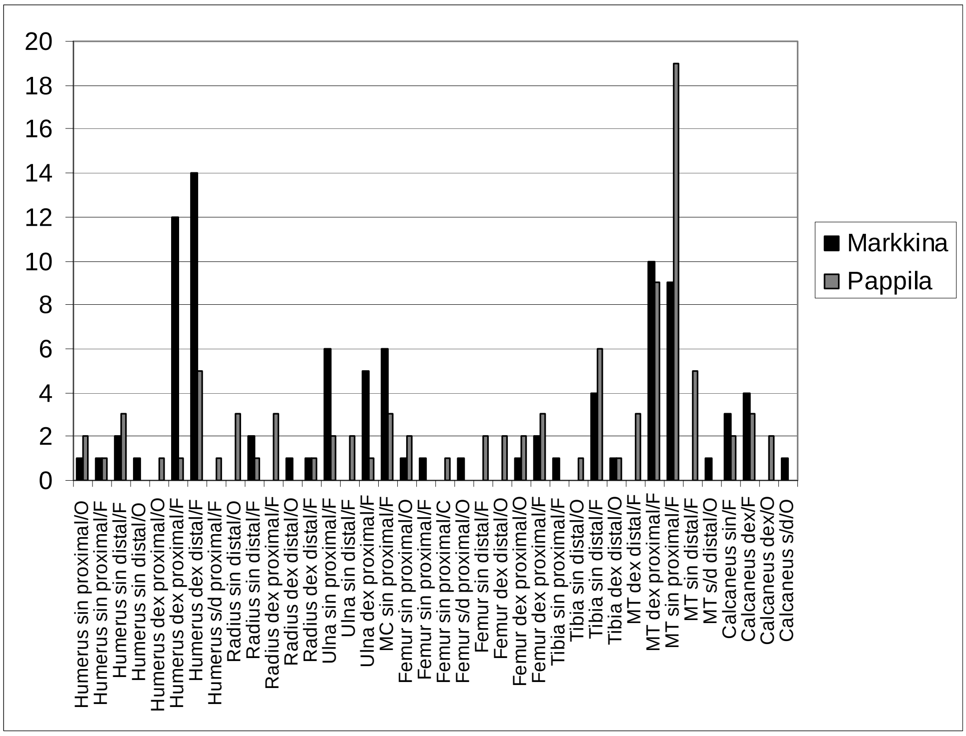

Fig. 5. The fusioning of the long bones based on *MNE*. Reindeer (*Rangifer tarandus*) at Enontekiö Markkina and Utsjoki Pappila.

After the fusioning the only way to give an age to the animal is with dental wear (see Fig. 6). The dental material from Markkina and Pappila consisted both of loose and intact teeth. The dental material from Markkina was larger due to the large amount of mandibles. The dental wear in Markkina shows that the majority of the butchered animals have been adults. The number of young and old animals seems to be equal. In Pappila the sub adults seem to be a minority, otherwise the division between some wear and considerable wear seems to be equal.

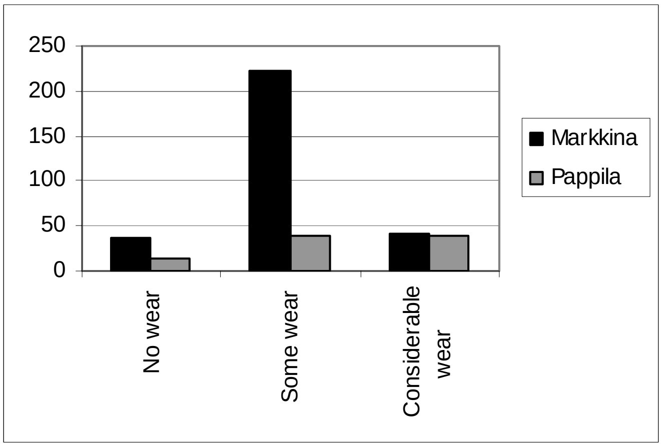

Fig. 6. The dental wear of reindeer (*Rangifer tarandus*) at Enontekiö Markkina and Utsjoki Pappila.

Livelihood

The reindeer has always had a very meaningful and important role in the Saami culture. It has been and is still used as food, for clothing and as a raw material for making artefacts and for talking to gods in the form of sacrifices. The change from hunter-gathering to pastoralism and finally to reindeer herding was a shift in the relationship between human being and animal but also a social change. The reindeer, a living being, became a property. This also changed the social structure of the Saami society, which now became socially stratified. The old society system, *siida*, now became looser, since gathering to the same village during the winter months was not practical for the herders with large flocks (Itkonen 1948b: 256-9, 274-81; Ingold 1978: 149, 152).

The increasing specialisation in reindeer herding can be seen in written information on the trade meetings. During the 17th century the nomadic Saami bartered goods with items originating from reindeer and an even more biased specialisation occurs during the 18th century (Hansen 1984: 57, 67, 69). With the emergence of reindeer herding the relationship between human being and animal changed and it also had its influence on the social relationships of individuals (Fjellström 1962: 265; Hansen & Olsen 2004: 208-209). Instead of a dead animal, the living animal became the target of ownership (Ingold 1978: 148, 152; Hansen & Olsen 2004: 208-209). This among other changes – legal arrangements, new administration, colonisation and new religion – stratified the society and was a huge change in the Saami way of life (Arell 1977: 28-9; Hansen & Olsen 2004: 210-11; Olsen 1987: 65).

The question of the beginning of reindeer herding is still open. The question of whether the earliest reindeer flocks that were grazing in the most northern parts of Scandinavia were morphologically wild or domesticated is still open (Odner 1992: 34;

Hambleton & Rowley-Conwy 1997: 55). According to the reindeer legislation of King Carl IX at the beginning of the 17th century, the largest flocks were grazing in the mountain areas in the border area of Sweden and Norway. At that time, only the Rounala *siida* practised pastoralism. In inner Finmark and Kemi Lapland, reindeer was still used only as a draught and decoy animal (Hansen & Olsen 2004: 206-207). According to written information, during the 18th century the Saami of Rounala, Suonttavaara, Peltojärvi and Utsjoki based their economy on the reindeer (Itkonen 1948b: 272, 283). Since the most common species in the Markkina and Pappila assemblages is reindeer, it can be argued that reindeer was dominant in the economy of these households (Hambleton & Rowley-Conwy 1997: 59). Otherwise the population engaged in seasonal fishing and bird foraging in the inland regions as well as in Ice Sea fishing (Itkonen 1948b: 272, 283). Small ungulates, sheep and goat were used for milking and wool production (Itkonen 1948b: 270, 280, 340; Hambleton & Rowley-Conwy 1997: 68). However, the nomadic Saami favoured the goat, since it was more able to move across the mountains (Itkonen 1948b: 190).

Conclusions

According to my material, in some cases the whole carcass, but sometimes only elements of it, were brought to the site. Probably the best parts of the carcass were sold and only the best parts were further processed there. However, every element was fully utilized by the Saami. The nutrient marrow was used but, since the epiphyses were whole, there seem to have been no need for extra nutrition. A more thorough study is needed on reindeer herding and its variations before the material can be fully utilised. Since the majority of the material consists of adult individuals it is uncertain whether the inhabitants were reindeer nomads. Perhaps they were pastoralists and utilized the animals also by milking them in the summer (Odner 1992: 34; Hambleton & Rowley-Conwy 1997: 68-9). In a meat-based economy, mostly young and sub adult animals are slaughtered (Hambleton & Rowley-Conwy 1997: 68). In earlier times 1,5 year old castrates and old females were slaughtered. Nowadays mostly 0,5 year old juveniles as well as some old animals are slaughtered resulting in the homogeneity of the flock (Jomppanen & Näkkäläjärvi 2000: 83; Soppela 2000: 93). However, the structure of the flocks has varied between reindeer communities recently and for example during the 1990s the communities at Enontekiö still butchered mostly older male individuals (Heikkinen 2002: 166). Nowadays the main reason for the structure of the flocks is the condition of the pastures together with the optimal meat exploitation. The condition of pastures was probably not an issue in earlier times when the lifestyle was mobile and state borders did not affect the migratory routes.

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Physical anthropology

Early hominid mating system: challenging body size dimorphism

Juho-Antti Junno

Abstract. *High rate of sexual dimorphism among early hominids and modern human ovulatory concealment have aroused suggestions that the original state of mating system in human lineage was polygynous or uni-male. Traditional focusing on body size dimorphism is questioned in this paper, as are the methods used when fossils are sexed. Because early hominid canine size dimorphism is not correlated with suspected high rate of body size dimorphism and ovulatory concealment has arisen also among multimale primates, the information about sexual dimorphism and the mating system is partly contradictory. When modern behavioural ecological implications and fossil evidence are combined, it seems probable that the ancestral state of the mating system in hominid lineage has not been uni-male.*

Keywords: *Pan, Gorilla, mating system, sexual dimorphism*

Introduction

The original state of the mating system in human lineage is debated. Even the modern human mating system is occasionally questioned and, for some, social monogamy or serial monogamy are more accepted definitions than strict monogamy. Information about the mating system of earlier representatives of human lineage is sparse and based on hominid fossil data and comparisons to extant primates. All of the existing mating systems have been suggested for ancestral human mating system. The aim of this paper is to estimate how likely that state of mating system was polygynous or uni-male. There is no general agreement about the first member of human lineage, nor exact timing. A few new candidates such as *Ardipithecus ramidus* (White et al. 1994), *Orrorin tugenensis*

(Senut et al. 2001) and *Sahelanthropus tchadensis* (Brunet et al. 2002) are found but their status as the first hominid is questioned (e.g. Wolpoff et al. 2002). A high rate of bodysize dimorphism (Richmond & Jungers 1995) is thought to indicate polygynous mating system among such later and also better known hominids as *Australopithecus anamensis* (Ward et al. 2001) and *Australopithecus afarensis*. Strong male-to-male competition is a factor behind bodysize dimorphism between sexes within various animals (e.g. Krebs & Davies 1995). Within higher primates, gorillas are the most obvious example of sexually dimorphic primates. Gorilla males are about twice as heavy as the females (e.g. Jerison 1973).

Size dimorphism seems to have a clear connection with mating system in extant primates. The greatest difference in bodysize between sexes is in uni-male/polygynous mating system. In a multimale mating system the difference is slighter and in a monogamous mating system sexual dimorphism is normally slight. Although humans are monogamous, the bodysize ratio between sexes is 1.15 (Richmond & Jungers 1995) and in some extreme populations even 1.40 (Junno & Niskanen 2004b). Modern human bodysize difference between sexes is explained best by sex-specific life strategies (Junno & Niskanen 2004b). The rate of dimorphism especially among the earliest hominids seems very high, exceeding the values seen among extant chimpanzee species (McHenry 1992; Lockwood et al. 1996; Ward et al. 2001). The high rate of dimorphism has led to the assumption that the earliest hominids had a strong male-to-male competition and probably a uni-male mating system. It is assumed that sexual dimorphism was great in both hominid and chimpanzee lineage and it decreased independently in both lineages (Lockwood et al. 1996). Some details are however in opposition to that assumption.

First, our closest relatives, chimpanzees, do not have a uni-male but a multimale mating system and neither have modern humans a uni-male mating system. This is argued by the theory according to which the ancestral state of mating system during the separation of chimpanzee and human lineages was uni-male, and mating systems evolved then separately to multimale and monogamy (Sillen-Tullberg & Moller 1993). Canine size dimorphism is however supporting the multimale mating system during the separation because both chimpanzee and hominid lineage show tendency to a reduced canine size (Plavcan 2001). For this author, it implies reduced male to male competition already before separation of those lineages.

Second, the rate of body size dimorphism within the earliest hominids is not as great as it is within modern gorillas (McHenry 1994), and there is also a possibility of a major error when sexing the hominid fossil finds (Häusler & Schmid 1995; Tague & Lovejoy 1998). Third, sexual dimorphism in canine does not correlate with body size dimorphism (Johanson & White 1979; Fleagle 1988; Plavcan & van Schaik 1994) and canine dimorphism is minimal even within the earliest hominids. It is also important to realise that the extant hominoid material and fossil data are not comparative in every respect (Kelley & Qinghua 1991). The correlation between sexual dimorphism and the mating system is evidently not as clear as it seems and alternative explanations are possible.

Bodysize dimorphism

The rate of sexual dimorphism among early hominids is identified mostly (or totally) from body size. As mentioned, the fossil evidence of the latest new species is very sparse and in this paper, when dealing with bodysize dimorphism, early hominid signifies early australopithecines. There is no general consensus about how dimorphic early hominids were, and at least three different views are proposed. Amount of dimorphism is found 1) extreme and comparable to gorillas (e.g. McHenry 1988; Richmond & Jungers 1995), 2) something intermediate between gorillas and modern humans (e.g. Kimbel & White 1988; McHenry 1992, 1994), or 3) similar to modern humans (Lovejoy et al. 1989; Reno et al. 2003).

The previous paper by this author (Junno & Niskanen 2004a) found chimpanzees less dimorphic in body weight than the recent Finns (Table 1). Gorillas were far more dimorphic and there was no overlap in body weight between sexes in gorilla sample. The lightest adult male gorilla weighed 112 kg and the estimated weight for the largest female was 107 kg. Body size (weight) dimorphism is here presented by bodyweight ratio (male weight/female weight). The following ratios were found: chimpanzee (*Pan troglodytes troglodytes*) 1.29 (n. 36), gorilla (*Gorilla gorilla gorilla*) 2.05 (n. 29) and the northern European human (*Homo sapiens sapiens*) population 1.40 (n. 51). An important notification is that all these samples contain specimens from just one subspecies. Body sizes between subspecies seem to vary considerably among extant hominoids.

Table 1. Body weights for extant hominoids.

species	male	female	ratio
Gorilla gorilla gorilla			
mean	164	80.3	2.04
min	112.2	67	
max	213.8	107.4	
Pan troglodytes troglodytes			
mean	55.9	43.2	1.29
min	44.4	36.5	
max	67.4	50.35	
Homo sapiens (Finns)			
mean	83.4	59.5	1.40
min	63.5	46	
max	104.1	89.3	

Weights in kilograms. *Pan* and *Gorilla* data adapted from Junno & Niskanen 2004a. Human weights are from Junno & Niskanen 2004b.

In hominid samples bodysize information is often based on individual dimensions and even the fairly complete specimens like *Lucy* or *Turkana boy* are rare. Here dimorphism among three sample populations mentioned in the previous section, is tested using individual dimension as a marker of body size. Dimension observed was distal femur head size and there was overlap between sexes in that dimension even in the gorilla sample (Table 2). The ratio of sexual dimorphism observed from femoral epicondylar breadth was 1.21 in the gorilla sample and 1.12 in the human sample. Among chimpanzees the same figure was only 1.08. Figures 1-3 show species-specific graphs for relations of body weight and epicondylar breadth of distal femur. In human and chimpanzee samples there is no clear boundary between sexes in weight or distal femur diameter. In the gorilla sample there is clearly two sex-based groups, but in distal femur head, there is just one homogenous group.

Table 2. Distal femur breadth.

species	male	female	ratio	t-test	Sig
Gorilla gorilla gorilla				6.741	0.000
mean	96.5	80	1.21		
min	70.7	68.5			
max	106.6	88.7			
Pan troglodytes troglodytes				4.785	0.000
mean	64.9	60.2	1.08		
min	59.1	53.7			
max	71.3	65.02			
Homo sapiens (Finns)				7.145	0.000
mean	97.4	86.7	1.12		
min	89	77			
max	106	98			

Femoral epicondylar breadth in millimetres. In human sample measured from living individuals.

Sexing the fossil finds

Within the earliest hominids, sexing seems to be relatively easy. There are small specimens and large specimens without noticeable overlap between them (McHenry 1992). Small specimens are assumed to be females and large ones males (e.g. Richmond & Jungers 1995). One of the smallest specimens is AL-288. It is a well preserved, 3-million-year old specimen of *Australopithecus afarensis*, and it is thought to be a female, but that status is also questioned (Häusler & Schmid 1995; Tague & Lovejoy 1998). For some researchers *Australopithecus afarensis* seems too dimorphic to represent just one species, and division into two species is proposed (e.g. Olson 1981; Senut 1986). This author sees that AL-288, if it is a female, has been given too much emphasis when sexual dimorphism is investigated. AL-288 is small and female and is seen as a model example of morphology of female *Australopithecus afarensis*. Because *A. afarensis* is best known of the early hominid species, it affects strongly the whole view of early hominid size dimorphism.

Overlap in morphological traits between sexes is not found among the earliest hominids according to McHenry (1992). However he admits that there is a possibility that overlap between sexes exists, but additional fossils are required to prove that. Among later hominids the possibility of overlap seems stronger, but the samples are still categorised traditionally via methods that are described earlier in this paper. I agree with

Reno et al. (2003) and see the sexing method, and the statement about overlap, very questionable when overlap in the extant, dimorphic hominoid material is clearly present (Figs. 1-3). Within chimpanzees the overlap in morphological traits between sexes is noticeable and definite sexing would be impossible if it would be based on just a few skeletal traits. It seems thus clear that there should exist overlap between sexes in skeletal dimensions also within early hominids unless they are more dimorphic than gorillas. Since there must be overlap between sexes among early hominids, the amount of body size dimorphism is clearly overestimated.

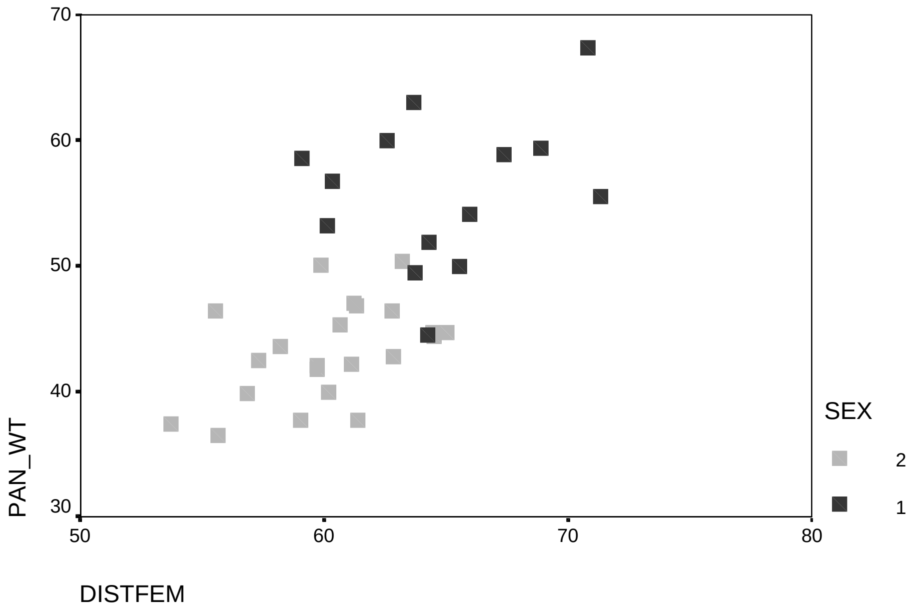

Fig. 1. Femoral epicondylar breadth and body weight in *Pan troglodytes troglodytes* (sex1=male, sex2=female).

Canine size dimorphism

Dentition is a common find in paleoanthropology and there is dental material from even the earliest hominids. As a rule, canines are small in hominid lineage in comparison to other primates. This was the case already with *Ardipithecus ramidus,* which had small canines compared to most of the primates (White et al. 1994). In hominid lineage there is a clear evolution in canine size, and first hominids had large canines compared to *Homo* (Plavcan 2001). Canine size reduction in hominid lineage is inexplicable because bodysize dimorphism remained quite high (e.g. McHenry 1992). The most popular explanation for bodysize versus canine size dilemma was presented by Brace (1972), who claimed that weaponry in male to male competition changed from canines to hand-held

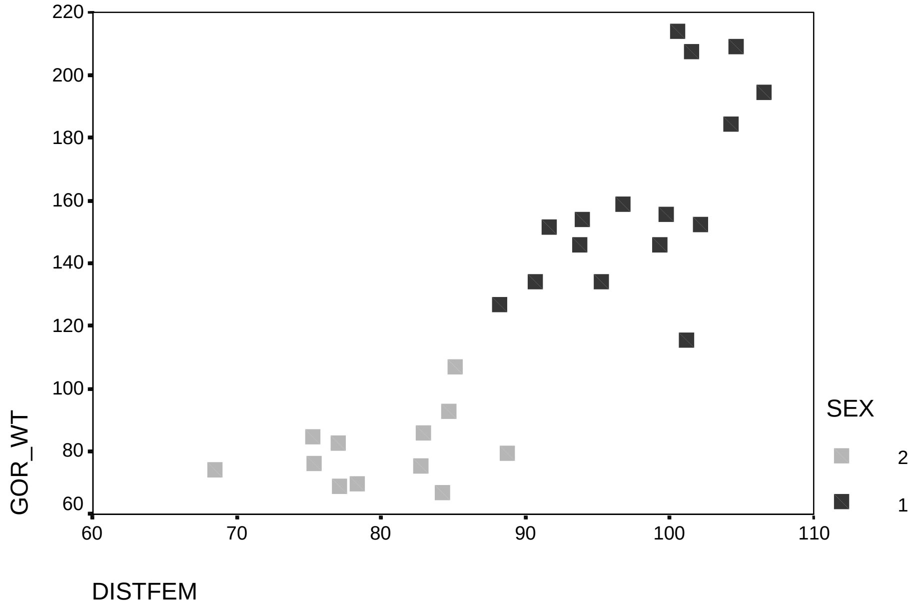

Fig. 2. Femoral epicondylar breadth and body weight in *Gorilla gorilla gorilla* (sex1=male, sex2=female).

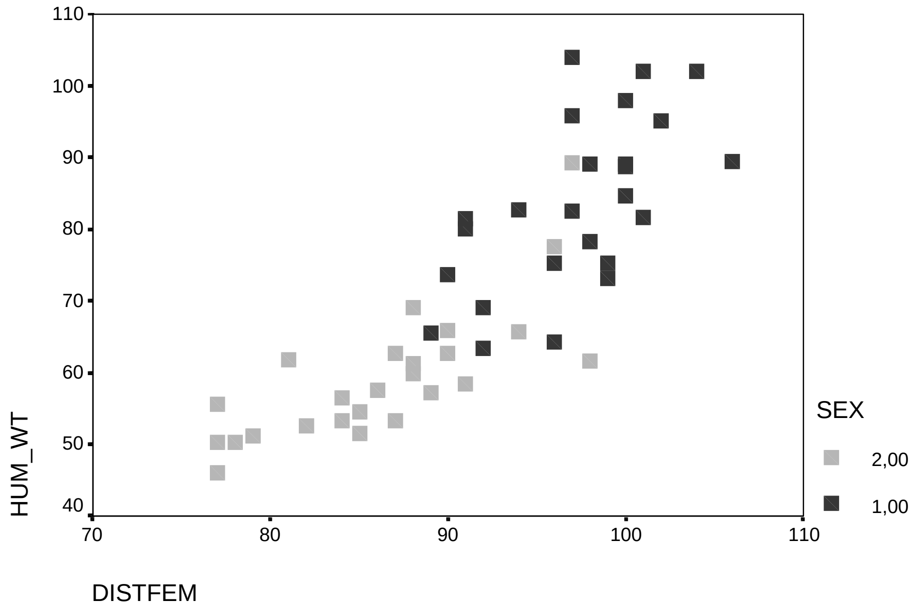

Fig. 3. Femoral epicondylar breadth and body weight in North-European human population (sex1=male, sex2=female).

tools. However chimpanzees use tools as well but have large canines in comparison to humans. Also the status of canines as weaponry is symbolic, rather than practical.

It is assumed that canine size reduction is typical for hominid lineage and the ancestral state was large canines and strong male to male competition. However, this statement is questioned by Plavcan (2001). He points out that 'compared to most other primates chimpanzee canines are relatively small in both male and female and canine dimorphism is minimal'. I interpret this statement as supporting a theory that the multimale mating system was the original state of both chimpanzee and hominid lineage, and for some reason the reduction in canine size had already started when chimpanzee and hominid lineages split.

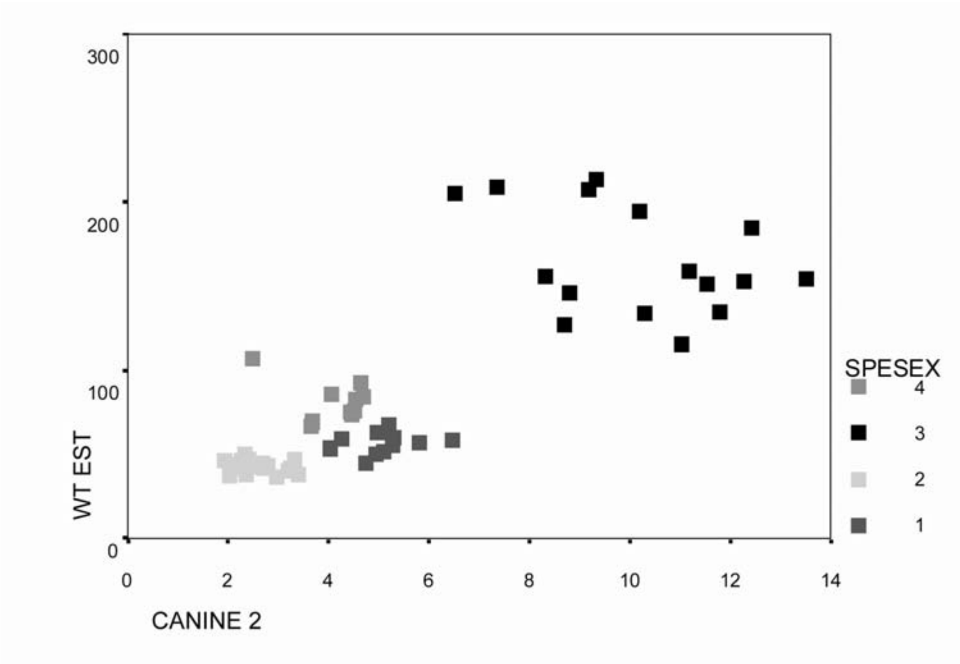

Fig. 4. **spesex1= male *Pan*, spesex2= female *Pan*, spesex3= male *Gorilla*, spesex4= female *Gorilla*.**

In order to test canine size dimorphism in extant African apes I measured 79 chimpanzee and gorilla canines. In table 3, sizes of canine of chimpanzee and gorilla are presented as their surface area. This author selected surface area because it is best related with canines function as visual weaponry. The result was that the canine surface area ratio between sexes was 1.93 in the chimpanzee sample and 2.49 in the gorilla sample. Undisputedly dimorphism in canine is more obvious in gorilla than chimpanzee. Figure 4 shows how canine size and body weight are correlated in African apes. In canine size there is clearly two sex based groups in both chimpanzee and gorilla sample without any overlap. For this author evolution of canine size seems a more accurate way to estimate male-to-male competition than body size dimorphism that may vary depending on other reasons as predatory. If weaponry in human lineage did not change from canine to hand held tools, canine size reduction clearly shows tendency to reduced male to male competition.

Table 3. Canine size.

species	male	female	ratio	t-test	Sig
Gorilla gorilla gorilla				11.820	0.000
mean	10.16	4.08	2.49		
min	6.53	2.49			
max	13.52	4.69			
Pan troglodytes troglodytes				10.829	0.000
mean	5.03	2.6	1.93		
min	4.02	1.94			
max	6.48	3.41			

Upper left canine size in sq.-centimeters.

Ovulatory signs

Human females have no sexual swellings or any other ovulatory signs. It is assumed that the disappearance of ovulatory signs is connected with the mating system (e.g. Alexander & Noonan 1979). There seems to be a positive correlation between monogamy and concealed ovulation, but the state of the mating system when ovulatory signs disappeared in human evolution is unknown (Sillen-Tullberg & Moller 1993). Various hypotheses about concealed ovulation in human lineage are proposed. Two main hypotheses are ‘forced paternal investment’ (Alexander & Noonan 1979) and ‘confused paternity’ (Hrdy 1979). The third serious hypothesis is ‘sex for food’ (Hill 1982) which, in fact, is supported by more recent material about human behaviour (Baker & Bellis 1995).

The disappearance of ovulatory signs, depending on which theory is used, is thought to happen either before the monogamous state of the mating system, or hand in hand with transition to monogamy. The ancestral state of the mating system in human lineage is widely argued, and both an uni-male system (e.g. Sillen-Tullberg & Moller 1993) and multimale (e.g. Foley 1989) system with sexual swellings are suggested. Those who see the ancestral state of the mating system polygynous claim that in a multimale system, sexual swellings are too attractive to males and can not be selected against (e.g. Alexander & Noonan 1979). Sillen-Tullberg and Moller (1993) provide data, which clearly shows that ovulatory signs have disappeared 3-6 times under a multimale system, and macaques also show that also sexual swellings can disappear under a multimale system.

The ancestry of hominoid lineage is sparsely documented and the state of the mating system and ovulatory signals is highly hypothetical. According to analysis by Sillen-Tullberg & Moller (1993), slight signs of ovulation were the ancestral state in hominoid lineage and the mating system was uni-male. They assume that the ancestry of hominid lineage was a uni-male system and signs of ovulation were slight and later disappeared. In chimpanzee lineage slight signs of ovulation evolved into sexual swellings and the mating system shifted towards a multimale system. The multimale mating system and sexual swellings would then be typical for chimpanzee lineage only. However this author argues against the previous statement because the absence of sexual swellings in hominid lineage is justified by the assumption that sexual swellings cannot be selected against. The ancestral state of the mating system in hominid lineage is parallel with the previous question and the assumption that hominid lineage was polygynous is based on two factors: 1) The high rate of sexual dimorphism among early hominids which this author and paper strongly argues. 2) Sexual swellings (or in this context multimale system), cannot be selected against. In most of the analyses the sexual dimorphism has a leading role and this seems to be the case also in Sillen-Tullberg & Moller (1993). In the light of their data I believe that the ancestral state of the mating system in hominid lineage could have been multimale.

Discussion and conclusions

Based on Plavcan (2001), Tague & Lovejoy (1998) and Reno et al. (2003) I think that the explanation for highly dimorphic fossil data of early hominids is not verifiably sex based, but also intrasexual dimorphism might have been high. As Plavcan says, body size dimorphism alone is highly inaccurate way to define the mating system. In light of the extant hominoid data, I have made similar conclusion. The rate of body size dimorphism in hominids seems lower or at least not higher than in modern gorilla. The absence of a clear gap in skeletal and bodily dimensions between male and female gorillas within a subspecies indicates that size based sexing in fossil sample may lead to false conclusions. A lower rate of male to male competition among early hominids is supported also by canine size dimorphism. The shared 'un-uni-male' mating system could imply that the ancestry of hominid/chimpanzee lineage was multimale, and this theory is also slightly supported by the shared reduction in canine dimorphism. Neither is a multimale system excluded in light of modern human concealed ovulation. Among primates, ovulatory concealment has evolved also in the multimale mating system and so it should be possible in hominid lineage as well.

Acknowledgments

The author thanks Emil Aaltonen Foundation; Daphne Hills, the Natural History Museum of London; Malcolm Harman, Powell-Cotton Museum; Arja Kaitala, Milton Nunez and Markku Niskanen, University of Oulu.

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The reconstruction of body size and shape of the Paleolithic period Europeans

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Abstract. *Body weight and shape reconstructions are important because these variables correlate with species' life histories, ecological adaptations and social organizations. Body weight estimations are also necessary in assessing evolutionary trends in relative brain size and skeletal robusticity. Body size and shape reconstructions of the Paleolithic period Europeans indicate that body mass reduced and that there were several shifts in stature and body proportions. These changes reflect changes in selection pressures, nutritional status and population composition. Body masses provided by general and Finnish equations are compared. The female equations provide similar body masses. The general male equation probably underestimates body masses of pre-modern and Early Upper Paleolithic males due to their muscular hypertrophy and the relatively broad shoulders of the latter. Although the Finnish male equation may provide more correct body masses for these specimens, the general equations are more broadly applicable.*

Keywords: *body weight, body mass, body size, body shape, Palaeolithic period*

Introduction

Body mass and body shape provide information about life histories, ecological adaptations and social organization. It would also be impossible to determine relative brain size (Ruff et al. 1997) and skeletal robusticity (Ruff 2000b; Holliday 2002; Holt 2003) without body mass estimations.

Human body size and shape have climatic correlates. Large body size and relatively short limbs are common in cold climates, whereas the reverse is common in hot climates

(Ruff 1994; Katzmarzyk & Leonard 1998). The same pattern existed during the Pleistocene (Ruff 2002).

We reconstructed body sizes and proportions of the Paleolithic Period humans listed in Table 1. The European Upper Paleolithic specimens are subdivided into Early Upper Paleolithic (EUP; 35-20 ky BP) and Late Upper Paleolithic (LUP; 19-6 ky BP) samples. The latter includes Mesolithic period specimens. Medieval Swedes from Westerhus (Gejvall 1960; Junno, unpublished data) are used as a reference data.

Table 1. Fossil specimens. Writers have examined some of these specimens but most of the data is from literature (Verneau 1906, Matiegka 1938, McCown & Keith 1939, Trinkaus 1983, Niskanen 1990, Churchill 1994, Holliday 1995, Vandermeerch & Trinkaus 1999, Stringer et al. 1998, Arsuaga et al. 1999, Rosenberg et al. 1999, Holt 1999, Trinkaus et al. 1999 and Sladec et al. 2000).

Middle Pleistocene:	**EUP:**	**LUP:**
Berg Aukas	Baousso da Torre 2	Arene Candide 2, 4, 5, 10, 12, 13
Kabwe	Caviglione 1	Bichon 1
Atapuerca	Barma Grande 2	Chancelade 1
Boxgrove	Cro-Magnon 1, 2, 3	Continenza
Jinniushan	Dolni Vestonice 3, 13, 16	La Medeleine 1
	Pavlov 1	Neussing 2
Skhul / Qafzeh:	Grotte des Enfants 4, 5	Obercassel 1, 2
Skhul 2, 4, 5, 6	Mladec 24	Le Peyrat 5, 6
Qafzeh 8, 9	Abri Pataud 4, 5	Romito 3, 4
	Paviland 1	Romalelli 1
Neandertals:	Predmost 3, 4, 9, 10, 14	Veyrier 1
La Chapelle-aux-Saints 1	Parabita 1, 2	Gough’s Cave 1
La Ferrassie 1, 2	Rochereil 1	Rochereil 1
Neandertal 1	Paglicci 25	Bruniquel 24
Regourdou 1		Cap Blanc 1
Spy 1, 2		Grotte des Enfants 3
Lezetxiki 1		St. Germain-la-Riviere 4
La Quina 5		San Theodore 4
Kiik-Koba 1		Tagliente
Amud 1		Gramat 1
Kebara 2		Hoedic 5, 6, 8. 9
Shanidar 1, 3, 4, 5, 6		Rastel 1
Tabun 1		Teviec 1, 11, 16

Stature estimation

Statures are most often estimated from long bone lengths with regression equations (e.g., Trotter & Gleser 1952, 1958) developed for recent humans. We did not use this approach because there were shifts in body proportions during the Paleolithic period. Instead we used modifications of Fully’s (1956) anatomical method in which stature is based on all of its components:

Stature (in cm) = BBH + (1.503 x T1L5) +(1.015 x FTL) + 14.0 (males)

Stature (in cm) = BBH + (1.503 x T1L5) + (1.015 x FTL) + 13.55 (females)

The first multiplication converts T1L5 (summed posterior vertebral heights from T1 to L5) to promontory-basion length (data from Todd & Pyle 1928, Lanier 1939; age corrections from Giles 1991) and the second dry bone lengths to green lengths (Krogman & Iscan 1986: Table 8.37). The addition is the sum of scalp thickness (5 mm, Boldsen 1984), promontory-acetabulum height (65 mm, Niskanen, unpublished) and foot height (males 7.0 cm, females 6.55 cm, Özaslan et al. 2003). Sample- and sex-specific mean values represent missing basion-bregma heights (BBH).

T1L5 was estimated from sex-specific percentages of vertebral heights to the total T1L5 length (computed from Matiegka 1938: Tab. III) if the sum of preserved vertebral heights was at least 20% of the total T1L5 length. In other cases, T1L5 was estimated from the combined bicondylar femoral and maximum tibial length (FTL) by the following equations:

T1L5 (LUP) = 0.449 x FTL +25.293 (r = 0.693; N = 24)

T1L5 (EUP) = 0.305 x FTL + 119.262 (r = 0.70; N = 13)

T1L5 (NEA) = 0.409 x FTL +55.8 (r = 0.837; N = 6)

Missing long bone lengths are often estimated from the lengths of other long bones (e.g. Trinkaus & Rhoads 1999). Here, the following equations were used to estimate missing FTL for the Upper Paleolithic (UP) and Neandertal (NEA) specimens from femoral, tibial or humeral lengths:

FTL = (UP) = 1.794 x Fem + 18.852 (r = 0.983; N = 48)

FTL = (UP) = 2.069 x Tib + 46.815 (r = 0.977; N = 48)

FTL = (UP) = 2.2 x Hum + 119.055 (r = 0.906; N = 42)

FTL = (NEA) = 1.883 x Fem – 45.529 (r = 0.996; N = 9)

FTL = (NEA) = 2.094 x Tib + 64.539 (r = 0.995; N = 9)

FTL = (NEA) = 2.231 x Hum + 67.686 (r = 0.916; N = 7)

Statures of Atapuerca 1 and Boxgrove 1 were estimated with Trotter and Gleser’s (1958) equations for white males and those of Kabwe and Skhul 4 with those for black males. The stature of Jinniushan 1 was estimated from the ulnar length with Trotter and Gleser’s (1952) equation for white females. The regression approach was used in these cases because body proportions of these individuals are inferred from human ecogeographical pattern of body proportions.

We could have minimized the number of missing element estimations, each of which adds estimation error, by estimating statures of all specimens directly from long bone lengths. This was not done for two reasons. First, existing regression equations may not be appropriate for samples in question. Second, the number of fossil specimens for which stature is determined anatomically without missing element estimations is too small for computing reliable sample- and sex-specific regression equations.

Research in progress will soon reveal whether we made a correct decision regarding the stature estimation. Chris Ruff and his students are working to determine at what point missing element estimations make an anatomical method to estimate stature less accurate than regression equations in which stature is estimated from long bones lengths.

Body mass estimation

Body mass of fossil specimens is often estimated from a single skeletal measurement, i.e. femoral head diameter (McHenry 1992; Grine et al. 1995; Ruff et al. 1997). We did not use this method here because our experiments with the Westerhus specimens indicate that existing equations (e.g. Ruff et al. 1991) of estimating body mass from the femoral head diameter underestimate body masses of tall individuals and overestimate those of short individuals. Instead, we used the stature and bi-iliac breadth method (Ruff 1994) by applying equations based on the worldwide and Finnish anthropometric data:

General equations (Ruff et al. 2005):

Weight (males) = 0.422 STA + 3.126 BIB – 92.9 (r = 0.913)

Weight (females) = 0.504 STA + 1.804 BIB – 72.6 (r = 0.819)

Finnish equations (this work):

Weight (males) = 0.268 STA + 4.382 BIB – 97.852 (r = 706; SEE = 8.69; N = 28)

Weight (females) = 0.197 STA + 2.629 BIB – 46.862 (r = 0.713; SEE = 4.49; N = 29)

The bi-iliac width (BIB) estimation equation (BIB = 1.015 x skeletal bi-iliac br. + 1.08, in cm) is based on the mean skeletal (Krogman & Iscan 1986: Table 7.10) and cadaveric bi-iliac breadths (Todd & Lindala 1928) of Euro-Americans and African-Americans. The multiplication corrects for bone shrinkage (Krogman & Iscan 1986: Table 8.37) and the addition for soft tissue. Since this equation may not adequately adjust for the soft tissue thickness, increasing with hip width (Ruff pers. comm.), we may underestimate the bi-iliac breadths of broad-bodied individuals.

The following equations to estimate the missing BIB from the sacral breadth (SAB) and the inlet breadth (INB) are based on the Westerhus data:

BIB (males) = 1.255 SAB + 124.769 (r = 0.599; N = 58)

BIB (females) = 1.287 SAB + 113.212 (r = 0.582; N = 57)

BIB (males) = 1.241 INB + 114.641 (r = 0.584; N = 57)

BIB (females) = 1.165 INB + 109.143 (r = 0.715; N = 57)

Based on ratios between observed and predicted values, the UP specimens' BIB estimations from SAB were multiplied by 1.02 and those from INB by 1.03. The Neandertals' BIB estimations from SAB were multiplied by 1.126.

The following equations were used to estimate BIB from the bispinous breadth of ilium (BSB) and the acetabulo-symhyseal pubic length (ASL):

BIB (males) = 0.673 BSB + 163.041 (r = 0.40; N = 14)

BIB (females) = 1.674 BSB + 7.149 (r = 0.729; N = 6)

BIB (males) = 1.632 ASL + 157.665 (r = 0.502; N = 13)

BIB (females) = 1.352 ASL + 165.866 (r = 363; N = 5)

The UP specimens' BIB estimations from BSB were multiplied by 1.03 and those of the Neandertals by 1.148. La Ferrassie 1's BIB estimation from ASL was multiplied by 1.03. Our BIB estimations from dimensions of bones forming the pelvis are at least as accurate as those estimated from stature, estimated from long bone lengths (e.g. Ruff et al. 1997), or femoral length (e.g. Trinkaus & Rhoads 1999).

The biacromial / bi-iliac breadth ratio and lower limb / trunk length ratio affect the accuracy of body mass estimations (Ruff 2000a). Here, the clavicular length / bi-iliac breadth ratio represents the ratio of shoulder to hip breadth and the T1L5 / FTL ratio represents the lower limb / trunk length ratio. The crural index indicates the relative distal limb segment length (Table 5).

Our body mass estimations from stature and bi-iliac breadth are largely based on estimated dimensions. Both stature and bi-iliac breadth estimation may include several missing element estimations, each of which accumulates estimation error (Ruff, pers. comm.). However, because this estimation error is random, sample-specific means of body mass estimations may not be affected.

Results and discussion

Middle Pleistocene humans were tall, broad-bodied and heavy. Their body proportions, i.e. shoulder to hip width ratio, are unknown but skeletal anatomy indicates muscular hypertrophy (Arsuaga et al. 1999). The latter may suggest that their actual body masses were closer to those provided by the Finnish equations than to those provided by the general equations (Tables 2-4).

Table 2. Mean statures. NEA = Neandertals, EUP = Early Upper Paleolithic Europeans, LUP = Late Upper Paleolithic and Mesolithic Europeans; WES = Medieval Swedish specimens from Westerhus. Recent European mean statures are computed from Jürgens et al. (1990).

Sample	Sex	N	Stature	Std	Min	Max
Berg Aukas	M	1	173.0	---	---	---
Kabwe	M	1	174.3	---	---	---
Atapuerca	M	1	175.7	---	---	---
Boxgrove	M	1	176.0	---	---	---
Jinniushan	F	1	168.8	---	---	---
Skhul/Qafzeh	M	5	176.1	3.8	171.1	179.9
	F	1	162.0	---	---	---
NEA	M	13	166.8	5.2	159.0	177.4
	F	5	151.3	5.0	144.6	158.2
EUP	M	15	175.0	7.1	165.9	191.9
	F	10	163.1	6.7	154.8	177.0
LUP	M	25	167.1	6.0	153.9	176.7
	F	11	157.8	4.1	151.1	163.7
WES	M	20	172.5	5.9	160.6	182.0
	F	22	158.7	6.2	141.0	169.6
Recent Europeans	M	---	175.6	---	---	---
	F	---	163.8	---	---	---

Table 3. Subsets of samples composed of specimens for whom it was possible to estimate the living bi-iliac breadth and, therefore, body mass. BM1 = body mass based on worldwide anthropometric data (Ruff et al. 2005). BM2 = body mass based on Finnish anthropometric data.

	Sex	N	Stature	Bi-iliac (living)	BM1	BM2	BM2/BM1
Kabwe	M	1	174.3	30.9	77.3	85.8	110.9
Atapuerca	M	1	175.7	35.6	92.5	106.6	115.2
Jinniushan	F	1	168.8	36.0	77.4	81.0	104.7
Skhul 4	M	4	178.0	29.5	74.4	80.5	108.2
NEA	M	9	167.8	32.1	78.3	89.2	113.9
NEA	M	1	150.7	29.8	57.0	61.1	107.1
EUP	M	8	176.8	29.4	73.6	79.8	108.4
	F	5	163.9	28.4	61.3	60.1	98.3
LUP	M	15	166.4	28.5	66.5	73.1	109.9
	F	7	159.8	27.6	57.7	57.1	98.9
WES	M	20	172.5	29.1	70.9	77.3	109.0
	F	19	159.0	27.6	57.5	57.1	99.4

Table 4. Mean sex-specific clavicular lengths (CLA), skeletal bi-iliac breadths (BIB), combined femoral and tibial lengths (FTL) and summed posterior heights from T1 to L1 (T1L5). Euro- and African-American data is from Terry (1932) and Krogman & Iscan (1986:TABLE 7.10).

	Sex	CLA	BIB	T1L5	FTL
Berg Aukas	M	---	---	---	870.3
Kabwe	M	---	294.0	---	889.0
Atapuerca	M	---	340.0	---	863.0
Boxgrove	M	---	---	---	862.0
Jinniushan	F	---	344.0	---	835.9
Skhul/Qafzeh	M	157.3 (3)	280.0 (1)	---	898.4 (4)
NEA	M	162.3 (6)	305.7 (9)	387.9 (5)	802.7 (13)
	F	140.0 (1)	282.6 (1)	346.1 (1)	720.2 (5)
EUP	M	164.7 (9)	279.0 (8)	392.1 (7)	804.6 (10)
	F	145.0 (7)	269.2 (5)	367.5 (6)	804.6 (10)
LUP	M	145.3 (19)	270.4 (15)	385.1 (16)	799.6 (25)
	F	130.8 (6)	260.8 (7)	361.2 (8)	756.5 (11)
WES	M	153.7 (21)	276.3 (21)	400.8 (20)	839.3 (21)
	F	137.5 (26)	262.3 (23)	372.2 (23)	764.8 (25)
Euro-Americans	M	153.5 (50)	274.4 (49)	---	813.6 (49)
	F	---	270.3 (48)	---	761.1 (48)
African-Americans	M	154.6 (50)	256.0 (48)	---	876.2 (48)
	F	141.4 (50)	251.3 (47)	---	799.6 (47)

Body size had reduced in Neandertals (Tables 2-4) probably because cultural means to produce and preserve heat reduced the necessity of large size in cold climate and better tools reduced the need for superhuman strength (Niskanen & Junno 2004 with references). Brain size increase from 1255.6 cm^3 in high-latitude *H. heidelbergensis* to 1472.2 cm^3 in *H. neanderthalensis* (based on Aiello & Dean 1990: Table 10.2; Ruff et al. 1997: Supplementary data; Klein 1999: Table 5.4; Rightmire 2004) may have also played a role here. If big and energetically expensive brains provided a clear advantage and food supply was limited, selection could well have started to favor smaller-bodied but bigger-brained individuals to keep nutritional needs reasonable.

Based on their CLA / BIB indices, the Neandertals did not have broad shoulders in relation to their lower trunk widths (Table 5). Their muscle insertions indicate considerable muscle mass (Niskanen 2000 with references). Although it is impossible to weigh relative shoulder width and muscle mass accurately, we think that their true body masses were somewhere between those provided by the general and Finnish equations.

The Skhul / Qafzeh and EUP specimens were taller and lighter-bodied than the Neandertals (Tables 2-3). There was little change in the clavicular length and skeletal trunk length, but the bi-iliac width was reduced to the recent European level and limbs, especially distal segments, were long (Table 4). Because high CLA / BIB indices indicate relatively broad shoulders (Table 5) and muscle insertions large muscles (Niskanen 2000 with references) the Finnish male equation may provide more correct body masses than the general one for males.

Table 5. Skeletal proportions. CLA = clavicular length; BIB = skeletal bi-iliac breadth; T1L5 = summed posterior heights from T1 through L5; Crural index = maximum tibial length / bicondylar femoral length. Euro- and African-Americans' CLA/BIB indices are in parentheses because their clavicular lengths (Terry 1932) and bi-iliac breadths (Krogman & Iscan 1986:TABLE 7.10) are from different sources.

	CLA/BIB (males)	**CLA/BIB (females)**	**T1L5 /FTL**	**Crural index**
Skhul 4	54.3	----	----	87.8
NEA	53.0 (6)	49.5 (1)	47.9 (6)	77.7 (9)
EUP	59.1 (5)	55.6 (4)	44.4 (13)	83.6 (17)
LUP	52.6 (13)	52.0 (5)	48.1 (24)	83.8 (30)
WES	55.7 (21)	52.8 (23)	48.4 (42)	80.5 (46)
Euro-Americans	(55.9)	-----	-----	81.0
African-Americans	(60.4)	(56.3)	-----	83.8

A shift in body proportions from the Neandertals and the EUP specimens was probably due to a complete or nearly complete population replacement. However, more effective cultural buffering from cold temperature could have also played a role by relaxing selection pressure to maintain hyperarctic body design (Holliday 1995, 1997a, 1997b).

The LUP specimens were smaller than the EUP ones. Their bi-iliac breadths and trunk lengths are similar, but the shoulders are narrower and the limbs are shorter. Distal limbs are still relatively longer than in recent Europeans (Tables 2-5). General equations probably provide accurate body masses for them due to their 'average' body proportions and muscle sizes (Niskanen 2000).

Body size reduced during the Upper Paleolithic probably because technological developments had reduced the need for a strong physique, nutritional stress reduced body size through phenotypic plasticity, and selection favored metabolically more affordable body size. Reduced interregional gene flow may have also played a role (Formicola & Giannecchini 1999; Niskanen & Junno 2004).

The Upper Paleolithic changes in body shape were possibly allometric consequences of body size reduction. Stature shifts reflect more in limb length and shoulder width than in trunk length and bi-iliac breadth (Froelich 1970; Niskanen, unpublished).

During the Holocene, average stature has fluctuated mostly due to nutritional changes. The living Europeans are as tall as the Middle Pleistocene and Upper Paleolithic Europeans, but not as heavy-bodied.

The two female equations provide very similar body masses. This may be due to facts that the Finnish female sample is composed of young women (Ruff et al. 2005) and body proportions have less affect on body mass estimations in females than in males (Ruff 2000a).

Concluding statements

There were stature and body shape changes, as well as a general body weight reduction in the late Pleistocene due to changes in selection pressures, nutrition and population composition. The general male equation probably underestimates body masses of pre-modern and EUP males due to their muscular hypertrophy and the relatively broad shoulders of the latter. The Finnish male equation may thus provide more correct body masses for these specimens.

Sample-specific regression equations cannot be as broadly applied as general equations due to body size and shape differences. The general equations also provide broadly applicable indices of skeletal frame size because they give reasonably accurate body masses regardless of body size and shape for most human populations.

Methods used here are still experimental and need to be tested with larger reference samples. Experimental work is needed because methodology will not develop if we only apply conventional methods.

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Ocurrence of suprainiac fossae in Iron Age and later crania from northern Finland

Milton Núñez, María Haber & Elena Garcia

Abstract. *The suprainiac fossa is such a common trait among neandertalers (95%) that many have regarded it as autopomorphic. However, it has been observed in lower frequencies in both earlier and later populations. This paper describes the occurrence of suprainiac fossae in crania dating to the 6-7th centuries and 17-18th centuries from Ostrobotnia and Lapland. The incidence of suprainiac fossae in the Finnish crania is higher than in the modern and medieval European crania studied by Frayer 15 years ago. The relatively high incidence of this trait in northern Finland could be attributed to a combination of founder effect event at the end of the Ice Age and subsequent geographic isolation during the Holocene, but it also may be related with the powerful chewing apparatus needed for hard foodstuffs in the north, where the adoption of softer foods (cereals) took place in a fairly recent past.*

Keywords: *suprainiac fossa, Finnish crania, neandertalers, Ostrobotnia, Lapland*

The suprainiac fossa was observed and described in neandertalers over a century ago (Klaatsch 1902), and it is a trait so common among the classic neandertals that many have come to regarded it as an automorphic trait. It can be defined as a roughly elliptical depression immediatly above the inion. (Santa Luca 1978; Hublin 1978, 1980; Heim, 1982; Stringer et al. 1984; Condemi 1989; Arsuaga 1997; Trinkaus 1998, 2004).

In neandertalers the fossa is usually described as a broad ellipsoid depression with an irregular and pitted texture that varies both in size and shape. It tends to be simple, but it is often divided by a tenuous middle ridge, as in La Quina H5, Spy 1, La Chapelle-aux-Saints, or present a osseous lower ‘lip’ marked by the superior nuchal lines, as in Spy 2, La Quina H11, Le Moustier. (Hublin 1978, 1988; Arsuaga et al. 1997; Haber 2003; Núñez et al. 2004).

The suprainiac fossa can be considered to be a typical, though not exclusively, neandertal trait. It has been observed in several European crania of earlier date (Gran Dolina, Steinheim, Swanscombe) and other non-European fossil crania (Zhoukoudien 3 o Sinanthropus III, Eyasi 1). A detailed study by Frayer (1992a, 1992b) indicates that the frequency of this trait decreases in post-neandertal European crania down to 2% in modern France (Table 1).

Table 1. Frequencies in percents of suprainiac fossae in the populations examined by Frayer (1992a, 1992b) and in the present study site. The numbers 1-3 correspond with those in the map of Figure 1.

Population	N	Presence (%)
European neandertalers	24	95.7
Eastern neandertalers (Skhul/Qafzeh)	7	28.6
Early Upper Palaeolithic	26	38.5
Late Upper Palaeolithic	38	23.7
Mesolithic	161	19.3
Hungary, 9th-11th centuries	237	5.9
Modern French	100	2.0
Ostrobotnia, 6th-7th centuries (2)	19	35.3
Ostrobotnia, 17th-18th centuries (3)	39	12.8
Lapland, 17th century (1)	4	25.0

Heim (1982) associates the suprainiac fossa with a retarded ontogenic growth of the mid saggital region, while Caspari (1991) attributes its existence to a stress along the nuchal plane that is related to neandertal morphology. Whichever the cause, biological or functional, the suprainiac fossa is not restricted to neandertalers and the purpose of this paper is to point out the presence of this trait in crania from Finland datable between 6th and 18th century AD.

Material

The studied crania come from three localities, two from Ostrobotnia and one from Lapland (Fig. 1). The material of these localities is presented below according to the order of their discovery.

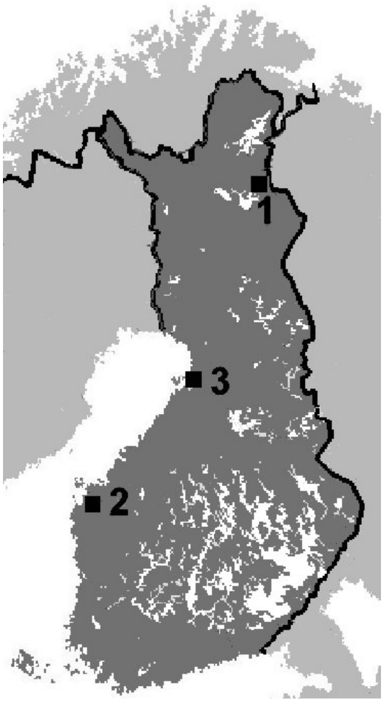

Fig. 1. Localities mentioned in the text: (1) Savukoski, (2) Levänluhta-Käldamäki, (3) Oulu.

1. Mukkala, Savukoski, Lapland (17th century)

In 2001 one of the authors (MN) was told about a strange looking cranium in a collection housed in the National Board of Antiquities. A brief examination showed that it was a case of hydrocephalia in a young adult, but in the same box there were three other crania. One of them had a well defined suprainiac fossa. The triangular configuration of the fossa can be clearly seen in Figure 2. Although it was obviously an interesting discovery, it importance was difficult to assess. We were dealing with one case in a population of only four individuals. Nevertheless, the fact that we had observed a suprainiac fossa in an individual that lived and died in the 17th century placed us in the alert for the possibility of this trait occurring in other Finnish crania as well. The dated mid-17th century is based on both historical sources and coins found in the grave (Exvavation report in the Archives of the National Board of Antiquities).

Fig. 2. Simple triangular suprainiac fossa (length 39 mm) on the 17th-century cranium from Savukoski, Lapland (National Board of Antiquities).

2. Levänluhta and Käldamäki, Ostrobotnia (6-7th century AD)

While showing some students the photos of the few skeletal remains known from Finnish archaeological sites, MN observed what could be a suprainiac fossa in a photograph of cranium 15 from Levänluhta in T. Formisto's (1993) doctoral thesis. Although there seemed to be a depression above the inion of cranium 15 in photograph, we were unsure due the fact that Formisto's detailed analysis of the Levänluhta population did not make any reference to suprainiac fossae (Formisto 1993). However, an examination of the material in the National Board of Antiquities a few weeks later corroborated the presence of suprainiac fossae, not only in cranium 15 (Fig. 3) but in other six crania from the same Ostrobotnian collection.

Fig. 3. Cranium 15 from Levänluhta, Ostrobotnia, with a double suprainiac fossa (length 42 mm) of maple seed shaped (National Board of Antiquities).

The sites of Levänluhta and Käldamäki, lie on waterlogged terrain in the counties of Isokyrö and Vöyri, respectively. They have yielded dozens of remains of men, women and children, apparently sacrifially drowned during the 6th and 7th centuries. Levänluhta was known as a place with human remains as early as the 17th century, and archaeological excavations at the site in 1884 and during 1982-1983 produced the fairly well preserved bones of about one hundred individuals. The site of Käldamäki was discovered in 1935 and the small scale excavations conducted then provided the fragmentary remains of six individuals. Only two occipitals have been preserved, one of them with a tenuous suprainiac fossa. Both the archaeological material associated with the Levänluhta and Käldamäki remains and radiocarbon dates from bone place the utilization of these sites in the 6th and 7th centuries AD. (Meinander 1977; Formisto 1993).

The Levänluhta-Käldamäki population is characterized by very gracile individuals with low sexual dimorphism (Pesonen 1939; Formisto 1993), which does not quite agree with the notion that suprainiac fossae may be related to the neandertal nuchal robusticity (Table 2).

Table 2. Comparison between certain cranial dimensions in Levänluhtan and neandertalers. The underlined measurements are clearly lower in the Ostrobotnian sample, while the rest are only slightly lower, with the possible exception of M17 (Formisto 1993; Haber 2003).

	LEVÄNLUHTA			**NEANDERTALERS**		
	N	**Mean**	**Range**	**N**	**Mean**	**Range**
Maximum length (M1)	20	177.2 ± 7.1	158.0-193.0	9	199.2 ± 8.3	181.0-209.0
Maximum breadth (M8)	24	131.5 ± 5.3	125.0-145.0	11	148.4 ± 6.1	142.0-158.0
Minimum frontal breadth (M9)	17	92.8 ± 4.7	84.0-101.0	10	107.3 ± 5.0	100.0-119.0
Maximun frontal breadth (M10)	12	110.6 ± 4.2	104.0-120.0	11	119.6 ± 5.7	105.0-127.0
Biauricular breadth (M11)	15	115.3 ± 5.5	103.0-125.0	5	132.4 ± 9.3	124.0-145.0
Basion-bregma height (M17)	11	124.8 ± 5.1	110.0-129.0	4	124.0 ± 9.6	109.0-135.0
Circunference (M23)	17	502.8 ± 15.7	481.0-537.0	8	572.6 ± 25.1	520.0-600.0
Frontal arch (M26)	24	122.6 ± 5.4	114.0-138.0	7	124.9 ± 7.6	113.0-135.1
Occipital arch (M28)	23	115.1 ± 9.8	95.0-138.0	7	118.9 ± 10.6	106.4-135.0
Frontal cord (M29)	23	106.2 ± 3.36	101.0-116.0	7	110.7 ± 5.6	102.8-117.4

3. The Oulu Cathedral, Ostrobotnia (17-18th centuries)

Finally, the examination of some crania that have been retrieved in excavations in the vicinity of the Oulu Cathedral in 2002 also revealed the presence of suprainiac fossae in five individuals. Although it is not possible to determine the exact antiquity of each grave, all can well be placed within the 17th and 18th centuries (Sarkki 2002).

Final comments

Both the configuration as the dimensions of the suprainiac fossae from the Finnish specimens vary considerable, with a longitude fluctuating within 20 and 50 mm. The fossae are usually simple, but a few are double. The shape of the simple ones is generally ellipsoid or triangular, while double ones are reminiscent of the ‘wings’ of maple seeds (Figs. 2-4).

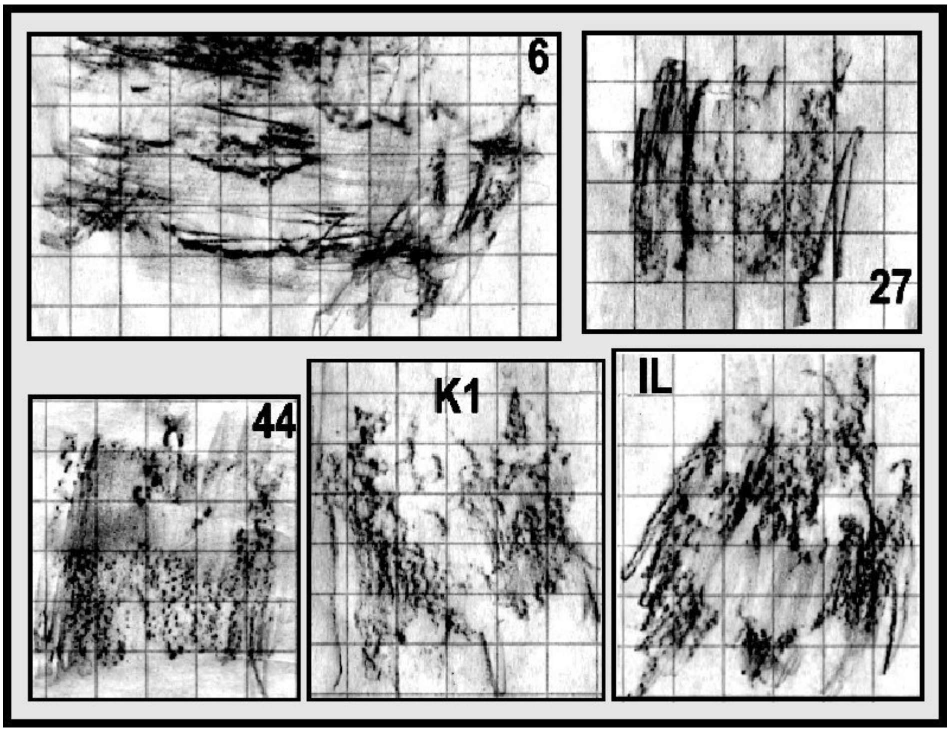

Fig. 4. Crayon tracings of the suprainiac fossae from Oulu crania 6, 27, 44, K1 and IL. Observe two double ones with maple seed shape (6, 44) and three simple ones. Their approximated dimensions may be estimated from the paper grid, which has a 9 mm base.

When compared with the data from medieval and recent European crania published by Frayer (1992a, 1992b), the incidence of suprainiac fossa in the studied Finnish material is relatively high (Table 1). This higher frequency could be explained as the result of a founding effect in northern Fennoscandia at the end of the Ice Age (Fig. 5) and the isolation subsequently undergone by northern populations throughout most of the Holocene (Nunez 1997; Carpelan 1999, 2001, 2003; Núñez et al. 2004). It is possible that the suprainiac fossa has a genetic component and that This would imply, as suggested by some, that the supriniac fossa has a genetic component and that its presence in modern humans goes back to Lower Palaeolithic ancestors. On the other hand, it is also possible that suprainiac fossae are associated to processes related to the development of a powerful masticatory apparatus due to heavy use of chewing muscles due to a ‘hard food’ diet or other activities, regardless of whether he/she is a pre-neandertaler, a neandertaler or a gracile 6th century Ostrobotnian. M. Niskanen (1999) has pointed out the important role that powerful chewing muscles play on cranial morphology and ‘soft’ foods did not become common in the area until a fairly recent past (e.g. Núñez 1997, 2004).

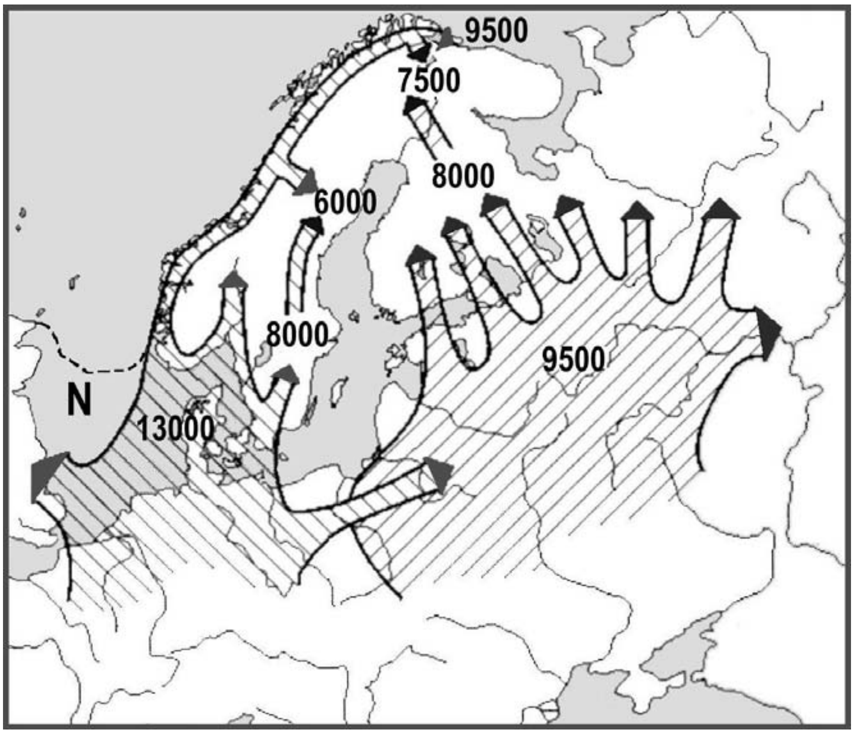

Fig. 5. Model for the peopling of Fenoscandia by Final Palaeolithic/Mesolithic groups from adjacent regions, including the then supra-aquatic territory of the North Sea Land (N), at the end of the Ice Age. Dates are given in calibrated radiocarbon years BC (after Carpelan 2003; Núñez 1997).

Acknowledgments

This work has been result of a close student/staff cooperation between the University of Oulu with the University of Granada and the Autonomous University of Barcelona. We thank the Prehistory Section of the Finland's National Board of Antiquities for allowing us to study and photograph the crania.

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Stature estimation for a 17th and 18th century Oulu population

Heli Maijanen

Abstract. *This article discusses stature estimation for the 17th-18th century Oulu population. Bone material used in this study was excavated in 1996 under the modern Oulu Cathedral. Material is quite mixed; most of the bones are single bones from pits, not graves. No complete skeletons could be used in this study. Stature and sex determination was done from separated long bones and they were analyzed as bone groups. Regression equations chosen for this study were Telkkä (1950), Trotter & Gleser (1952, 1958) and Sjøvold (1990). Comparing these results with anthropometric measurements from Northern Ostrobothnia, it seems as if Telkkä would be the best method for this population, even though it is based on modern Finnish material. In any case, testing the reliability of the methods is difficult without complete skeletons.*

Keywords: *stature estimation, sex determination, Oulu Cathedral*

Introduction

How tall were the 17th and 18th century people according to the Oulu Cathedral bone material? What kind of results do different bones and regression formulae give? Those were the main questions for my Master's thesis (Maijanen 2003), which is the basis of this presentation. The material used in this study was excavated in 1996 by Aimo Kehusmaa. Excavations took place under the modern cathedral before construction work in the cellar could be started. The modern church is situated in the former church yard, meaning also the old graveyard (Kehusmaa 1997).

Stature estimation gives information about the people and their physical characteristics and also some clues about health and social status. One of the main reasons why this study was done was to document the material that is going to be re-buried in the near future. In this article I will discuss the methods used and results, as well as the problems.

Material

There are approximately 130 graves from the Oulu Cathedral excavations done in 1996. Skeletons from the graves were quite poorly preserved and only a few long bones could be used in this study. Most of the long bones studied were from pits or stray finds. Especially one bigger pit (1,5 x 2,5 x 1,0 m) along the cellar wall contained skulls, pelvic bones and long bones. It was interpreted to date from the time of the building of the cellar in 1932. Kehusmaa suggested that the bones from broken graves were probably collected into one pit. Due to the poor preservation and broken graves, the studied material is mixed. In total, the graves and pits contain remains of approximately 270 individuals (Kehusmaa 1997: 10-12).

Bones included in this study were measurable healthy adult bones. Some measurements needed estimations due to the poor conditions of the bones. Measured material includes 403 bones, of which 338 could be used in the stature estimation (femur 141, tibia 100, humerus 53, radius 30, ulna 14, fibula 0). The minimum number of individuals is 72 according to the number of left femura.

Methods

Because there were no complete skeletons or they were not preserved well enough, Fully’s anatomical method could not be used to estimate the stature (Fully 1956; Fully & Pineau 1960). Separated bones from pits had to be studied as bone groups and not as individuals. Varying amount of measurements were taken from different bones mostly following definitions of Martin & Saller (1957). I mention here only the most important ones in this case, which are maximum and physiological lengths and size of the articulation surfaces. The articulation surfaces were needed for sex determination. Measurements used in this study are as follows.

- Femur: Maximum and physiological length, vertical and horisontal diameter of the head (Martin & Saller 1957).
- Tibia: Maximum, physiological length and length (tibia 1 and tibia 1b), maximum breadth of proximal articulation surface (Martin & Saller 1957).
- Humerus: Maximum and physiological length, vertical and horisontal diameter of the head (Martin & Saller 1957).
- Radius: Maximum and physiological length, diameter of the proximal head (Martin & Saller 1957).
- Ulna: Maximum and physiological length (Martin & Saller 1957), breadth of the distal head (Holman & Bennett 1991).

Sex determination

Sex determination was also done from separated bones. Only for the bones from the graves was the sex identified from pelvis and skull. The reliability of sex determination from a single long bone is not as high as from those bones, but the diameter of femur head is considered to be good indicator of sex. Long bones were usually determined by single traits and no discriminant function analysis was used. No usable function was found and the traits were selected by their reliability and the amount of bones that they could be used for.

For femur and humerus the selected trait was the vertical diameter of the head. For the femur I used Pearson's categories and for the humerus Dwight's (Pearson 1917-19; Dwight 1905). Pearson divides measurements in five categories. Diameter between 43,5-44,5 mm is undetermined and over it is 'possibly male' and under it 'possibly female'. Measurement under 41,5 mm refers to 'definitely female' and over 45,5 mm to 'definitely male' (Pearson 1917-19). I modified Dwight's categories to include also 'possibly men' and 'possibly women', because he defined only the average diameter for both sexes (female 42,67 mm and male 48,76 mm) (Dwight 1905: 22). The dividing point between sexes is 45 mm and diameters of 48 mm or more are definitely male and diameters of 42 mm and less are definitely female (Maijanen 2003: 31).

For tibia the determining traits were the proximal articulation surface (Holland 1991: 222-3), the length of the bone (Iscan & Miller-Shaivitz 1984: 54-5) and their discriminant functions. Articulation surface and Holland's discriminant function seem to be more reliable trait, but due to bad preservation of the proximal ends, length had to be used in most cases.

For radius the sex was determined from the proximal end diameter following Berrizbeitia's (1989: 1206-12) categories (≤ 21 mm female, 22 mm female?, 23 mm male?, ≥24mm male). For those bones the trait could not be used, sex was determined by discriminant function for the radius semibistyloid breadth and length by Holman and Bennett (1991: 423-4). Holman and Bennett's (1989: 424) formula for distal head breadth was used for the ulna.

Table 1. Results of sex determination.

	Female	Female?	Male	Male?	F/M	Total
Femur	29	22	32	12	7	102
Tibia1	38		9			
Tibia2	71		13			100
Humerus	9	5	6	3	2	25
Radius	7	2	3	2		14
Ulna	3		5			8

Results of sex determination varied quite much between different bones (Table 1). There were many problems with the sex determination of tibia and the sample sizes of upper limb bones were small, so the femur seems to be the most reliable bone group in this study. It gives sex determination at least for 51 individuals (of which at least 18 female, 17 male, 9 possibly female and 7 possibly male from the left side). The Reliability of femur was supported by the small grave material. There were 11 graves with skull and/or pelvis and femur. The femur agrees eight times with the skull and pelvis and only once gives a contradictory definition (Maijanen 2003: 37-8).

Stature estimation

Stature estimation formulae are usually based on regression and the relationship between bone length and total height. They are usually population dependent, because of possibly different body proportions (e.g. Hens et al. 1998: 402-403; Koningsberg et al. 1998: 67-9). If complete skeleton cannot be used, lower limbs are considered to be more accurate than upper limbs. Lower limb bones correlate better with the actual stature (Trotter & Gleser 1952: 487-8, 503). Best result would be gained from the femur and the tibia together, but in this study bones cannot be combined.

Formulae chosen for this study were Telkkä, Trotter and Gleser and Sjøvold. Antti Telkkä's formulae were published in 1950. His material was from the Anatomy Department of University of Helsinki, consisting of Finnish men and women. The sample size is small, 154 individuals (Telkkä 1950: 106-107). Another commonly criticized aspect is age distribution, which is older than usual, women of the sample being approximately 50 years of age (Telkkä 1950: 106-108; Trotter & Gleser 1952: 503).

One of the most-used estimation formulae is from Mildred Trotter and Goldine Gleser (1952, 1958). They studied American casualties of the Second World War. They also included the Terry collection in the study, so that there was information of approximately 1600 individuals (Trotter & Gleser 1952: 463-9). Trotter and Gleser made some corrections to their formulae applying the age of an individual (Trotter & Gleser 1952: 479-8). (In my study, age corrections have not been calculated, because it is impossible to estimate age from separate long bones without studying internal structure.) Both Telkkä's and Trotter and Gleser's formulae are sex-dependent. In this study the formulae from 1952 were used except for the tibia (female) in which the correction from Jantz (1992: 1233) was used.

Torstein Sjøvold's formulae are quite new, published in 1990. They are based on statistical methods and combining many Caucasian materials. Samples are thus large, including over 2000 individuals. These formulae are independent of sex and ethnic group (Sjøvold 1990: 441-5). In this study I have used Sjøvold's formulae for maximum length (Sjøvold1) for all bones and also physiological length (Sjøvold2) for the femur and radius.

Results

Mean stature estimations from all bone groups and all formulae are 163-172 cm for men and 154-162 cm for women. In these mean statures, I have included women and possibly women together and the same with men and possibly men, because only certainly men/women would include only the extreme and typical cases, which is not the average case in either sex. Also both left and right side are included in this estimation, because the differences between the sides are not significant. The difference in femur is less than 1,5 cm in Telkkä's female category and less than 1 mm in male, i.e. less than the standard deviation of the formulae (femur 3-5 cm) (Maijanen 2003: 55-7).

There were some differences between the results of different bones and formulae. Comparing results of different bones is not very useful in this material, as the samples vary in size and are thus not really comparable. Graves are so few that they cannot be taken into account. Comparing bone groups, in Telkkä's formulae the femur gives the shortest estimates and the tallest is from radius (F) and tibia (M). In Sjøvold 1 and Trotter & Gleser the tibia gives the shortest estimate and the humerus the tallest for female. For males, the shortest estimate comes from the radius (Sjøvold1) and the femur (Trotter & Gleser), but the biggest mean height from the humerus comes in both formulae (Figs. 1 & 2).

Different formulae naturally give different kinds of estimations. Usually Telkkä's formulae give the shortest estimations for women, except on the radius in which it comes from Sjøvold2. Trotter & Gleser formulae give the tallest estimates in upper limb bones and Sjøvold1 in lower limbs. For men, Telkkä gives again the shortest mean heights, except the tibia (Sjøvold2) and the radius (Sjøvold1). Trotter & Gleser give the tallest estimate in every bone group (Figs. 1-2).

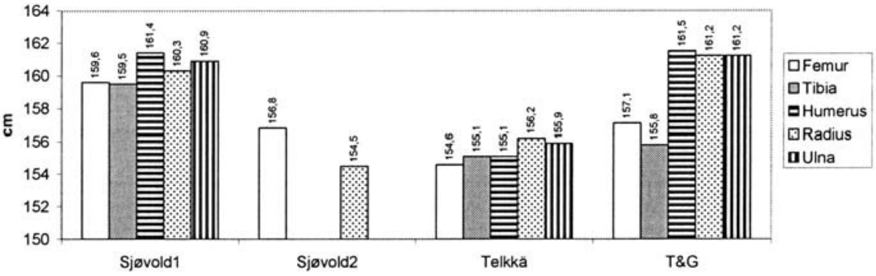

Fig. 1. Female, mean height by formula.

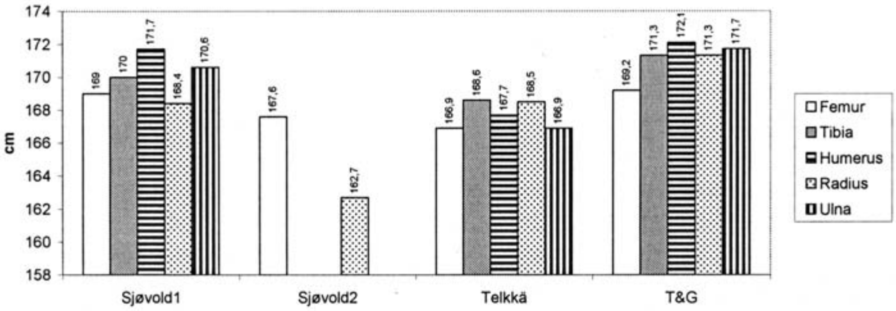

Fig. 2. Male, mean height by formula.

It is quite obvious that femur gives the best estimations in this study. Its sample size is bigger than the others', while the tibia, with the second biggest sample, has too many uncertanties in the sex determination. I have considered Telkkä's formulae to be the most useful in this study. There are some problems in them and they are based on modern sample, but their advantage is that they are from a Finnish source. According to Telkkä's method the mean height estimation for male is 166,9 ± 4,9 cm and for female 154,6 ± 4,0 cm.

Compared to other materials and their mean statures, it seems like Telkkä's estimation suits best the assumption that the mean stature has increased over the last centuries. In Figure 3 anthropometric materials from 18th-20th centuries northern Ostrobothnia are shown with the estimates from this Oulu population, outlining the stature development from the 17th century to 1981. This figure includes only men, because the anthropometric measurements were usually collected from soldiers. According to these materials, the mean height has been clearly growing during the last centuries, except in Westerlund's and Kivalo's materials. It is probable that the low mean height in these two materials is due to the fact that they are composed of young, still growing individuals of about 20 years of age. In Westerlund's material, the famine of the late 1860s may also have affected the growth of young men (Kajanoja 1971: 25, 37).

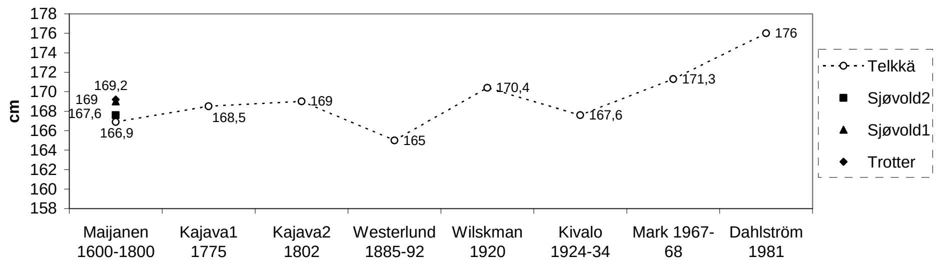

Fig. 3. Mean height for males in northern Ostrobothnia. Data taken from Westernlund 1900; Wilskman 1922; Kajava 1926; Mark 1972; Kivalo 1975; Dahlström 1981; Maijanen 2003.

All in all, it should be kept in mind that these results are estimates and without complete skeletons and identifiable individuals it is impossible to modify the formulae for this Oulu population to get more accurate numbers. However, if well-preserved contemporary skeletal materials from the same area could be examined, their results might be useful for further study of Oulu Cathedral osteological specimen.

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Malaria in 18th and 19th century Oulu?

Xaviera Torres & Milton Núñez

Abstract. *Malaria was common in the Swedish Kingdom during the 18th and 19th centuries. On the Finnish side, the disease was widespread in the warmer southern coastal zones, but it reached as far north as Tornio, about 100 km south of the Artic Circle. Our information about the occurrence of malaria in Finland comes from the Parish Burial Records which, in the Swedish Kingdom, include the cause of death since 1749. According to the records from 23 of 46 parishes within a 100 km radius from Oulu, a total of 179 deaths were attributed to malaria (frossa) in these parishes from 1749-1850. However, since malaria is not necessarily a fatal disease, particularly the milder Plasmodium vivax variety that existed in Scandinavia, it is very likely that the number of people infected by malaria in the Oulu region was much greater. Although malaria does not leave unambiguous marks in the skeleton, it does lead to anemia, which has been sometimes associated with cribra orbitalia. Although the cribra may be caused by a number of factors other than anemia, the fact that cribra has the same frequency in male and female individuals buried in the Oulu Church rises the possibility that its occurrence could be related to malaria.*

Keywords: *anemia, cribra orbitalia, malaria, Oulu Church, Finland*

Introduction

Malaria is a human disease caused by an infection of a parasitic protozoan Plasmodium. Four species of plasmodium affect humans: *Plasmodium falciparum*, *P. vivax*, *P. malariae* and *P. ovale*. They are transmitted to humans by the bite of an infected female mosquito of the genus *Anopheles* that has previously sucked the blood of a person with malaria.

The main symptoms of the disease, which make it easily recognizable, are periodical paroxysms of high fever, severe chills and prostration. The fever episodes happen every 48 hours in infections with *P. vivax* and *P. ovale*, about every 48 hours, more irregularly in infections with *P. falciparum*, and every 72 hours in infections with *P. malariae*. The outcome of the disease may be fatal, especially when *P. falciparum* is involved. The species more commonly found in template zones, *P. vivax*, is not as deadly as *P. falciparum*, with a relatively low case fatality rate.

There are several strains of *Plasmodium vivax*; one of these, *P. vivax hibernans*, described for Russia in 1949 by Nikolaev, was probably the one behind most of the cases in Finland. This strain has a typical seasonality pattern with a peak in springtime (Warrell 1993), very similar to the one found in the cases of malaria in Finland (Bruce-Chwatt & de Zulueta 1980).

The presence of malaria in Scandinavian countries until relatively recent times may seem surprising, but just a century ago malaria was a common disease in many parts of Denmark as well as in the south of Sweden and Finland (Bruce-Chwatt & de Zulueta 1980).

It is difficult to establish when malaria reached those high latitudes, but it is known that during the Middle Ages the disease was spreading through northern Europe. The first documentary evidences of malaria in Scandinavia are a few references to periodical fevers in monastery diaries from the 13th century (Lagerkranz 2000). The first mention of malaria in Finland is of indirect nature, the description of some treatments for the care of those sick with '*horkka*' or '*vilutauti*' (Finnish terms corresponding to malaria) in a 15th century document from the Naantali monastery (Vuorinen 2002). Even if malaria was probably present in Finland since the Middle Ages, the period of its greatest importance seems to have been the 18th and 19th centuries, when there were several malaria epidemics in Finland, most of them coinciding with epidemic years in the rest of Europe (Vuorinen 2002).

The conditions for malaria at these latitudes are not as unfavorable as it may seem. Though summers are shorter, July temperatures are often warmer than in many parts of Europe. For example, the July isotherm of 15ºC, which only reaches the 55ºN parallel in England, goes beyond the Artic Circle in Sweden and Finland, leaving south of it a small portion of Norway, a larger part of Sweden, and most of Finland (Bruce-Chwatt & de Zulueta 1980). Furthermore, Finland is rich in swamps, marshes and other ecosystems suitable for the thriving of mosquitoes, including those of the genus anopheles.

Several species belonging to the *Anopheles maculipennis* complex exist in Finland (Ekblom 1938). This complex, involving more than one sibling species, was considered one single species till recently. Its presence in Finland was already published by Palmén in 1900 (in Vuorinen 2002).

During the 19th century, malaria morbidity was highest on the Åland Islands and in the coastal regions of south and southwest Finland, but the disease was by no means rare in the interior of the country. According to Bonsdorff (1975), people suffered from malaria as far north as Oulu.

In the present study, we analyze specifically the evidence of malaria in the area surrounding the city of Oulu. In the 18th and 19th centuries, Oulu was a commercial city with an important harbor was used for exporting tar and salmon. The town was situated at the mouth of the Oulu river in a fairly marshy area. Since the waters of Gulf of Botnia are is quite brackish, they provide a suitable for some anopheline species. Consequently, the city of Oulu and its surroundings possessed the requirements for the development of malaria: suitable habitat for the vectors, acceptable temperatures for both parasites and mosquitoes to develop, and contacts with regions with endemic malaria through its commercial port. Unfortunately, a major fire raged through the city in 1822, destroying parish archives. For this reason, our information on death causes in Oulu consists of only 20 years, from 1831 onwards (Table 1).

There is no malaria in Finland today. As in the rest of Scandinavia, the reasons for the disappearance of the disease are related to the profound ecological changes that took place since second half of the nineteenth century, which resulted in a reduced contact between malaria vectors and humans (Bruce-Chwatt & de Zulueta 1980). However, it is very likely that the onset of a pattern cooler summer temperatures in the late 1850s (Fig. 1) may have also played an important part in eradicating the disease (Núñez et al. 2003; Moberg & Bergström 1997).

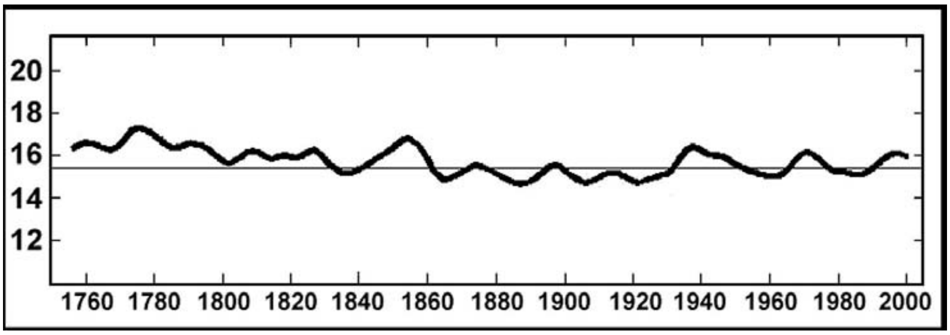

Fig. 1. Long summer temperature records (June-July-August) from Stockholm 1756-2000 (cf. Moberg & Bergström 1997). Observe that a long period of summer temperatures lower than today's mean of c. 15.5º C sets in by 1860 and continues until the mid-1930s.

When studying the relative importance of a disease in a population from the past, several approaches can be used. One is to analyze the human remains from that period. Malaria does not leave unambiguous marks on the bones, but it does lead to anemia. As part of its very complicated life-cycle, the malaria parasite goes through what is known as the erythrocyte stage. This is a phase of asexual reproduction which takes place inside of the human red cells, where the parasites multiply till they release themselves by bursting the erythrocyte. As several erythrocytic stages take place, massive red cell destruction happens, leading to severe anemia.

Anemia may leave marks in the bones, specifically in the form of porotic hyperostosis and *cribra orbitalia*. The latter can be defined as a pathological lesion of the orbital roof, manifested in the form of porosity, pitting of the bone in several degrees, consequence of a venous hypervascularization of the bone marrow.

Although the etiology of *cribra orbitalia* is not fully understood, there is agreement in that it can be produced by severe and prolonged iron deficiency anemia. Traditionally *cribra orbitalia* and porotic hyperostosis have been attributed mostly to iron deficiency anemia caused by consumption of iron-poor foods, thus, due to nutritional stress.

However, parasite-related pathogenic stresses that influence iron metabolism should also be taken into account, such as chronic amoebiasis, severe bacillary dysentery, hookworm and any of the malarias.

Therefore, to a certain extent *cribra orbitalia* can be seen as one of the possible traces left by malaria in the skeleton. This relationship has been studied by various authors (e.g. Rabino Massa et al. 2000; Soren et al. 1996).

Material and methods

This study material was based on both archaeological data and documentary sources. A collection of 233 human skeletons excavated in the vicinity of the Oulu Cathedral in 1996 and analyzed by staff and students of the University of Oulu Archaeology Laboratory. The remains, which are mainly from the 18th century, were examined for non-metric traits and pathological features traits, including *cribra orbitalia* (Cozar et al. 2000).

The occurrence of malaria was obtained from Parish Burial Records from the period of 1749-1850. Since the registers of the Oulu Parish were destroyed during the great fire of 1822, it was decided to expand the study area to those parishes within a 100 km radius from Oulu.

Parish records are a highly valuable source for the study of the populations in the past. Compiled in the Swedish Kingdom since the Ecclesiastical Law of 1686, they include cause of death since 1749. The priests in charge of the registration had to choose from list of possible death causes provided by the Crown. Since its first edition (1749-1773), this list contained the term '*frossa*' (an old Swedish term used for malaria) as an alternative. That indicates that malaria was a widespread and common disease by that time. The fact that it was a frequent ailment with characteristic and easily recognizable symptoms such as fever attacks every third day, makes malaria a reliable cause of death in terms of diagnosis.

The name of the individual, the age, and the date of death and cause of death were obtained from the Parish Burial Records. For the identification of those deaths due to malaria, a bibliographical search was done for all Swedish and Finnish names given to malaria used during the study period, finally selecting those deaths causes attributed to '*frossa*' and other terms such as '*Älta*', '*Omväxlande feber*', '*kalfeber*' and '*skälva*' (cf. Lagerkranz 2000, Vuorinen 2002).

The burial records used in this study were not the originals, but computerized versions In the databases of the Finnish Genealogical Society. The reliability of these transcriptions have been analyzed and found satisfactory in previous studies. When necessary, some records were checked against microfilms of the originals. Of the 46 parishes fall within the radius of 100 km radius from Oulu, 23 have available burial parish records from the period under study. Details of the number of records and the number of malaria deaths found for every parish are given in Table 1.

Since the parish registers do not specify the sex of the individual, it had to be deduced from the name. For a comparison between expected and observed frequencies of sexes among malaria deaths and the individuals affected by *cribra orbitalia*, simple chi square tests were performed.

Results and discussion

Of the 233 individuals found in the excavation, 62 showed different degrees of *cribra orbitalia* or 26.61% of the total. Among these 62 individuals, 55 were adults while 7 were immature individuals. The sex proportion is very similar: 27 males, 26 females, and 9 undetermined. They represent 43.55%, 41.93% and 9.68% respectively. According to the chi square test (p=0.89), there is no significant sex difference among those individuals with *cribra orbitalia*.

Table 1. List of the 23 parishes within 100 km radius from Oulu with the period covered by the register of each, the total number of deaths, the number deaths attributed to malaria, and their percentage of the total.

Parish	Period with data	Total deaths	Malaria deaths	Percentage
Ostrobotnia Region				
Alavieska	1749-1850	3341	11	0.33
Haapavesi	1749-1775; 1781-1850	6259	32	0.51
Hailuoto	1751-1850	2683	2	0.07
Haukipudas	1749-1850	5348	27	0.50
Kalajoki	1749-1850	8717	8	0.09
Kärsämäki	1775-1850	1829	4	0.22
Kempele	1749-1850	2231	4	0.18
Merijärvi	1782-1793; 1801-1829; 1831-1850	1315	9	0.68
Nivala	1783-1824	2210	4	0.18
Oulun Tuomionkirkko	1831-1850	3897	0	0.00
Temmes	1777-1850	2132	2	0.09
Utajärvi	1762-1850	3742	2	0.05
Vihanti	1749-1850	3674	8	0.22
Ylikiiminki	1750-1850	2013	31	1.54
Ylivieska	1749-1850	5362	10	0.19
Kainuu Region				
Kajaani	1757-1791;1794-1850	3023	1	0.03
Paltamo	1749-1850	8101	2	0.02
Puolanka	1789-1836;1844-1850	2064	0	0.00
Lapland Region				
Alatornio	1750; 1763-1850	16240	7	0.04
Tornio	1762-1850	2253	7	0.31
Karunki	1821-1850	1265	1	0.08
Kemin maasrk.	1751-1850	6385	6	0.09
SIMO	1762-1850	1272	1	0.08
Total		95356	179	0.19

Of a total of 95 356 deaths recorded in the studied parishes during 1749-1850, 179 can be attributed to malaria, which represents 0.19%. Even though the proportion of malaria deaths is rather small, it is important to note that cases happen in nearly every parish. The two only exceptions are the parishes of Oulu and Puolanka, which contain records for a relatively low number of years (Table 1).

Therefore, although malaria was not very important as a death cause in terms of magnitude, it was a widespread and probably an significant cause of morbidity, especially its low case-fatality rate is taken into account.

The age distribution among the 179 individuals who died of malaria is as follows:

- 117 (65.32%) under 15 years old
- 23 (12.85%) beween 15-45 years old
- 39 (21.79%) over 45 years old.

Malaria is a disease that affects people of all ages, but it tends to be deadlier among children and the elderly. Those populations with frequent contacts with the disease often develop a certain degree of resistance, which can be considered to be age dependant (Carter & Mendis 2002). Thus, the youngest members of a population are expected to suffer more the effects of the disease, as their immune systems are not yet ‘fully trained’ to detect and fight the parasites. They suffer of severest anemia and die in higher proportions than adults do. This is interesting since there is evidence that suggests that the *cribra* lesions are formed especially during childhood, due to sustained anemia.

The sex distribution of the 179 individuals who died of malaria is almost equal: 92 males and 87 females, which respectively correspond to 51.40% and 48.60%. The chi square test (p=0.71) showed no significant sex difference among the individuals who died of malaria.

Conclusions

A large proportion of the archaeological sample retrieved from the Oulu cemetery, a quarter of the individuals, exhibited *cribra orbitalia,* which could reflect a significant presence of anemia within this population. If the anemia was due exclusively to an iron deficient diet, we might expect a greater proportion of female individuals with *cribra orbitalia.*, The especial iron requirements for women of childbearing age would have made them more prone to iron deficiency. This is not the case, however. On the contrary, the equal proportion among sexes in the individuals showing *cribra* suggests that factors other than diet were influencing the iron levels of the Oulu’s 18^{th} century inhabitants.

A possible explanation lies in the pathogenesis of the population, that is, the environment of health and disease in which the Oulu people lived. Recent research suggests that iron deficiency may be more closely related to infection and pathogenic stress than to diet. Among the wide spectrum of pathogenic agents affecting the population of Oulu during the 18th and 19th centuries, malaria, which is generally associated with anemia could have been the cause of the *cribra*. Despite the small proportion of deaths, it is likely to have affected a greater sector or the population due to its low fatality rate. The equal sex distribution of both malaria deaths and *cribra orbitalia* cases, suggests that this anemia-related disease might well be connected with the *cribra* observed in the population from the Oulu cemetery.

Acknowledgments

This research has been possible thanks to the financial support of the Finnish Cultural Foundation.

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Finnish facial tissue thickness study

Sirpa Niinimäki & Ari Karttunen

Abstract. *The average tissue thickness of the Finnish face was measured from MRI-scans of normal-weight adult patients in Oulu University Hospital for facial reconstruction purposes. Total of 31 measurements (49 including paired elements) were taken from axial, sagittal and coronal scans from 26 normal weight males and 25 females. A sample of overweight adults was measured from 14 males and 13 females. Normal weight was determined with body mass index. Chosen measurement points were those used in anthropometry and in other facial tissue thickness studies. This enabled comparison of measurements between different populations.*

Keywords: *tissue thickness, MRI, facial reconstruction, Finns*

Introduction

Facial tissue thickness information is used in facial reconstruction making. A scientific approach to facial reconstructing as means to study and identify human remains began in the late 19th century. First, tissue thickness studies were made to aid reconstruction making (Prag & Neave 1997). Tissue thickness studies have been made from many population and age groups. Tissue thickness data has not yet been measured from Finns. This study was made to gain a set of tissue thickness markers to aid in reconstructing past Finns.

Tissue thickness can be measured with a needle from cadavers or with the help of x-ray, ultrasound, computer tomography, or magnetic resonance imaging from living subjects. There are some benefits and flaws in using all the above-mentioned methods of measuring tissue thickness. As the needlepoint method is applied to cadavers, there is a problem with dehydration shrinking and embalming adding to the tissue thickness. A study by Simpson and Henneberg (2002) recommends using cadavers that have been embalmed for some period of time, so that the excess amount of embalming fluids has had time drain out. Radiographic applications, such as x-ray, cause problems because radiation is harmful to living tissue. The use of x-rays is therefore usually limited to medical necessity. This results in limiting the number of angles for measuring. Ultrasound is harmless to living tissue and inexpensive as a medical application. It enables the use of volunteers rather than patients, as well as large sample sizes. The problem with this method is that separating bone from soft-tissue may be difficult. Magnetic resonance imaging (MRI) gives the most detailed information compared to other medical imaging methods, but it is also the most expensive one. Even so, MRI is nowadays a very popular method used for measuring tissue thickness. A study by Smith and Throckmorton (2004), however, recommends ultrasound over MRI because of the inexpensiveness of ultrasound.

No coherent set of tissue thickness measurement points is used; usually the tissue thickness is measured from anthropometric landmark locations. There are some common measurement points that enable the comparison of measurement. Usually a set of about 20 to 25 different measurement points is used (not including paired elements). The tissue thickness data is usually grouped according to sex, age and nutritional status; one study has grouped the tissue thickness data according to body constitution type (Helmer et al. 1993). The sample sizes are usually about 20-40 individuals per sex; one exception to this is the study by Lebedinskaya et al. (1993), where from nine different population groups a total of 1695 individuals were measured for the tissue thickness.

Materials and methods

Study outline

I (S.N.) started our research in the spring of 2003 and the measuring was finished in the autumn of 2004. The first choice of method was ultrasound for it is harmless to living tissue, it is inexpensive, and it enables more volunteers to be measured compared to other methods. However, the only ultrasound equipment available in the Oulu University Hospital was a machine with large, about 0,5 x 3 cm sensor pads. In order to have accurate results the whole sensor area needs to be in contact with the skin, and therefore too much pressure would have been directed towards the soft tissues of the face compressing them. After consulting with the staff in Oulu University Hospital, a decision was made to use MRI as the best equipment available for measuring the tissue thickness. The MRI machineries used in Oulu University Hospital were 1.5 Tesla Signa Horizon (GE Medical System) and 1.5 Tesla Signa Twin Speed (GE Medical System). These two machines have no difference in scanning. Viewing the scans and actual measuring of the tissue thickness was done with the Radworks -program on a hospital computer.

My research partner in Oulu University Hospital was a radiologist, Ari Karttunen, M.D., who collected the research material. He evaluated the medical condition and medication of the patients for their affect on the tissue thickness and asked the permission from the patients to use their MRI scans for the purpose of this study. The volunteers in this study were patients with normal clinical examination, who agreed to take part in this study. Patients were scanned according to normal Oulu University Hospital patient procedure, but additional scans were added to cover the lower jaw. This meant six to nine minutes longer scanning sequence for each volunteer.

Scans were taken from coronal, sagittal and axial directions. The coronal and sagittal scans were taken directly perpendicular to the face, and the axial scans were taken parallel to the corpus callosum. The axial scans were not directly horizontal, but with a slight tilt from front to back. The scanning sequence of each direction was 5 mm thick and with 1,5 mm spacing. The MRI scans can be focused to show the tissues of particular interest better, but this had no effect in how the bone shows in the scan; bone and air send no signal, and therefore they show as black areas in the scans. Patients were scanned from a supine position with their nose towards the sealing and their heads straight.

This study was limited to patients with normal-weight as determined by body mass index (weight in kilograms divided by height in meters square), age between 18-50 years and with no medical condition or medication that would affect the tissue thickness. Gathering suitable patients was a slow process, for otherwise suitable patients but with normal-weight was scarce. A smaller sample of overweight patients was measured. The aim was to have at least 25 males and 25 females for this study. In the end, a total of 40 men and 38 women were measured, of which 26 men and 25 women were normal weight. I selected a set of 31 measurement points (49 with paired elements) of which some points were used in other studies to enable comparison of measurements (Fig. 1). Of the measurements, 13 were taken from the sagittal scans, four from the parasagittal scans in the level of midorbit on both sides (paired measurement), nine paired measurements from the axial scans, and five paired measurements from the coronal scans. I defined the right location on the bone from the whole pack of scans of each direction.

Data analyses

Microsoft Excel XP was used for data analysis. Patients were grouped according to sex and weight. Four different weight categories were created; all (men 40, women 38), normal-weight (men 26, normal weight 25), obese (men 14, women 13), body mass index 30 or over (men 4, women 6). For all these categories average values was calculated. Standard deviation, minimum and maximum values and skewness were calculated from the normal-weight tissue thickness material. Statistical significance of the differences between paired elements was calculated with a paired T-test. Differences between the facial tissue thickness of the Finns and the tissue thickness of other population groups were compared in charts. The tissue thickness of the Finns was compared to the Russians and Lithuanians (Lebedinskaya et al. 1993), African Americans (Rhine & Campbell 1980), African Caucasians (Rhine et al. 1982), mixed (Phillips & Smuts 1996), Japanese (Suzuki 1948), and Northwest Indians (Sahni et al. 2002).

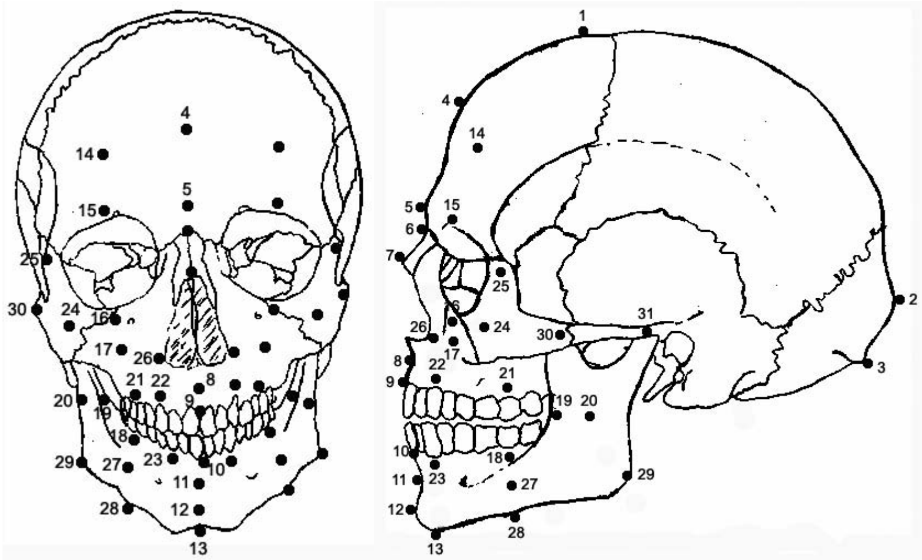

Fig. 1. Measurement points. 1. vertex, 2. inion, 3. opisthocranion, 4. supraglabella, 5. glabella, 6. nasion, 7. rhinion, 8. philtrum, 9. upper lip margin, 10. lower lip margin, 11. chin fissure, 12. pogonion, 13. gnathion, 14. frontal eminence, 15. supraorbital, 16. suborbital, 17. maxilla, 18. second submolar, 19. occlusal line, 20. ramus, 21. second supramolar, 22. subcanine, 23. supracanine, 24. malare, 25. outer canthus, 26. alare, 27. mandibular body, 28. mandibular border, 29. gonion, 30. zygomatic, 31. supraglenoid

Results

The paired T-test showed statistically significant differences in supraorbital measurements in females and frontal eminence and supraorbital in males. This could be misleading, as the sample size is quite small.

The results of the tissue thickness measurements for normal-weight Finnish males and females can be seen in Tables 1 and 2. I had some doubts of the capability of body mass index separating those with excess weight from those with normal weight, so I decided to make more categories than the simple deviation to normal weight and overweight subjects. When comparing the different weight categories (Figs. 2-3), the lower jaw area is the area where the excess body fat shows. Parts containing the most amounts of subcutaneous tissues (cheeks, lower and upper jaw) showed expectedly the most differences.

Table 1. Finnish males.

Variable	Mean	Min	Max	SD	N	TEM	Over-weight Mean	N
age	33	19	49	9,56	26		31,64	14
weight	71	60	82	6,11	26		90,07	14
height	177,1	162	190	6,44	26		177,00	14
body mass index	22,66	18,99	24,97	1,78	26		28,62	14
vertex	4,38	2,32	8,12	1,31	26	2,03	5,27	14
inion	4,58	2,30	7,59	1,06	26	1,17	5,76	14
opisthocranion	7,04	3,67	11,98	2,24	26	1,49	8,68	14
supraglabella	3,44	2,19	4,81	0,82	26	1,37	3,84	14
glabella	5,81	3,94	8,60	1,14	26	1,35	6,65	14
nasion	8,37	5,72	11,03	1,42	26	1,23	9,74	14
rhinion	2,57	1,26	4,11	0,69	26	1,33	2,89	14
philtrum	14,80	10,68	22,86	2,57	26	2,17	15,02	14
upper lip margin	14,30	10,83	18,77	1,94	26	2,70	15,14	14
lower lip margin	15,34	10,46	19,57	2,09	26	3,51	16,30	14
chin fissure	11,16	8,65	15,21	1,75	26	0,94	11,93	14
pogonion	12,68	10,51	16,37	1,52	24	0,73	14,17	14
gnathion	9,32	6,40	13,05	1,92	19	1,27	12,00	11
frontal eminence	4,54	2,35	8,87	1,13	26	1,72	4,54	14
left	5,01	3,51	6,49	0,66	26	0,81		
right	4,08	2,35	8,87	1,30	26	1,63		
supraorbital	9,51	6,92	12,52	1,63	26	3,33	10,16	14
left	10,26	7,22	12,52	1,50	26	2,48		
right	8,77	6,92	12,01	1,42	26	2,24		
suborbital	5,37	2,46	9,06	1,32	26	1,60	6,62	14
maxilla	19,73	13,44	27,21	2,75	26	8,58	22,34	14
second submolar	15,67	10,51	23,35	3,62	25	4,97	18,73	14
occlusal line	21,01	10,58	29,42	4,19	25	2,47	26,72	14
ramus	20,53	12,98	27,94	3,48	25	2,62	26,12	14
second supramolar	29,78	18,15	38,28	4,03	26	8,04	33,73	14
subcanine	11,05	8,25	14,25	1,49	25	1,30	12,89	14
supracanine	11,14	8,22	13,70	1,56	25	1,63	12,01	14
malare	8,09	5,41	10,86	1,46	26	1,39	10,22	14
outer canthus	2,80	1,17	5,67	1,17	25	1,59	3,34	14
alare	3,23	1,52	6,56	1,07	26	2,73	3,81	14
mandibular body	14,15	8,18	23,18	3,70	26	4,17	19,85	13
mandibular border	11,94	6,58	19,74	3,47	17	2,05	18,72	8
gonion	11,81	5,03	23,18	4,33	26	3,43	20,27	13
zygomatic	8,54	4,99	15,86	2,59	26	2,76	11,97	14
supraglenoid	13,15	9,38	17,33	1,97	26	1,65	15,67	14

Table 2. Finnish females.

Variable	Mean	SD	Min	Max	N	TEM	Over-weight Mean	Over-weight N
age	34,00	9,15	18,00	49,00	26		38,62	13
weight	58,90	6,40	49,00	70,00	26		83,69	13
height	163,70	5,95	151,00	176,00	26		165,46	13
body mass index	22,04	1,56	19,43	24,98	26		30,53	13
vertex	3,49	0,75	1,90	4,82	26	0,35	4,70	13
inion	3,85	1,07	2,06	6,71	26	1,19	5,36	13
opisthocranion	5,47	1,45	2,56	8,01	26	1,19	8,58	13
supraglabella	3,07	0,77	1,91	4,26	26	0,76	3,85	13
glabella	5,17	1,18	3,24	8,16	26	0,57	6,46	13
nasion	6,29	1,61	2,23	10,04	26	2,02	7,75	13
rhinion	2,38	1,09	1,10	6,10	26	1,54	2,58	13
philtrum	11,53	1,32	8,92	14,00	26	1,01	12,31	13
upper lip margin	11,96	2,04	7,51	15,38	25	1,06	12,42	13
lower lip margin	13,75	1,74	10,75	16,56	26	1,24	13,61	13
chin fissure	10,04	1,15	7,79	12,51	26	1,13	11,58	13
pogonion	11,02	1,72	7,63	14,09	26	1,22	12,49	13
gnathion	7,90	2,00	4,06	10,82	25	1,00	10,09	13
frontal eminence	3,79	0,85	2,59	5,85	26	0,56	5,01	13
supraorbital	8,40	1,61	4,45	12,19	26	1,30	9,80	13
left	8,97	1,52	6,17	12,19	26	0,73		
right	7,84	1,52	4,45	10,22	26	1,10		
suborbital	5,25	1,59	1,32	8,65	26	0,98	7,13	13
maxilla	19,19	2,66	10,67	24,20	26	1,91	19,71	13
second submolar	16,86	2,96	10,30	22,81	26	0,96	19,60	13
occlusal line	22,24	2,97	15,21	29,01	26	1,40	25,84	13
ramus	20,29	3,57	9,14	27,52	26	1,16	25,70	13
second supramolar	30,48	4,62	8,33	38,69	25	2,88	30,69	13
supracanine	10,90	2,14	5,51	14,78	25	0,90	11,74	11
subcanine	8,88	2,25	5,51	13,16	24	1,34	9,84	13
malare	9,69	2,04	2,31	12,57	26	2,18	12,09	13
outer canthus	3,32	1,52	1,05	9,49	26	1,54	4,46	13
alare	3,38	1,16	1,10	5,78	26	1,30	3,89	13
mandibular body	11,67	4,98	3,22	21,87	26	2,80	15,70	13
mandibular border	13,45	3,59	5,37	20,20	24	2,89	18,10	9
gonion	13,16	3,18	6,36	19,90	26	3,76	20,55	13
zygomatic	8,07	2,18	3,18	14,59	26	1,22	12,68	13
supraglenoid	11,69	2,40	6,67	18,03	26	2,54	15,10	13

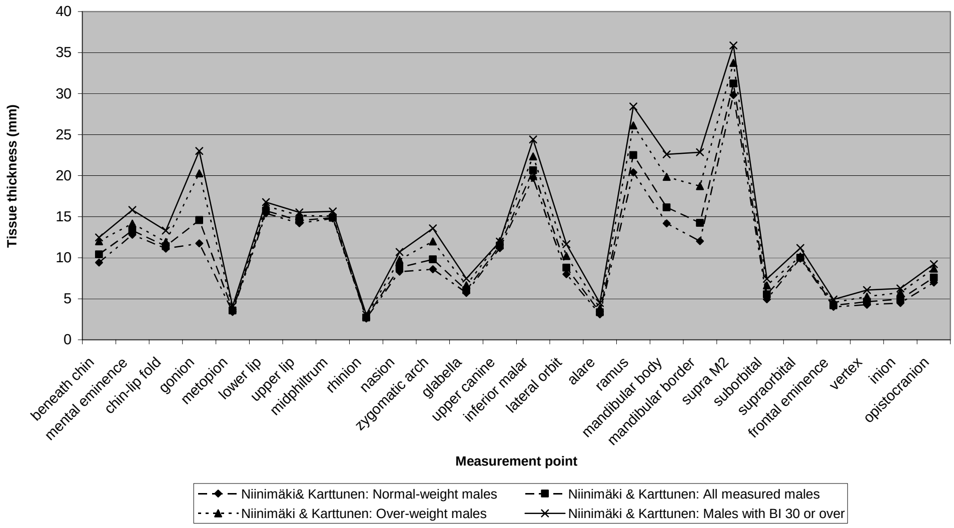

Fig. 2. Finnish males weight category comparison.

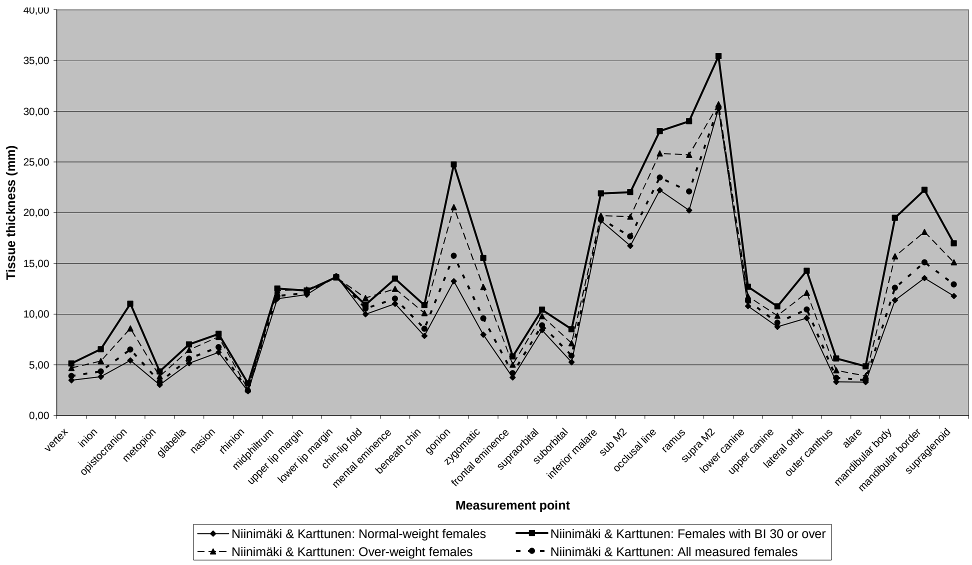

Fig. 3. Finnish females weight category comparison.

The comparison of measurements (Fig. 4) between the Finnish male facial tissue thickness and the thickness of other population male groups showed that Finns have thicker tissues almost in all of the measurement points. Relative tissue thickness in different parts of the face is generally the same in all population groups, except in African American males with the supraorbital, in American White males with the second lower molar and in Northwest Indian males with the upper lip margin where the relative thickness of these particular points are not in the same relation as in other groups. Mostly the tissue thicknesses follow the general line of relative tissue thickness in all groups. Finns seem to have thicker tissues, especially in the points of the nasion, the midphiltrum, the inferior malar and the second upper molar. Some of the measurements in the Finnish male tissue thickness are smaller compared to the reference groups, such as the suborbital measurements to African American, American White and mixed males, the lateral orbit to Russian, Lithuanian and American White males, the rhinion to African American, American White, Lithuanian males and the chin-lip fold to African American, Russian, mixed males. These differences would show as a thicker middle check area and a thinner sub eye area in Finns as compared to the other population groups.

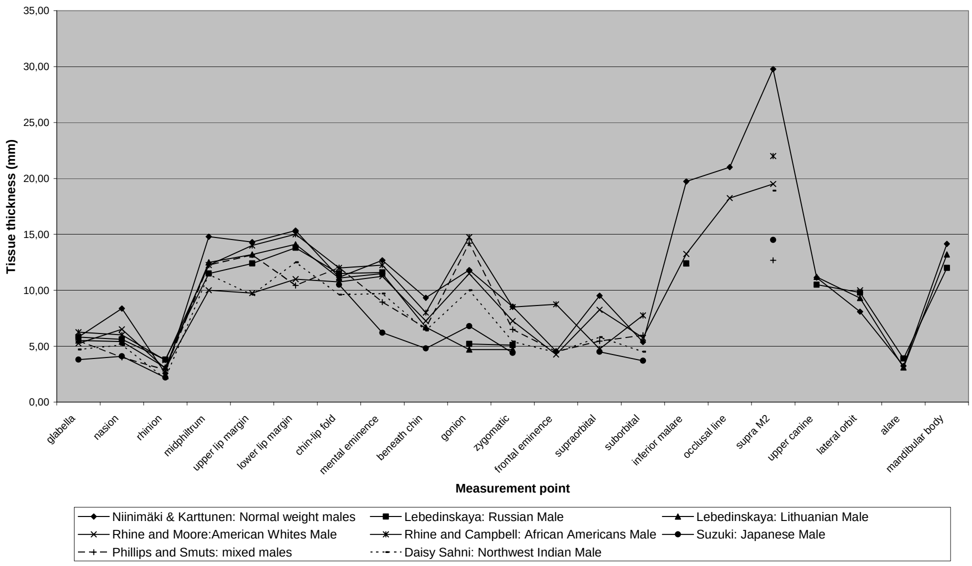

Fig. 4. Tissue thickness comparison of males.

As in Finnish males, Finnish females (Fig. 5) have thicker tissues in the second upper molar compared to the other population groups and in inferior malar to the Russians and Lithuanians. Finnish females have thinner tissues in the upper canine, lateral orbit and mandibular body measurements compared to the Russian and Lithuanian females, gonion to African American females, rhinion to African American, American Caucasian, Lithuanian and mixed females, upper lip margin to African American and mixed females, chin-lip fold to Russian, Lithuanian, African American and mixed females, mental eminence to African American and Russian females. Relative tissue thickness is generally the same in all groups, except in upper lip margin in Northwest Indian females, where this point is thinner relative to other measurement points in the same group. The tissue thickness in Finnish females is thicker in the inferior malar and the second upper molar and thinner in the mandibular body, the upper canine and the lateral orbit compared to the Russian and Lithuanian females. This would indicate that the middle cheek area in Finnish females has more tissue than Russian and Lithuanian females. Finnish females would also seem to have thinner tissues in the lower jaw area compared to the other groups.

Some of the differences in Finnish face compared to the other population groups may be the result of a bias in Finnish sample towards the high end of the normal-weight range. Other possible result of bias is the different methods employed to gain the tissue thickness.

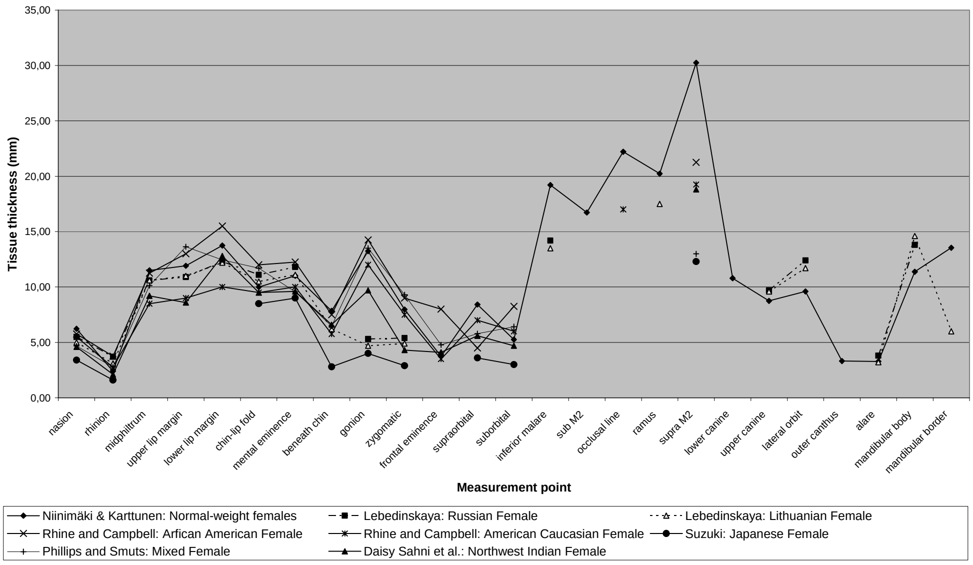

Fig. 5. Tissue thickness comparison of females.

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Historical archaeology

Vyborg: a Karelian central place outside ancient Karelia?

Mervi Suhonen

Introduction

The history of Vyborg is known since 1293 when the Swedish crown established a fortification on the castle island (FMU I 215; FMU I 217; Ruuth 1908: 8-9; Ruuth et al 1982: 38). What kind of Iron Age background did the area around the Gulf of Vyborg have? When, how and from which directions did permanent agrarian settlement reach the area?

The area around the Gulf of Vyborg does not belong to 'Ancient Karelia', which is defined by rich archaeological material from the Late Iron Age cemeteries. On the contrary, evidence of Late Iron Age settlement either from the present town area of Vyborg or from the surrounding areas is scarce. In the archaeological material from the castle island and in the medieval town area, there are few artefacts which can be dated to the 13th century or earlier. In the neighbouring communes systematic archaeological surveys are almost lacking (Uino 1997: 23-43; 2003a; Saksa 1998: 15-18, 21).

Recently excavations and the C14 dating method have given fresh viewpoints for interpretation of the earliest settlement in Vyborg (Saksa et al. 2003a; Saarnisto & Saksa 2004a; 2004b). It is even more tempting than before to see the development from an Iron Age central place into a medieval urban centre. According to this scheme, both the castle island and some parts of the medieval town area were inhabited before 1293 – possibly by Karelians (Saarnisto 2003: 19; Saksa 2004b; Korpela 2004: 83). In the Middle Ages the Swedish crown took political power, and traders sailed to Vyborg e.g. from Tallinn, Lübeck and other member towns of the Hanseatic League.

As far as interest towards history in Finland is considered, Vyborg deserves special attention (Suhonen, in press). The multi-coloured past of the old Karelia is today a popular matter of discussion amongst both the older generation and the younger Finns who have their family roots on the eastern side of the present political border of our country. In this article, I discuss the role of the Karelians in Vyborg in the 12th and in the 13th centuries and in the Middle Ages. Source criticism is of key importance before any connections to ethnicity are suggested in archaeological interpretations.

The new book series *History of the Vyborg district* is a revision of the prehistory and history of the area written by a team of mainly Finnish experts. The first publication is a collection of articles and it covers the whole prehistory of the area until early Christianisation (*Viipurin läänin historia I*, 2003). The second volume is Professor of History Jukka Korpela's fresh view of the medieval history of the area (Korpela 2004). Three more volumes will be published in the near future. The text is of high scientific standard, and there are exact references to research literature. Furthermore, the book series is written in a readable style and is rich in illustrations. It will no doubt be an encyclopaedia for both academic research and the public at large. On a highly respectable forum, half-ready interpretations and even opinions become very easily facts.

The Gulf of Vyborg before 1293

As far as development around the Gulf of Vyborg in the 12th and the 13th centuries is considered, there are three main hypotheses. Each of these can be argued in various ways, the most common of which are mentioned below.

1. Vyborg did not become a central place in the Late Iron Age.

   1a) Due to restlessness at sea and shortages in arable land for field cultivation, permanent settlement in the area was scarce.
   1b) The area around the Gulf of Vyborg was not of economic or political interest either to Sweden or to Novgorod before the end of the 13th century.

2. Vyborg became a Karelian central place in the Late Iron Age.

   2a) There was a non-fortified trade place ('Old Vyborg') somewhere not far from the medieval castle island.
   2b) Karelians built a fortification on the castle island in order to control water traffic between the sea and the Vuoksi river system.

3. Control of the area around the Gulf of Vyborg was a matter of international competition already before 1293.

   3a) The Swedish crown established a fortification built of wood and earthen ramparts on the castle island a couple of decades before 1293.
   3b) Traffic and long-distance trade at the mouth of the Vuoksi was active but control over the water route could not be organized either by Novgorod nor by the Swedes.

Archaeological finds and dated logs in Vyborg

Since 1998, senior researcher Aleksandr Saksa (Russian Academy of Sciences, Institute of History of Material Culture, St. Petersburg) has led rescue excavations in the medieval town area of Vyborg every year (Saksa 2000a, 2001, 2002a, 2002b, 2003, 2004a; 2004b; Saksa & Suhonen 2001, 2004; Saksa et al. 2002a; Belsky et al. 2003; Suhonen 2003c). Between 1998 and 2002, excavations were conducted close to the medieval town wall. In August of 2003, a small area was excavated near the medieval harbour. The excavation area in the summer of 2004 was on a plot between the harbour and the medieval town church, not far from the hilltop where a town hall may have stood in the Middle Ages or in the 16th century (Fig. 1), (For comparison see 17th and 18th century maps in Kauppi & Miltšik 1993; Kostet 1995: 89-95).

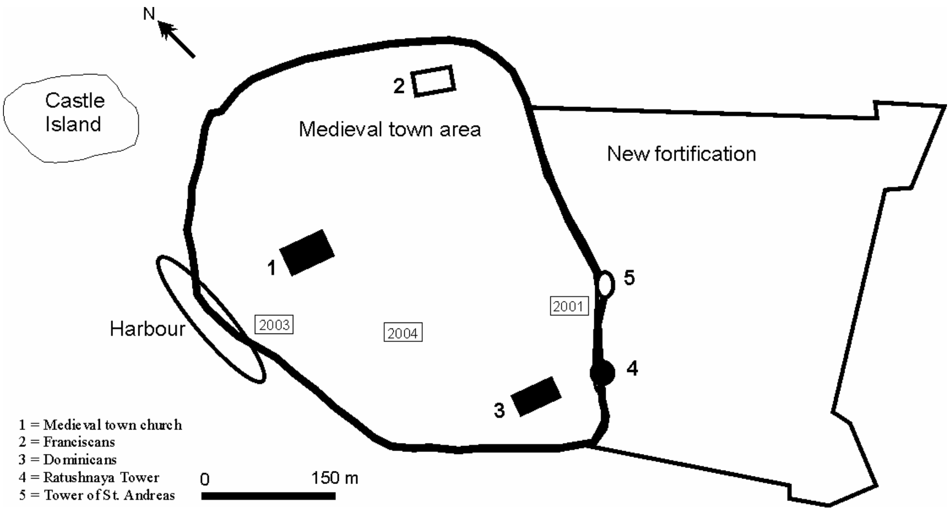

Fig. 1. The map of Vyborg.

It is now obvious that there are several potential areas for archaeological excavations in yards, under the streets, and on empty plots where less massive buildings were destroyed during the Second World War (Suhonen, manuscript). Prior to the work of Saksa's expedition this was not self-evident at all because the peninsula is hilly and in many places the bedrock is close to the modern surface. The medieval town area is densely built, and since the 18th century most houses were built of stone (Neuvonen 1994: 64-5, 92-125).

During the Soviet Period, half a dozen modern blocks of flats were built in the old town without any archaeological supervision. Today it is essential to make sure that the law for the protection of ancient remains is taken into account whenever construction work is planned and realized (Saksa 2000b; Suhonen, manuscript and cited newspaper articles). Interesting information coming to light straight from the mud under our feet is the best advertisement for field archaeology, for the law for the protection of ancient monuments, and for better care of the cultural heritage.

To summarize the results of the six field periods, the cultural layer of Vyborg as well as construction remains and the find material appear to be characteristic of a medieval town in the Baltic sphere. In all the areas excavated by Saksa, a considerable number of remains of wooden constructions have been documented. In addition to walls and floors, street pavements have been found, and there are also remains of waste water systems. Find material from the layers in question suggests dating to the second half of the 15th century as well as the 16th and the 17th centuries. Artefacts dating earlier than AD 1450 are few (Saksa et al. 2002a; Belsky et al. 2003; Saksa 2002b, 2004a, 2004b).

So far only two dendrochronological analyses have been done in Vyborg. The samples from building remains excavated in summer 2000 were dated to 1478 and 1480. Pentti Zetterberg (University of Joensuu, Finland) could give the results only a 75% probability (Saksa 2004a: 105-60; Saarnisto & Saksa 2004a, 2004b).

Professor Matti Saarnisto (Geological Survey of Finland, GTK) took C14 samples from wooden constructions in the lowest layers of Saksa’s excavation areas in 2001, 2003 and 2004. In the first-mentioned excavation one of the samples gave an unexpected result. The dated log had been felled in 1270 (760±40 BP Su-3589) (Saksa et al. 2003a). Although interesting, the result should be treated with care. The other end of the dated log was in an unexcavated area and could not be documented at all. We do not know whether or not the log belonged to a wooden building or some other larger construction. Furthermore, reused logs seem to have been very frequent in all kinds of wooden constructions in medieval Vyborg: many of the logs have several different joint marks.

In August 2003, the oldest wooden building unearthed in the excavations close to the harbour got an early 15th century dating (555±30 BP Poz-4383). Fat hen seeds (*Chenopodiaceae sp*.) from the cultural layer below the building date to early 14th century (625±25 Poz-4297) (Saarnisto & Saksa 2004a, 2004b). The samples are from fairly reliable contexts, but the need for more analyses and source criticism is self-evident. The results from the field period of 2004 are not published yet.

New material, a new hypothesis

Saksa connects the 13th century dating (Su-3589) with the history of settlement in Vyborg. Although the dated log did not get any functional interpretation, there were remains of living houses next to it. Fishing equipment were frequent finds: e.g. weights of fishing nets are similar to those found on the castle island in Kexholm and elsewhere in Karelia (Uino 1997: 144; Saksa 1998: 121, 2002b: 98-100; Saksa et al. 2003b: 470-1). According to Saksa, the oldest excavated layers near the edge of the medieval town area are the remains of a Late Iron Age settlement. Because of uneven topography, other favourable places for early inhabitation would have been equal to those later chosen for the three medieval stone churches in Vyborg (Saksa 2004a, 2004b; for churches see e.g. Hiekkanen 2004). Korpela takes it for granted that the first dwellers were Karelians (Korpela 2004: 86). Saksa has not made any remarks of his own considering the possible conflicts between the Karelians and the Swedes or the Novgorodians in Vyborg in the 1290s or earlier.

In the list of hypotheses presented above Saksa's and Korpela's opinion has its place under the second subtitle:

> 2c) Already before 1293 fishermen, traders and other inhabitants of Karelian origin settled down on the peninsula which later became the medieval town area.

I wonder if town archaeology is offering answers for broad questions prematurely (see also Suhonen 2004a). The lowermost cultural layer in the excavation area of 2001 is hard to distinguish from well-preserved layers where leather, ceramics and wooden artefacts represent mainly 16th century types. There is a fairly large variety of imported clay and glass vessels in the material (Saksa 2002b; Saksa et al. 2002a; Belsky et al. 2003; Kurbatov 2001; Polyakova 2001). A possible hypothesis is that in the 15th and in the 16th century sites close to the town church and the harbour were favoured by German and other foreign merchants but Karelian fishermen still lived in a more marginal area close to the eastern town wall.

Innovations and colonisation in a scarcely inhabited area

'Imported' phenomena were crucial in the development of a medieval urban centre in the bottom of the Gulf of Vyborg. In this respect, researchers today agree with the traditional view suggested by Gabriel Lagus and Johan Wilhelm Ruuth a hundred years ago (Lagus 1893a, 1893b, 1895a, 1895b; Ruuth 1903, 1908). Both authors concluded that soon after the establishment of the Swedish castle, traders and craftsmen settled on the peninsula which later became the medieval town area and a multiethnic society developed there. In a few 14th-century documents Vyborg is indirectly mentioned as an 'urban-like' centre although its first town privileges are known from 1403 only (Lagus 1895a: 9; Ruuth 1908: 20-1; discussion e.g. Korpela 2004: 240-5).

As far as the surrounding countryside is considered, it is the two first-mentioned hypotheses (see 1a and 1b above) that get most support from archaeological material. In other words, lack of find material suggests that it was a sparsely inhabited area in the Late Iron Age. Contemporary economic activity on the coast is not adequate criterion for the function of a harbour as an established centre (Hiekkanen 2003: 482-3; Mägi 2004).

Invaders of Scandinavian origin settled in the countryside near Vyborg the beginning of the 14th century. Ecclesial and profane administration was introduced, but the development should not be explained as an attempt of the Swedish crown to aggressively colonise new areas. Expansive interests of the Catholic Church must not be overemphasised, either. Instead, this development strengthened the position of nobles who owned the land taken for slash-and-burn cultivation. The development was similar to changes in settlement pattern on the Åland Islands and the southern Finnish coast a couple of generations earlier. Fish and other resources of maritime environment were of secondary importance (Hiekkanen 2003: 483-9; Korpela 2004: 118-19, 123).

Even though introducers of foreign power, administration and culture were not 'crusaders' in the traditional meaning, it is clear that the Karelians who traded with guests and newcomers from overseas had to meet unexpected demands either voluntarily or unwillingly. At the same time, the continuation of Iron Age traditions along with medieval aspects in the way of life is obvious. Innovations in economy, development of new contact networks, spreading of the Catholic faith as well as changes in social and material culture are complex processes the explanation of which strongly depends on the chosen viewpoint, though. Korpela rather emphasises the superiority of novelties in the process of ideological change (Korpela 2004: 127-36, 234-9).

Early Karelian Vyborg

The possible existence of an Iron Age trading place in Vyborg (hypotheses 2a) was discussed both by Lagus and Ruuth (Lagus 1893a: 11-15; Ruuth 1908: 4-8). In this case, argumentation proceeds from the place name ‘Old Vyborg’ (Sw. Gamble Wijborg) which occurs in a few maps and post-medieval texts. The idea is that the establishers of the Swedish fortification took over the place name Vyborg (Sw. Wiborg, variations in orthography do occur) from a trading place which had been called by this name (Erikskrönikan 1986: 72-4; FMU I 215). To avoid confusion the ‘original’ Wiborg got the attribute ‘old’.

Any trade harbour or other place possibly carrying this name in the Iron Age has not been found either near its approximate location by the Gulf of Vyborg on the 17th and the 18th century maps or anywhere else. The etymology of the toponym Wijborg remains uncertain as well. ‘Old Vyborg’ is probably a post-medieval expression independent from the prehistoric background of the area (Nissilä 1957: 157-66; Ruuth et al 1982: 19-23; Saksa et al. 2002a; Korpela 2004: 77-84; Suhonen 2004d: note 6).

V.A. Tjulenev was the leader of the archaeological expedition in Vyborg from the late 1970s until the mid 1990s. In his excavations in Smedjegården (the Smith’s Yard) on the castle island, he found artefacts which, according to corresponding grave finds in Karelia, could be dated to the 12th and to the 13th centuries. He also observed constructions which he interpreted as remains of a wooden fortification. Tjulenev suggested that there had been a Karelian fortification on the ruins of which the Scandinavian invaders’ castle was built (hypotheses 2b). He concluded that the Swedish crown paid attention to the crucial strategic location of the island exactly because it had been fortified by local inhabitants. According to Tjulenev the 13th century spear heads and burnt layers near the foot of St. Olof’s tower can be connected with a battle between the Karelians and Swedish troops in 1293 (Tjulenev 1982, 1987, 1995).

Tjulenev did not hesitate to publish his interpretations together with a carefully chosen collection of finds and field observations. Other researchers have not had access to the rest of his excavation material. Tjulenev’s field reports from the excavations on the castle island, on the ruins of medieval churches and elsewhere in the medieval town area do not meet scientific criteria (IIMK RAN; Saksa, pers. comm., August 2001). There are suspicions that part of his find material lies somewhere outside museum collections. As a consequence several foreign researchers have taken a careful or a negative attitude towards Tjulenev’s hypotheses (Taavitsainen 1990: 240; Hiekkanen 1993; Lovén 1996: 97-9; Drake 1996b; Uino 1997: 345-6; Uotila 1998: 120-2; Suhonen, manuscript). In addition to unsatisfactory documentation, he has been accused of ethnic biases in his interpretations (e.g. Hiekkanen 2003: 483). Regrettably, the shortcomings cannot be rectified because Tjulenev is no longer among us.

Karelia by the lake, Karelians by the sea

From the 12th century onwards, the core area of the so-called Ancient Karelia can be defined according to the distribution of archaeological finds from cemeteries and hill forts and by the aid of toponyms and written sources. In the Viking Age, the River Neva became literally the main stream between Scandinavian and more eastern economic spheres. The Gulf of Vyborg was an access to the River Vuoksi which at that time was a two-armed water way and thus a second sailing route to Lake Ladoga (Simola 2003: 70-8). An ‘international’ material culture is characteristic of Viking Age burials on the western shore of Ladoga (Uino 1997: 113-6, 2003b: 316-17, 341-69). In the Crusade Period (ca. AD 1100–1350), local attributes can be clearly distinguished there (Uino 1997: 113-30, 166-72; Saksa 1998: 157-66; Saksa et al. 2003b: 436-40).

Due to the research history, the key sites in Ancient Karelia are in the area where Theodor Schvindt excavated rich Crusade Period graves at the end of the 19th century (Uino 1997: 23-43, 2003a with references). In contrast the archaeological material on the western part of the Karelian Isthmus is quite poorly known even today. As a consequence the western Karelian Isthmus seems to remain a wilderness area until the late 13th century colonisation. The available pollen data is insufficient for relevant research of the development of agriculture in the western part of the Karelian Isthmus (Uino 1997: 147-8; Hiekkanen 2003: 488-9; Alenius 2004).

Saksa, Uino and Hiekkanen are ready to conclude that Kexholm and Vyborg were the main strongholds controlling the Vuoksi trade route (Saksa et al. 2003b). Saksa's excavations at the medieval castle of Kexholm strongly support the possibility that the castle island was inhabited already in the Late Iron Age (Saksa 1992, 1998: 107-25; Vuorela et al. 1992; Uino & Saksa 1993; Kankainen et al. 1995; Zetterberg et al. 1995; Uino 1997: 261-9; Saksa et al. 2003b: 413-19; Suhonen 2004b). Tjulenev’s idea of a Karelian fortified settlement in Vyborg suits the picture very well.

In her dissertation, Uino suggested that the Vuoksi waterway was used mainly by the Karelians, while international trade concentrated on the Neva (Uino 1997: 184). The third stronghold in a ‘chain of control points’ could be Tiverskij Gorodok ca. 40 km upstream from Kexholm (Uino 2003b: 372; Saksa et al. 2003b: 437-8; see also Taavitsainen 2003). At Tiverskij Gorodok, there is rich find material from the 11th and 12th centuries, but the preserved remains of fortifications probably date to the 14th century (Taavitsainen 1990: 239-40; Uino 1997: 297-300; Saksa 1998: 87-96; Saksa et al. 2003b: 406-11).

The distance between Vyborg and Kexholm by water is far over 100 km. Drake and Korpela are not at all convinced that there is sufficient evidence of an organized control system of the trade route (Drake, pers. comm., April 2003; Korpela 2004: 102). At present, it can be only said that the need of new archaeological surveys is huge.

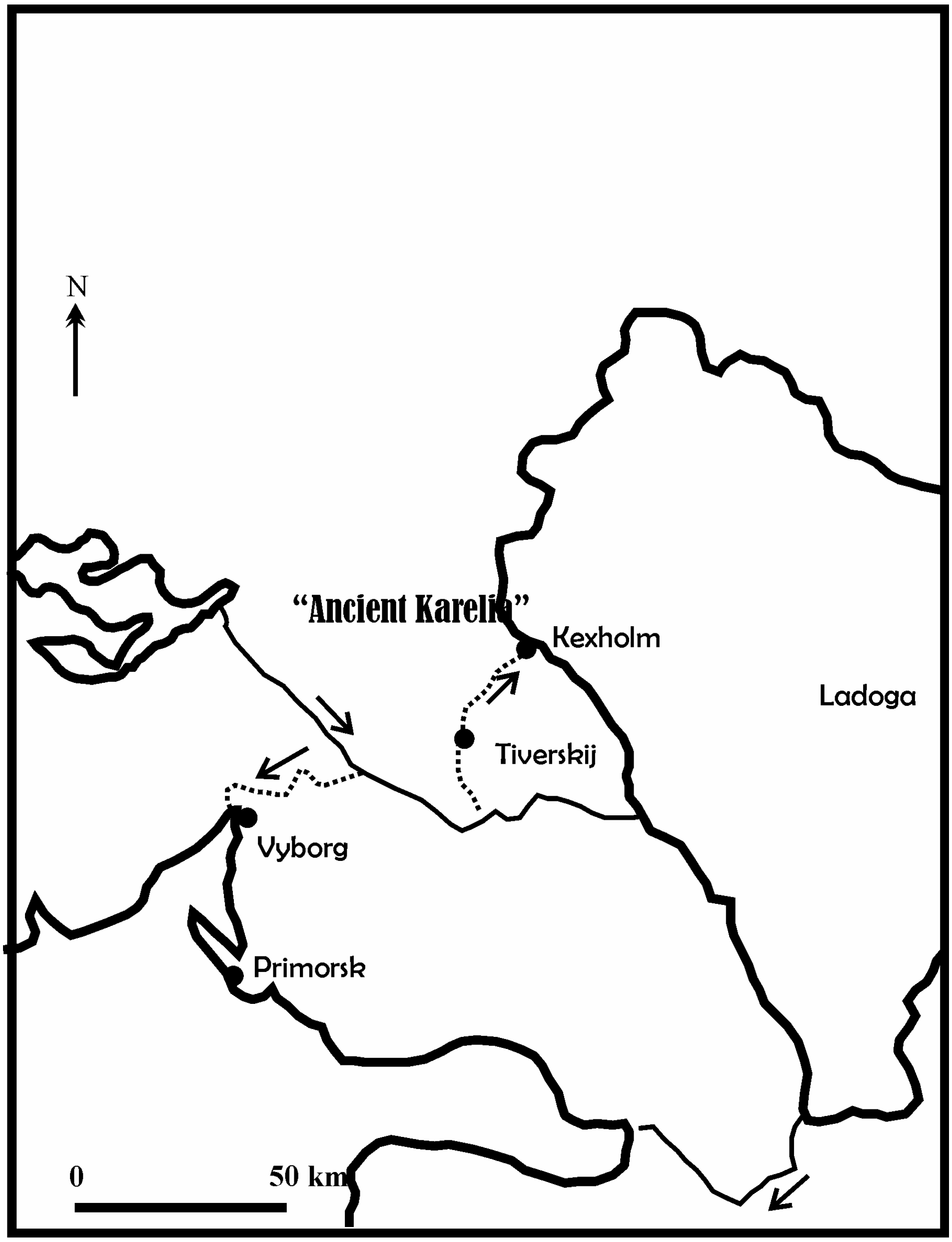

Fig. 2. The map of Karelian Isthmus.

International interests

Drake considers it probable that Swedes organized control over the waterway from the sea to inland in Vyborg earlier than 1293 (hypothesis 3a). He finds it probable that the fortification in Vyborg was first built mainly of wood and it is thinkable that the construction remains observed by Tjulenev belong exactly to this castle (Drake 2001). Drake argues that in the late 13th century there was an economic high wave in Sweden. Concentration of property, competition for political power as well as the organization of Catholic congregations and dioceses was reflected in landmarks such as fortified noble houses, ecclesiastical buildings and stone castles (see also Korpela 2004: 87, 123-4). Stone architecture at the castle island of Vyborg had both military and symbolic function (Drake 1993, 1996a).

Military activity by the catholic Swedes in Karelia in the 13th century is disputable in many respects. For example, the famous legend of battles at the River Neva in 1240 must be interpreted with care (Isoaho 2004; Hiekkanen 2003: 490; Korpela 2004: 70-1).

Unto Salo has concluded that the present harbour of Primorsk (Fi. Koivisto) on the eastern shore of the Gulf of Vyborg is equal to Berkö, a place mentioned in a well-known document from the end of 1260s. According to the letter, Novgorod could no longer guarantee the safety of traders in the inland Karelia north of Biörkö (ST I 111; ST I 118; Korpela 2004: 99, 101).The same place name is known for example from Birka in Sweden and from several Viking Age harbours on the Finnish coast and archipelago. In Salo’s opinion, the Björkö in Karelia belonged to a trade network and thus it was the predecessor of the trade harbour in Vyborg (Salo 1982: 18-22, 31-3, 71-4). Archaeological evidence for the location of such an Iron Age central place in Primorsk is totally missing (Hiekkanen 2003: 486-7; Korpela 2004: 77-86).

According to the Swedish Chronicle of King Erik, the reason to build a new castle in Vyborg in the early 1290s was ‘to protect those sailing at sea’ (Erikskrönikan 1986: 72-74; discussion e.g. Korpela 2004: 77-102). Hiekkanen thinks that the establishment of a Swedish fortification forced the Novgorodians to be active around the south-western arm of the Vuoksi although the area had not been of any political interest to them previously (see hypothesis 1b above) (Hiekkanen 2003: 492-5; Korpela 2004: 101). Chronicles tell of an attack against Vyborg by a Novgorodian troop for the first time in 1294 (NL 1950: 327-8; FMU I 215; Ruuth 1908: 8-9; Ruuth et al. 1982: 39). There is no documentation of political or military conflicts in Vyborg in earlier times.

Theoretically, the lack of either Swedish or Novgorodian military and administrative organization before late 13th century might even indicate a low economic importance for the area around the Gulf of Vyborg. It is possible to speculate that for outsiders the Vuoksi was a secondary water route, access to which was not worth fighting for or investing in (Korpela 2004: 87, 102). Could this be indirect evidence for Karelian inhabitants in Vyborg? The past of the local societies is less visible to us than viewpoints and propaganda registered on parchment and paper by foreign rulers.

Ethnic attributes

By the 1310s, Vyborg had grown for at least one generation under the Swedish rule. Thus the early 14th century and early 15th century dating for archaeological contexts near the harbour of Vyborg are not quite surprising (Poz-4383 and Poz-4297, see above). A number of items connected with fishing were found in the same excavation area where these samples were taken (Saksa, pers. comm., August 2003 and October 2004). Can fishing equipment be connected to Karelian households as it was done in 2001 in an area further away from the harbour? The question is problematic because the sites closest to the harbour have traditionally been interpreted as an area inhabited by foreign merchants (Ruuth et al. 1982: 51-9; Korpela 2004: 258-63). This is an example of how the historical context effects the interpretation of archaeological material and dating results.

In the modern world, ethnicity can be a complex and potentially dangerous topic. In the current archaeological discussion in Scandinavia, ethnically-defined group identity or ethnic conflicts are usually seen as out-of-date explanations for continuity and change.

Throughout prehistory and historical times, a geographical or a political area Karelia is by no means uniform. The same holds true for Karelian folklore, identity, etc. In archaeology the word 'Karelian' is not meant to be associated either with national romantics or international politics but, at least in Finland, laymen easily connect the concept with defence of hill forts by heroes or ladies of the house in their colourful costumes (Sihvo 2003; Fewster 1999). Reasons for enthusiastic connotations are easy to explain. First, Karelia is the legendary homeland of the Kalevala epics. Second, the agrarian culture in Karelia changed dramatically in the Second World War. Memories from the Karelian past still have bright colours in Finland. Destroyed homes awake strong emotions although the early 20th-century lifestyle and milieu hardly survived unchanged elsewhere in Northern Europe, either.

As far as the material culture of the townsmen in Vyborg in past decades is considered, the attribute 'Karelian' is a loose concept – something opposed to non-traditional, imported and organized. Unlike prehistoric cultures medieval towns were multi-cultural in character. In urban archaeology artefacts are often seen as functional everyday utensils and semantic messages in their shape, decoration, etc. are connected with the social status of the user rather than his/her ethnic or linguistic identity (Enqvist 2004). Redware clay vessels, wooden stave vessels, common types of leather shoes and iron knives are found in excavations of medieval living quarters in most towns all around the Baltic Sea. In Vyborg such items belonged to both the Karelian and other households alike. Respectively all town dwellers regardless of their family roots were free to buy imported goods.

Although disputable, concepts like 'ancient' and 'Karelia' are useful tools for the discussion for example of the development of Vyborg. Respectively it is easy to speak of the Hanseatic culture on a conceptual level. The true connections of the latter with the identities of producers, traders or consumers of material culture were very different in different individual cases.

Multiethnic approaches

Above I have presented some central aspects of a ‘meta-hypothesis’ which speaks for a long tradition of Karelian settlement in Vyborg and its flexibility during ‘unavoidable’ changes caused by pressure from outside at the turn of Middle Ages. The fairly passive role of the local population and the superiority of invaders are outstanding. Various documents, observations and interpretations could no doubt be put together with logically and chronologically possible combinations in numerous other ways, too.

I think that however sparse the settlement in the coastal area of the western Karelian Isthmus was in the Late Iron Age, places within an easy access both from the sea and from inland were the natural meeting points for traders, and it is probable that juridical and administrative meetings took place there. The location of Vyborg is an excellent example of such a centre. Archaeological evidence of contemporary visits in such favourable bays along the coastline may be very hard to find, of course.

Multiethnic, multicultural and tolerance are desirable attributes in archaeology today. In the case of Vyborg we can think that economic interests, religious missions, military aspects and spontaneous contacts between people and peoples gradually led to the development of a multi-national medieval society. This should not be understood as an invasion of innovations into a previously stable social system, though. Due to differences in natural resources and in livelihood and prosperity, trade between Karelian speaking groups had probably been intensive even over long distances for centuries. Conflicts had hardly been avoidable.

Contacts with other Finno-Ugrian and Slavic hunters, farmers, craftsmen and traders had obviously been important for centuries. Gradually farmers or other newcomers with Scandinavian roots settled down on the western Karelian Isthmus. We can also ask when boats from harbours on the southern shore of the Baltic Sea first found their way to Vyborg. Should archaeological evidence of the 13th century settlement be more abundant in the future, there will probably be foreign trade goods which were carried to Vyborg already at that time.

All these people with different ethnic and linguistic identities traded and travelled along the River Vuoksi and by other communication routes. If there was a permanent settlement on the castle island or in the Old Town area, it would reasonable to think of a multiethnic society consisting of families with mixed cultural backgrounds. Leaving romantic daydreams of peace and brotherhood aside, it is a fact that any attempt by one group to gain control over the others in Vyborg before the 1290s is not visible either in the archaeological record or in written documents. As far as an early 13th century fortification in Vyborg – Karelian or Swedish – is considered, I do not see the present evidence as sufficient for convincing conclusions. The role of the Novgorodians in the Vyborg district in the 13th century is a matter of speculative discussion as well.

If the concept of Ancient Karelia is relevant, it follows that the Vuoksi formed the connection between the central area near Lake Ladoga and the more peripheral Karelian cultural area closer to the sea. By the end of the 13th century, the Swedes had approached this large area ‘through a back door’. Vyborg was not the final goal for the Swedish crown in the east (e.g. Ruuth et al. 1982: 37-45; Korpela 2004: 65-91). In 1295, a conflict between the Swedes and the Novgorodians took place in Kexholm, and a few years later the Swedes built the fortification of Landskrona at the mouth of the Neva. Both Kexholm and Landskrona fell into Novgorodian hands.

It has often been repeated that the political agreement in 1323 divided Karelia into two. An alternative approach is to assume that trade contacts between different areas of Karelian settlement continued after the treaty without any major changes (Korpela 2004: 102-10). In any case, formation of congregations as well as different taxation practices in Swedish Karelia and on the Novgorodian side of the border led to differentiation of administration (Hiekkanen 2003: 498-504; Korpela 2004: 198-210). At present, archaeology seems to speak for a remarkable and dividing border (Uino 1997: 116, 140-2; Saksa et al. 2003b: 438). Karelia had never been culturally uniform, though.

The past as a political product

Archaeological work has a long tradition in Vyborg (see e.g. Rinne 1914; Hackman 1944; Lankinen 1982). Unlike any other town, archaeological material was treated systematically in Vyborg already in the 1920s and the 1930s. Construction remains under the surface were seen as a valuable cultural heritage which at that time was quite advantageous for a Finnish town. It is hard to say whether this was connected with the intention to use the history of Vyborg for the political goals of Finland in Karelia. In any case, archaeology gradually became established in the town although the lack of financial resources for archaeological work cannot be denied (Meurman 1978; MV/HA; MV/RHO; MV/Kuva-arkisto; Suhonen, manuscript). Just before the war, the protection of old buildings and the establishment of a protected zone in the medieval town area were matters of political discussion. Nevertheless, discussion about the formation, dating or interpretation of ancient remains seldom emerged.

Since the 1960s, urban archaeology has been quite active in Vyborg although the quantity and the quality of results can be questioned in many respects (Kaljundi 1970). In practice the role of archaeology in understanding the history of Vyborg remained very restricted until the 1980s. Tjulenev's work was a breakthrough and his interpretations got publicity even in Finland (Tjulenev 1982, 1987). Today research work across the language border is a challenge for both the Finnish and the Russian counterparts.

Perhaps the Karelian past of the medieval castle and town was intentionally discovered by Tjulenev as an alternative to the western origins of the medieval town. Respectively many of the interpretations and expressions in Ruuth et al. 1982 (the first volume of the history of Vyborg published in 1982) are clearly biased (e.g. establishment of the Swedish castle, pp. 37-45). Even today the town archaeology in Vyborg (and elsewhere!) can be accused of being political because explaining the past can never be free from either the pre-assumptions or the attitudes of the researcher. It is also bound to academic and everyday contexts in which the results are reviewed. Finnish voices supporting the unrealistic idea of having Karelia back cannot be heard in the archaeological discussion about Vyborg (see e.g. Takala 2000). Accordingly, the Russian expedition under the leadership of Aleksandr Saksa works for antiquarian and scientific interests, not with a political agenda.

In archaeology empirical observations are not equal to the knowledge of the past, e.g. contexts in which artefacts were produced and used in a medieval society were many. Our reconstructions may be biased, simplified or even false. The value of an archaeological approach should lay in understanding the semantic functions of material culture, spatial thinking in combination with chronology, etc. To keep question marks explicit means that we appreciate our own field of research as a branch in the human sciences. Instead of facts, we struggle for everlasting discussion.

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IIMK RAN = Institut Istorii Materialnoj Kultury Rossijskoj Akademii Nauk, St. Petersburg.

MV/HA = National Board of Antiquities (Museovirasto), Helsinki. Topographical archives: Viipuri. Index of finds.

MV/RHO = National Board of Antiquities. Department of Monuments and Sites. Topographical archives: Viipuri.

MV/Kuva-arkisto = National Board of Antiquities. Photoarchives: Viipuri.

Digital archaeology in the medieval town of Naantali: experiences of complete digital documentation of excavations

Hannele Lehtonen & Kari Uotila

Abstract. *Due to sewer and water works, archaeological rescue excavations and research were conducted on Mannerheiminkatu street in Naantali, Finland, in 2000 and 2002. Single-context excavation and digital documentation with a total station were used. Digital surveying is a fast and accurate way to document structures, soil layers and sections, as well as to measure the provenance of finds and various samples. When the measured data is documented in digital format from the beginning, post-excavation work takes less time, because the data can be imported directly into e.g. an AutoCAD program for drawing final plans and sections, or into spreadsheet or database applications for cataloguing finds. The three-dimensional nature of the measured data provides an opportunity to create 3D models which not only popularise archaeology, but are an important part of research.*

Keywords: *urban archaeology, digital documentation, total station, three-dimensional measured data, modelling*

Background for research in Naantali

Naantali is located on the south-west coast of Finland, some 14 km north-west of Turku. Naantali is one of the five towns founded in Finland during the Middle Ages. The birth of the town is related to the Brigittine convent that was founded by order of King Christopher of Bavaria in 1443. At the same time, the king also gave privileges to the town that grew next to the convent (Suvanto 1976: 114). The convent was built on a high hill on the cape of Ailostenniemi, and the town lay to the west of the convent between the bay of Lahdenperä and the hill of Raumanvuori. The town and the convent were separated by the bay, so they were connected at first by a ferry and later by a bridge. In front of the ferry quay (and the bridge) was a small square or a market place, and the town hall was located at the upper corner of the market and the main street Isokatu. The street led from the convent and ran between the rocky hill of Raumanvuori and the shallow bay towards Turku. (Suvanto 1976: 159, 161; Uotila 2003: 38-9) (Fig. 1)

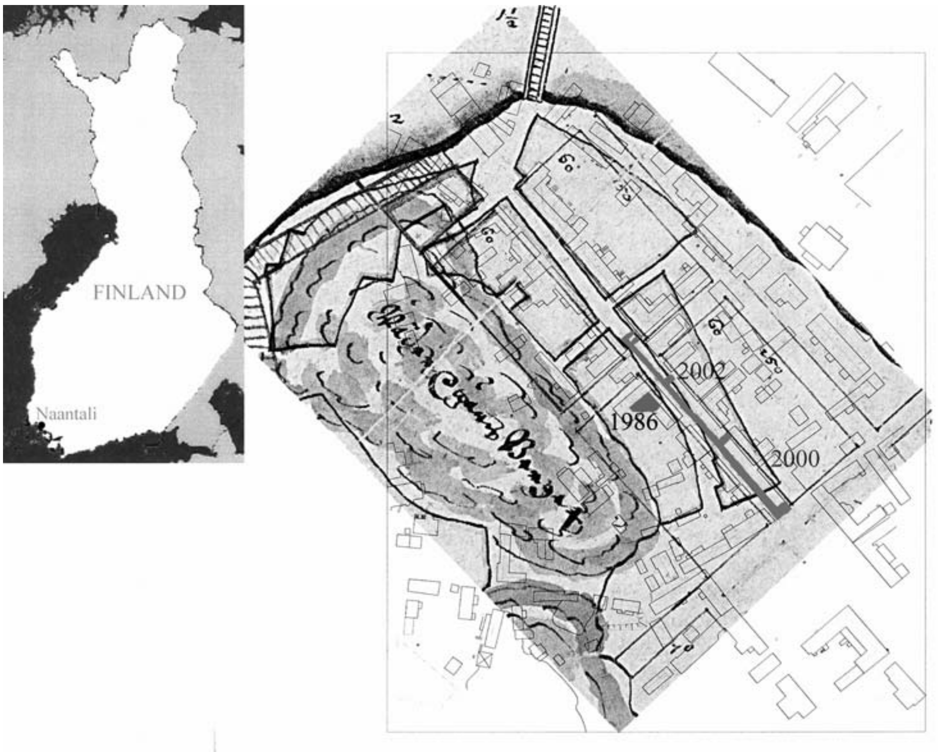

Fig. 1. Naantali is Finland's fourth oldest town. Archaeological investigations in the town's old centre had been carried out only once before the excavations in 2000 and 2002. A detail from Naantali's oldest map from 1648, showing a section of Isokatu street, has been added to this picture. Old settlement is shaded in a darker colour and the newer town plan in a lighter colour, the background of the picture showing the current town plan as well as the excavated areas. (Detail from the map of 1648. Digital copy: National Archives of Finland.)

During the convent's heyday, the town was also busy and thriving; after all, the convent was a popular place of pilgrimage. However, the position of the convent began to weaken at the beginning of the 16th century due to epidemics and wars. The Reformation, which began in the 1520s, further increased the convent's troubles, and in 1544 official convent activities were discontinued. (Uotila 2003: 16) The late 15th and early 16th century also saw hard times in the town. The plague that raged in the 1490s took a heavy toll in the town as well as in the convent. After the convent was abolished, trade in the town declined and the war against the Russians, which began in 1570, resulted in burghers leaving the town. Furthermore, there were disastrous fires in 1595 and 1638. (Jäntere 1959: 17-18; Hiekkanen 1988: 9)

According to literary references, the town was almost desolate in the 1640s, and due to this it was given new privileges in the mid-17th century. At the same time, the town was given a new town plan and plot lands were extended. Mercantile shipping to Stockholm was also reintroduced. This new period of prosperity did not last for long, however, for in the late 17th and early 18th centuries the town was troubled by famine years, the plague and Russian occupation. In 1723, the Diet was already discussing abolishment of the town. This was not, however, carried through, and the town continued to struggle for its existence until the 1860s, when a third period of prosperity began: the time of the spa. (Hiekkanen 1988: 9-10) Today, Naantali is still one of Finland’s most popular summer holiday resorts due to its Moominworld. The present-day old town – Mannerheiminkatu street and its surroundings – is located on the site of the medieval main street, but the current wooden buildings date from the 19th century.

Fig. 2. Urban archaeology on Mannerheiminkatu street in the summer of 2002. Archaeologists with total stations and other equipment, a digger, as well as men from municipal engineering with water and sewage pipes are present on the site. The research only covered the area needed for installing the water and sewage pipes, the trench being *c.* 80 m long and 1.5-2 m wide.

Archaeological research on Mannerheiminkatu street

Earliest archaeological excavations in Naantali were carried out as early as the 19th century, in the area of the convent. The first archaeological excavations in the urban area, on the present-day Mannerheiminkatu street, were not conducted until the 1980s, but the results were not particularly noteworthy. Due to sewer and water works, new excavations were nevertheless begun in the same area in 2000, and the research was continued in 2002 (Fig. 2). The results were very good. Previously it was believed, on the basis of literary sources, that the town became completely desolate after the convent was closed, but the most recent archaeological investigations show exactly the opposite. According to archaeological evidence, settlement increased along Mannerheiminkatu in the late 16th and early 17th century.

Remains of two wooden buildings were discovered at the Mannerheiminkatu excavations, located on adjacent plots and both dating to the first half of the 17th century (Fig. 3). Under both houses were preserved remains of older building stock, which can be dated to the end of the 16th century. There were also abundant finds. The majority date to the 17th century, but there were also finds dating to the earliest phase, i.e. the end of the 16th century. (Uotila 2000: 3-4; Uotila & Lehtonen 2002: 3-7; Lehtonen 2003: 46-7) With the help of historical sources, such as Naantali's older town plan and its plot division, tax books and population register, we were able to determine the owners of the buildings and plots at the turn of the 17th century. The higher plot was owned by burgher Alli-Matti and the plot closer to the sea by councillor Vilppu Jaakonpoika. The younger buildings were demolished around the mid-17th century when the new town plan was created. (Jäntere 1959: 47-8; Suvanto 1976: 163-4, 188-9; Uotila 2003: 43)

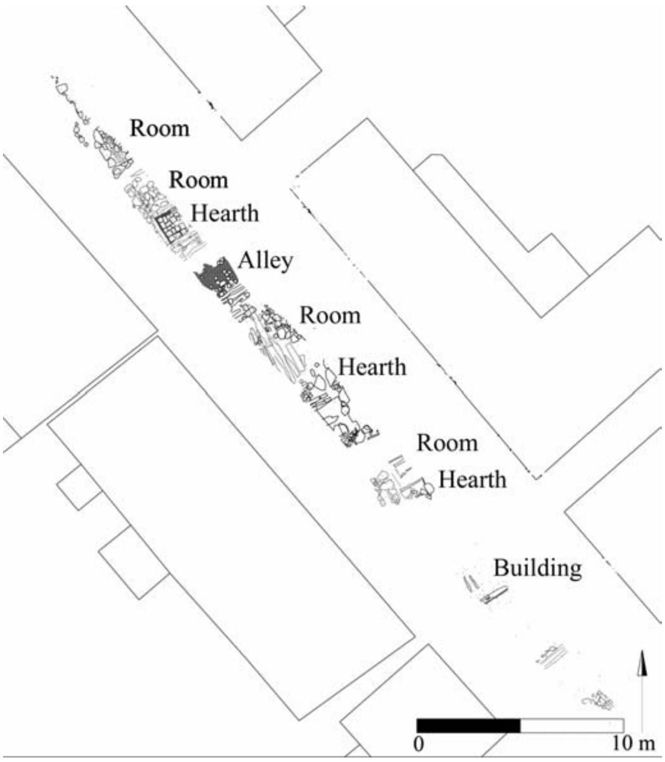

Fig. 3. Two yards with buildings dating to the beginning of the 17th century were discovered on Mannerheiminkatu. Remains of earlier buildings dating to the end of the 16th century were found under these dwellings.

Excavation method: digital 3D documentation

We chose to use single-context excavation and digital documentation at the excavations in 2000 and 2002. In single-context excavations, each soil layer, feature and structure is examined and documented as an individual unit. The layers and structures are removed individually layer by layer, following their real extent and shape, and they are documented using written records, photography and digital surveying. This technique produces far more detailed and accurate data than spit excavations, making it possible to consider a broader range of questions in further studies but, on the other hand, requiring more time and skill during fieldwork.

The digital surveying was carried out with total station, which gives x, y and z coordinates for the measured target directly. In Finland, total station has been used in archaeological documentation before, but not as comprehensively as within the project in Naantali. We documented everything –structures, soil layers and sections, as well as finds and various samples – directly in three-dimensional format with total stations. What is noteworthy about the Naantali excavations is that we also measured the provenance of all finds digitally. Historical archaeology and urban excavations in particular yield numerous finds, and most of the material consists of so-called mass finds, such as iron nails and sherds of window glass. For this reason, the provenance of finds is usually recorded to the relevant layer and site grid. Due to the speediness of total station surveying, recording the exact position of even a very large number of finds is not a problem. The decision to measure the provenance of finds digitally also affected the thoroughness of excavation – we had to be able to recover finds from their context and not from the sieve. Excavating more carefully means that the digging is slower but, on the other hand, documenting with a total station is considerably faster than with traditional methods, so the time that we gained by using the total station we used for excavating more meticulously. (Vatanen et al. 2004)

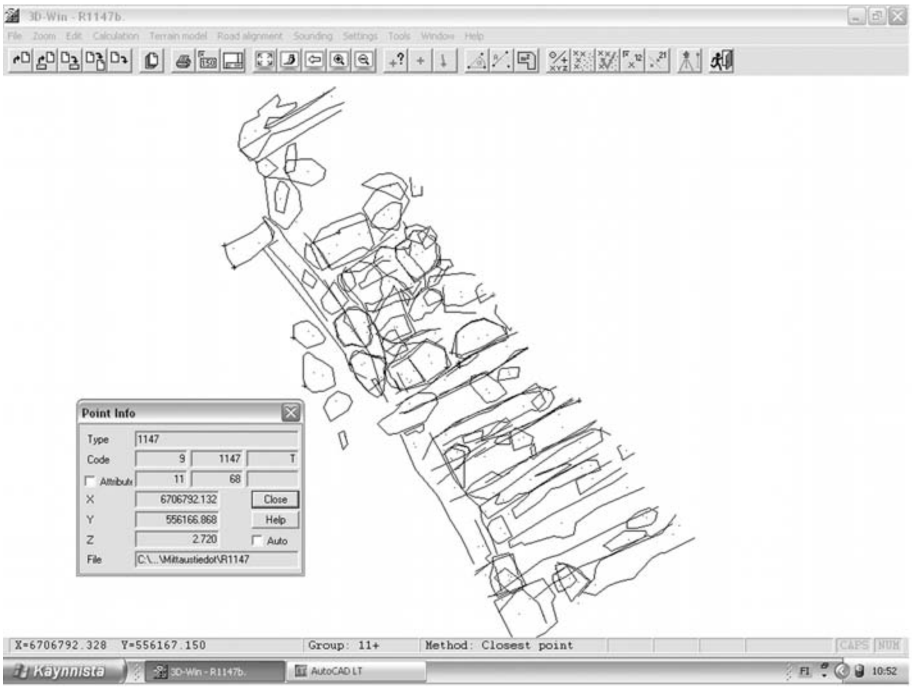

Fig. 4. Image from the 3Dwin program showing the hearth foundation and flooring of the Alli-Matti building, measured with a total station. In the open window (Point info) we can see four fields, into which data about a measured target can be coded, including number of soil layer, feature, measured line or point, and so on.

The Finnish land survey program 3Dwin was used for surveying. It is in common use in both the private and the municipal sector, which has the advantage of being able to utilize the same coordinate system and general map as the town or municipality, thus making it easy and fast to transfer the measured data from one party to another. During fieldwork, four different kinds of data about the target measured can be fed into the code fields of the program, such as context, material and find number of finds (Fig. 4). For structures and soil layers, we can record their number, as well as, for example, their type (e.g. a masonry structure) as a separate code and whether the measured target is the surface or bottom of a feature. It is best to decide on the codes already before fieldwork is commenced, i.e. how and with what logic the necessary data is documented at the time of measuring. What is essential is that each code, and the data that it contains, is downloaded directly into its own layer in AutoCAD or into its own column in Microsoft Excel or Access. In this way, post-excavation manipulation of the data is greatly facilitated. (Uotila & Tulkki 2002: 427-30)

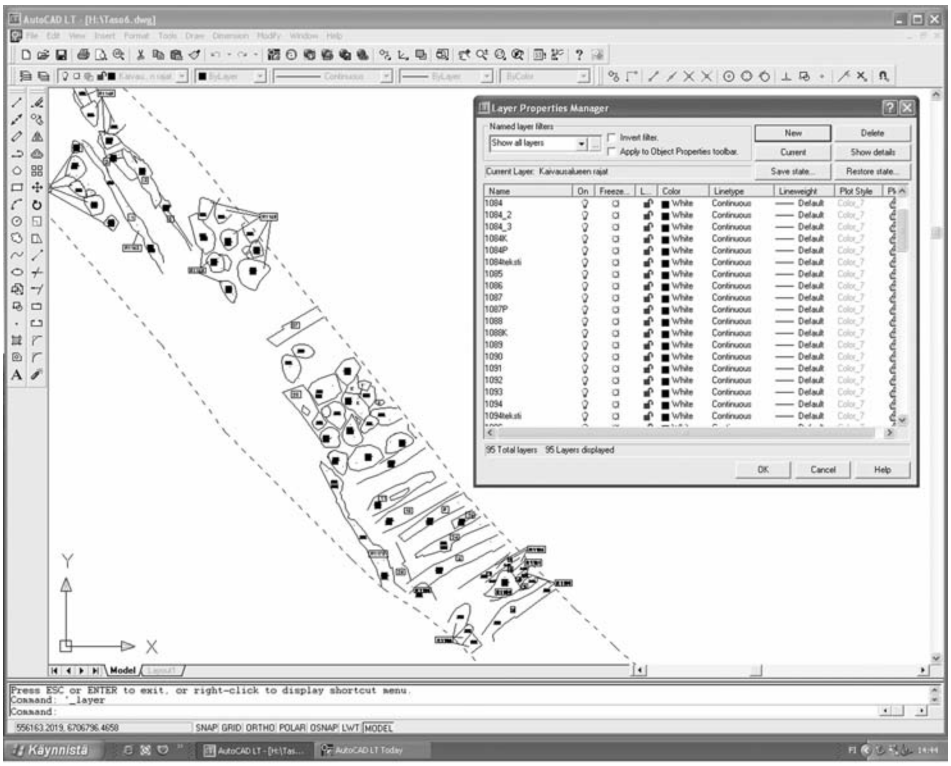

Fig. 5. The measured data has been imported in DXF format from the land survey program into AutoCAD, where the code of the third field moves automatically into different layers. This means that each unit has its own layer, making their manipulation easier.

Post-excavation manipulation of measured data

The measured data is downloaded from the total station to the 3Dwin program on a computer. The program has various different options for saving data, so that it can be easily imported into other applications. The provenance of finds and samples that have been recorded as points are saved in ASCII format, so that the information can be readily transferred to spreadsheet or database programs, such as MS Excel and MS Access. When the transfer of data is automatic, cataloguing becomes faster and there will be no risk of e.g. making typing errors with coordinates which are sometimes very long sets of numbers. Information about samples is available for use already during fieldwork or immediately after, because the sample report can even be printed in the field or sent as a spreadsheet or database file to researcher via e-mail. Furthermore, finds requiring conservation can be sent ahead while the fieldwork still continues, because all the measured finds have a find number given in the field.

The measured data for structures, soil layers and sections, which are primarily recorded as lines, are saved in DXF format so that the material can be imported into AutoCAD (Fig. 5). In AutoCAD, the measured data is cleaned up, necessary details, such as text, hatching, map symbols and labels, are added and the completed material is finally printed out as finished site plans and sections. We use AutoCAD for these tasks, because it is the most commonly used application for drawing and modelling maps, plans and sections; it is utilized by most towns, municipalities and universities in Finland, as well as by the National Board of Antiquities.

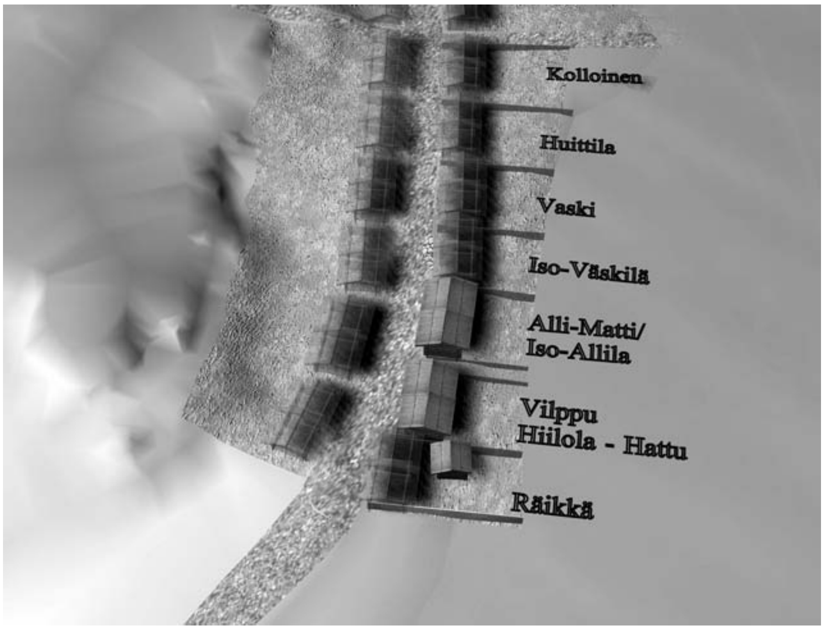

Fig. 6. Model of Isokatu street in Naantali at the beginning of the 17th century, created on the basis of research data.

Modelling as a part of research

When the measured data are in three-dimensional format, they can be imported into different kinds of modelling programs. In the case of the Naantali excavations, we used 3D Studio MAX. A well-documented excavation can afterwards be modelled entirely, stage by stage. The models can be made to look ‘real’ visually by adding colour to the structures and soil layers, or by copying their real texture from a photograph.

Three-dimensional models are not merely ‘pretty pictures’, but rather a relevant part of research results. Modelling as a process is research, and therefore we find it important for archaeologists themselves to create models or to be at least closely involved in the modelling process. When modelling, information obtained at excavations must be organized and processed, as well as interpreted as accurately as possible. It is important to understand the relationships between different units and to see the larger context, such as the environment or landscape in which a site to be modelled is located. Through modelling an excavated site and its environment, it is possible to acquire more substantial information about e.g. the visibility of the site, its relationship to other buildings in the vicinity, or its distance from the shore, as in Naantali (Fig. 6). Models can also be used to test various theories and interpretations. (Uotila et al. 2003: 191-4)

Models are also excellent for popularising research. With the help of animations or series of images, traces of the past can be put together piece by piece and be given a more intelligible form than what e.g. plans and sections of excavations can provide. A small fragment of an artefact can be used to recreate the whole object through modelling. For this reason, 3D models have become common in museums and multimedia. We are currently cooperating with Naantali museum on a project that offers school pupils and tourists an opportunity to visit excavated sites with a tablet PC (Fig. 7). Usually excavations leave no visible signs behind, even when they have been very interesting and yielded a great deal of new information about a town’s past. However, a tablet PC and its multimedia software together with a GPS locator offer a new kind of opportunity to get to know the sites in Naantali. When a pupil or a tourist arrives at the excavated site, the GPS locator gives a signal to the software and a presentation on the PC begins. The multimedia tells about the site with the help of still images, moving image, sound and 3D models. (Lehtonen & Uotila 2004: 61-3)

Fig. 7. From archaeological to virtual excavations – There are rarely any visible signs left of excavations and discovered features, however interesting the site. However, we can model the excavation or discovered structures and the landscape, and use it in a tablet PC with a GPS locator to bring past centuries and archaeological excavations back to life.

Digital documentation: experiences and questions

Digital documentation with a total station is a fast and accurate way to record the sometimes very abundant material produced by fieldwork. The benefits of measuring with a total station are manifold: When the total station has been set up and configured, it is ready for use throughout the day. The measurements can be downloaded directly onto a laptop, in which case the progress of the survey can be followed on the display, or onto a handheld data collector that is weatherproof. The surveying is fast and accurate, and the measured data is available immediately in both three-dimensional and digital format. Furthermore, it is easy to print the plans and sections from the 3Dwin program into the desired scale, in order to check field drawings once more and to add comments and corrections.

Even though surveying is fast, the traditional total station always requires the work contribution of two people when measuring – one using the total station and the other holding the prism. We also use the so-called prismless total station which measures the target that is in focus, and it can therefore be used by one person alone. The prismless total station is just as fast and easy to use as the traditional one, and it is very practical e.g. for documenting sections and other vertical features. It is also practical for measuring targets that are very high or otherwise difficult to document with an ordinary total station or with traditional archaeological methods.

Using total stations speeds up the post-excavation stage as far as cataloguing as well as drawing plans and sections is concerned, because the drawings are already in digital format and only require tidying up and the adding of map symbols. The basic data concerning finds and samples can be transferred directly to the cataloguing software used. When the provenances of finds have been measured, it is easy to create different kinds of distribution maps, and when the finds have also been allocated a code for material or type of find, carrying out different kinds of searches is effortless, even in the field.

The complete digital documentation carried out at Naantali was very successful in our opinion. However, the positive result was influenced by the fact that all people working at the excavations were archaeologists and had used a total station before. This made it possible for any of us to measure at any given time and there was no waiting for the ‘survey man’. Another factor contributing to the successful result was the number of total stations: we had two, which meant that they could be used simultaneously to measure e.g. sections and finds. Furthermore, already before the excavations began, we had decided in what way and into which fields in 3Dwin we would code the data about structures, soil layers, finds and samples, as well as which codes we would use. The use of the codes was thus systematic, which facilitated the creation of e.g. catalogues during post-excavation work.

Because the Naantali excavations were fairly extensive and very abundant in material, we downloaded the measured data onto a computer several times every day. At the same time, the data measured with two total stations could be arranged so that information about all features discovered in the same level was saved in the same folder. This, in turn, made it easier to draw site plans during post-excavation work.

Digital surveying technology and documentation methods, as well as 3D modelling, provide a new way to study, interpret and popularise archaeological data. This is important not only because it increases awareness of archaeology, but also because the new technology aids archaeological fieldwork and its methods. The method we used in Naantali is not the only way to document excavations digitally, but hopefully it will encourage others to try to develop digital archaeology in a better and more efficient direction. In this way, researchers would have more time to conduct actual research or perhaps create models and compile publications after the excavations *per se*, instead of just carrying out post-excavation routines. Digital documentation and modelling are already an important part of archaeological methods and research.

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From a jungle of contexts into understanding of activities and buildings in a town: a reflection from medieval Turku

Liisa Seppänen

Abstract. *The paper is based on an analyzing and interpretation process of a complex stratigraphy of the town excavations of medieval Turku (Finland). The goal of this analysis is to try to compose functional units which promote the outlining activities and history of the area. After the analysis, stratigraphical contexts are presented within a chronological frame. Only then one is able to gain a more holistic view of the living milieu and activities of the past. The way of analyzing, organizing and presenting stratigraphical contexts has a great impact on the potential questions to which the material can give answers. Nevertheless, it is the interpretation and documentation based on it that plays a major role in the production of archaeological information.*

Keywords: *context, matrix, stratigraphy/unit, interpretation*

Introduction

The study is based on the excavations on the site of the main building of Åbo Akademi (Hämeenkatu 11) in the central town area of medieval Turku. The excavation area covered over 1000 m2 and the thickness of cultural layers was approximately 4 meters. Excavations were carried out in 1998 from April to December. Unfortunately, some circumstances not favourable for the fieldwork (weather conditions, limited timetable and lack of qualified and motivated employees) did affect the method and quality of the work done in the field (Suhonen 1999: 10-2; Pihlman 2003). Nevertheless, the site can be considered as one – if not the most – of the most interesting and important sites excavated so far within the limits of the medieval town area. The size, location and extremely well-preserved material with many constructions make this area crucial when the life and urbanization of medieval Turku is the target of a study.

The find material of the excavations has been studied by several undergraduate students and PhD-students in the Department of Archaeology, University of Turku, during the last years. The research of the author concentrates on the constructions, activities and social system of the area and includes also analysis and interpretation of the stratigraphy of the area.

Facing the reality – some problems to be encountered and solved when analysing the stratigraphy

The identification and definition of contexts is a central and crucial task that affects the process of analysing, visualizing and understanding events of the past. In fact, this is the phase when the actual archaeological source-material is being created. Identification of a context means that it is interpreted as an event of the past and accepted to be a part of a total sequence, and consequently, a part of the research of an area. Identifying and documenting interfaces as separate elements of a cultural layer has in practice proved to be quite problematic and very often they have been interpreted as a part of contexts or their surfaces (P. Clark 2000: 103). Interfaces represent the surface of active inhabitation period and thus they can reveal information of activities, control, status and changes that happened over the course of time. They can also be helpful in spatial analysis and when one is studying the social meanings of constructions. When interfaces have not been identified nor documented as separate units, this information is also lacking from the matrix and from further study (Larsson 2000a: 236).

Identification of contexts and interfaces requires observations and interpretation of the formation, function and significance of the cultural layers. Documentation of the contexts is naturally as important as their definion. Ideally, the documentation should be a systematic and detailed description of the elements observed and interpreted in the field. Identification and documentation is normally done according to certain criteria decided before the actual fieldwork. In practice, decisions concerning criteria, identification and documentation are made sometimes very quickly and in stressful situations.

The site of this study was excavated with a method that has been characterized as a combination of statigraphical/contextual excavation and the method of natural layers (Pukkila et al. 2000: 5). Due to this combination of different methods, I prefer to use the term 'unit' to context when descriping the statigraphy of this excavation. In fact, these terms could be used with the same meaning; there is not any practical difference between contextual and stratigraphical methods. The difference can be found in conceptual definitions. In my opinion, the context includes the interpretation of the formation process and function of the layer/construction. When this interpretation is lacking from identification, definition and documentation I rather choose to use the term unit.

The construction work of the 19th and 20th century had destroyed or stirred up most of the layers since the end of 16th century. Consequently, the identification of units was started when untouched layers representing the late Middle-Ages were revealed. Due to the ongoing construction work and previously destroyed parts of the area, the excavation area was divided into three different parts. This areal division, based purely on practical reasons, has affected the identification and uniting the same units of different areas.

The basic units were units of sediments, constructions and parts of constructions. The constructions were usually interpreted and identified as functional entities (houses, streets, pavements, wells, etc.). The identification criteria for units of sediments was the stratification and the type of a layer. Occassionally, area was used as a criterion when layers were very thick and homogenious. Due to the changing excavation methods and circumstances, some units were identified according to practical criteria.

The number of the documented units was 1105, of which 597 were units of construction (RA) and 508 were units of sediment (M) (Suhonen 2000: 9). Both units were divided into sub-units in alphabetical order (for example M 49 A–K and RA 521A–M). In principal, the same number with its different sub-letters were given to contexts interpreted as belonging together. For example, this kind of sub-division was used when dividing the interpreted entity into smaller units (for example a house into its different elements – oven, doorways, sills, etc.) Some combination units were also created when two separate units had been mixed together (for example M 15 + M 17, M 136A + M 136B). Variations were done according to which the dominating unit was marked first in the combination. I do not recommend this kind of system of combinations, but all units/contexts should be identified and marked separately and description should be done according to interpretation.

Identification and documentation of constructions should be done according to different activities. In practice, this means that each numbered unit would signify a certain event – either construction, changes or an actual inhabitation phase. This, of course, requires identification and information about building techniques and construction activities (K. Clark 2000: 20; Jones 2000: 113). In many cases the functions of different elements should also be valued in the identificaton. For example, a door, partitions walls and a channel in a pavement should be identified as separate units, even though chronologically they belong to same activity i.e. to the construction phase (Grenville 2000: 237; Smith 2000: 125, 128). Unfortunately, in practice it happens very often that the researcher ignores the elements he/she does not know or consider functional or documents the observed elements without noticing the functional entity they belong to. For example, loose logs and some paths of archaeological deposits are identified as such, though they might be a part of building material or demolition layer. As a result, one gets a huge mass of details, the combination of which can be extremely difficult. Defining and interpreting of a context/unit is a subjective process, that depends on the abilities and experiences of the researcher responsible for the documentation. Because documentation is basically interpretation, one should acknowledge and document also the criteria and factors affecting the interpretation. Often the documentation is also guided by the research problems set for the site. Both too general and superficial documentation as well as too detailed documentation that is not connected to functional entities might cause problems for further analyses and re-interpretations.

One of the biggest problems for stratigraphical analysis of this area is that there have been several criteria for identification and definition of units. Partly, the definition has been artificial and thus does not have a connection to actual stratigraphy or contexts. Sometimes the same layer has got several identifications. On the other hand, some layers depicted in maps or in other documents have remained without identification and definition. There are some thick contexts identified as one, though there must have been variations in the deposition process.

The level of identification and documentation deteriorated significantly at the end of the excavation period, when due to the timetable and pressure by the constructor a part of the eldest layers had to be removed by digging machines. The constructions were mainly identified according to the same principles as before, but the level of documentation declined. Layers were identified as technical units according to different areas dug by the machine. Naturally, this meant a loss of information regarding contexts, the significance of which one can only estimate.

Changes in methods and defects in the documentation produce some problems when trying to understand and interpret the stratigraphical relations, contexts and sequences. Whether this level of documentation and, in fact, the source material created, is sufficient for questions regarding social space and activity processes will only be found out when the stony path of analysis is completed.

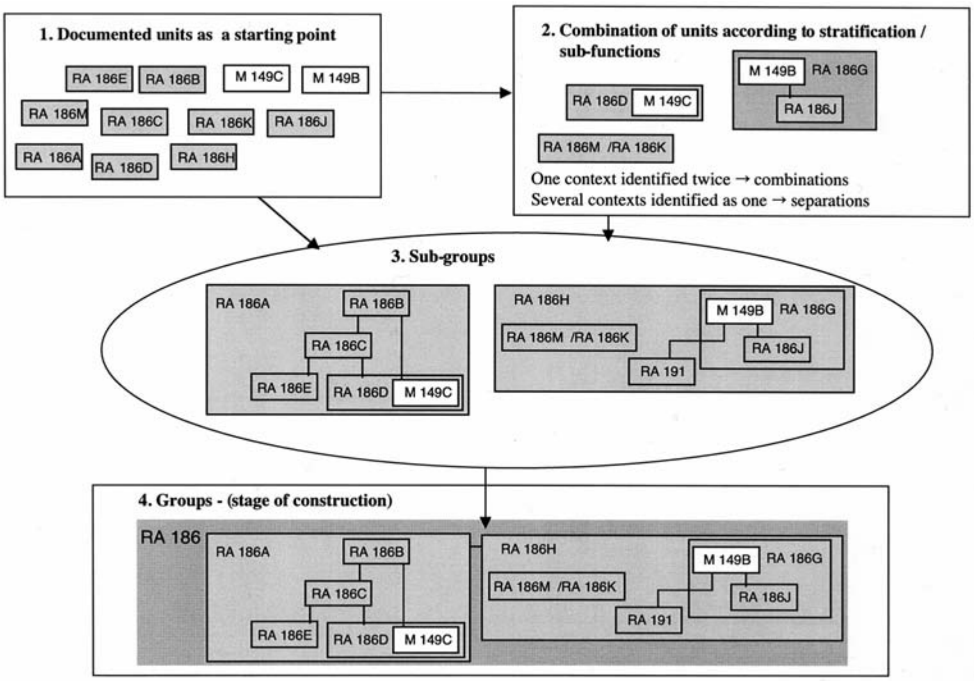

Fig. 1. The process of a stratigraphical analysis starts with combining the documented units into interpreted functional combinations and sub-groups. These are organized according to their stratigraphical relations into groups and sequences representing activities in the area.

Process of stratigraphical analysis

The goal of a stratigraphical analysis is to combine documented units into interpreted functional combinations and sub-groups, which could be organized according to their stratigraphical relations into groups and sequences (Fig 1). The process of reasoning can vary according to cases and documentation done, but the basic idea is that the units of a group are contiguous representing one event and have been formed as a result of a single deposition mechanism. A very often-used criterion for grouping is the activity assciated with a certain building or construction phase. For example, a group can consist of all those contexts/units which together build up the remains of a house, pavement, well etc., including all activities encountered by the construction (Fig 2). In an ideal case, this process is opposite to the identification process done in the field when interpreted entities are divided into contexts and units. The aim of the analysis has been to identify the remains of constructions as different stages of activities. The first stage is representing the phase of building activities. The remains of this phase (sills, groundings, floors, frames, etc.) normally build up the most visible part of the group. The next stage represents the active use of a construction and archaeologically this can be traced from layers containing material from this phase (so called primary layers). Above this layer is a demolition layer containing very often burned and scattered material of a building. The topmost stage includes deposits from the surrounding area often partly mixed up with the demolition layer. Normally, this stage is also forming a basement for the next group (see Pettersson 1995: 68). Sub-groups differ from each other by their contents and temporal duration.

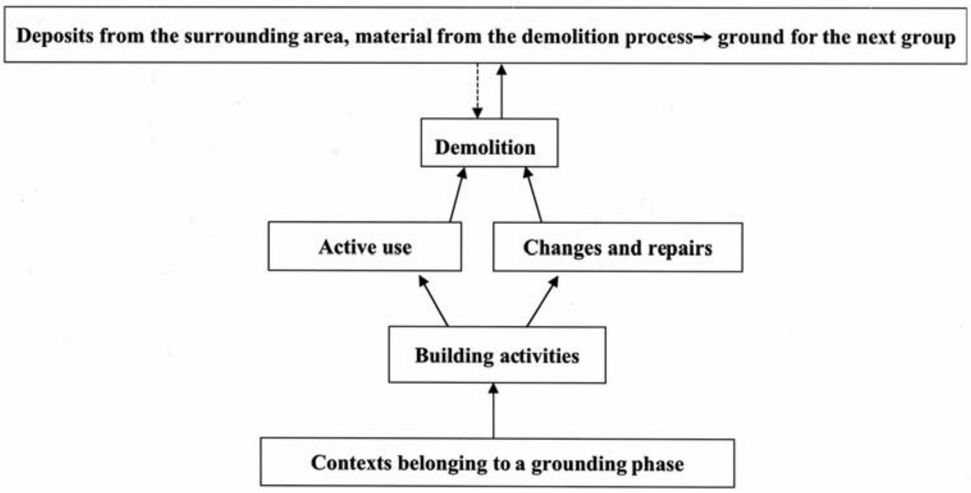

Fig. 2. A group of construction can consist of following sub-groups: grounding/levelling layers, building layers, layers of active use, demolition layers and layers consisting of spread material. The active use of construction is ending up with a demolition phase the layers of which are often mixed with the spread material and with the sub-groups of the following construction phase belonging to the next group.

Groups belonging to the same period form units of households. On the next level in the hierarchy of grouping are settlement units (phases) formed by all constructional remains and finds belonging together in this setting. Thus, the functions and relations of different groups form the criteria for division of phases and the basis for research questions (Johansson Hervén 2000: 113). Naturally, when interpreting construction periods, one can not base the study on conclusions drawn from layer analysis only, but all existing material should be taken into consideration. In this case study, the interpretation of groups, phases of construction and their chronology is based on field documentation and dendrochronological datings. All in all, there are 557 dendrochronological samples of which 120 have been dated. This is the biggest collection of samples from a single excavation in Finland so far. Using the find material is of minor importance and more problematic. Dating of finds is in most cases far too inaccurate in order to form a reliable chronological framework. The usage of finds requires also a more thoroughly interpretation of the formation processes, nature and functions of the cultural layers (see Larsson 2000b: 107-16). Consequently, the material has been checked for terminus post quem datings only.

The analysis and division of phases concentrating mainly on remains of constructions has sometimes been criticizised as too one-sided. The criticism is understandable. However, because constructions form the basis of the study, using them as a backbone for the analysis is quite justifiable. The buildings form a concrete frame for the actions of the area and very often the changes in actions and structures of society are reflected in the constructions and in the layout of a town. The location, function and dating of a construction reveal also information of the character and formation processes of layers. Consequently, the constructions form the frame for the study in many ways.

The groups and phases are organized within a chronological frame divided into periods of approximately five decades. Even though this kind of chronological division can be criticized as unstratigraphical, it has its advantages when trying to comprehend the situation in a certain time. In the main focus are the groups which are manifesting the activities and changes in the area.

Visual jargon of stratigraphy

Stratigraphy is a study regarding dimensions of space and time (see K. Clark 2000: 20; Larsson 2000a: 230, 233–4). How one organizes and presents the stratigraphy of an area does affect the perspectives and questions to which the material can provide answers. Mostly, units and groups are presented in a form of two-dimensional graphical matrix where priority is given to the stratigraphical relations of contexts/units and different phases of activities. Naturally, the person trying to visualize multidimensional events within two-dimensional presentation is facing many problems. Presenting the actual scale and dimensions between different groups and contexts/units is practically impossible. Due to a large quantity of units and inadequate documentation, presenting the whole material of this study in a three-dimensional space would have been out of the question. In many presentations, the element of time has also been ignored. This means the loss of information regarding the process of demolition. Combining the time with stratigraphical relations gives to a matrix additional informational value even though it is not possible to present the exact duration of certain processes and activities in right propositions.

Even if a matrix is a flattened and stiff presentation of the past reality, it is a very useful tool when a great variety and a large amount of observations need to be visualized. The network of observations related with each other reveals the relations of different events of history. Thus one can get some kind of overview of the history of the area (Fig. 3).

Unfortunately, it is quite a common view that stratigraphy, and as its visual presentation a matrix, is a good servant for material studies (Tagesson 2000: 155). Facing cultural layers as contexts or units and visualizing them in a graphic network is far beyond this narrow role. Naturally, the datings of contexts/units are important for material studies. Without further knowledge of contexts/units and a critical attitude towards the information a matrix contains there is a risk that the researches using the matrix for material datings only are in danger of becoming outsiders of the stratigraphical analysis and the real understanding of the archaeological reality of the area.

A matrix is a tool that can be adjusted to the information emphasized. Contexts/units can be indicated with specific attributes containing information of the character or its type (primary, secondary, tertiary finds and contexts/units), the quantity of different artefacts, ecofacts or geochemical deviations. Also methodological and definitional aspects can be included in a visual presentation, if that is a decisive factor for a study. Disturbed contexts/units can also be marked and thus separated from untouched cultural layers. These are just examples to show that a matrix can be much more than just a dating tool for find materials. Though the presentation of stratigraphy can have many possibilities, the information it can reveal is totally dependent on the decisions and documentation done in the field.

What does stratigraphy reveal and what does it not tell?

The past has two temporal dimensions. First, the things and events that really happened and existed, and second, the remains preserved as material evidence of the past. According to its principle, stratigraphy tells the relative chronology of a demolition process in a certain area. By analyzing and interpreting the layers and the material they contain, one can trace human actions and events of the place. An archaeologist faces the past in the form of remains of past activities and dumped or lost material. Even in the best situations, layers reveal only glimpses, hints or clues to the events that took place in reality. Conclusions one can draw depend greatly on the documentation done in the field. Naturally, stratigraphy does not reveal information of the events that have not left any visible traces (Larsson 2000a: 230, 233–4). Anyhow, it would be very useful to try to pay attention to negative demolition as well and to question what information might be missing from the sequences and layers, and why.

Gaps and breaks in the stratigraphy have been interpreted either as interruptions in the history of the area or as discontinuances in the growth of cultural layers (for reasons see Beronius-Jörpeland 1992: 131–4; Pettersson 1995: 74). These interruptions or breaks in stratigraphical sequences can be ’mended’ with analysis and interpretations when these

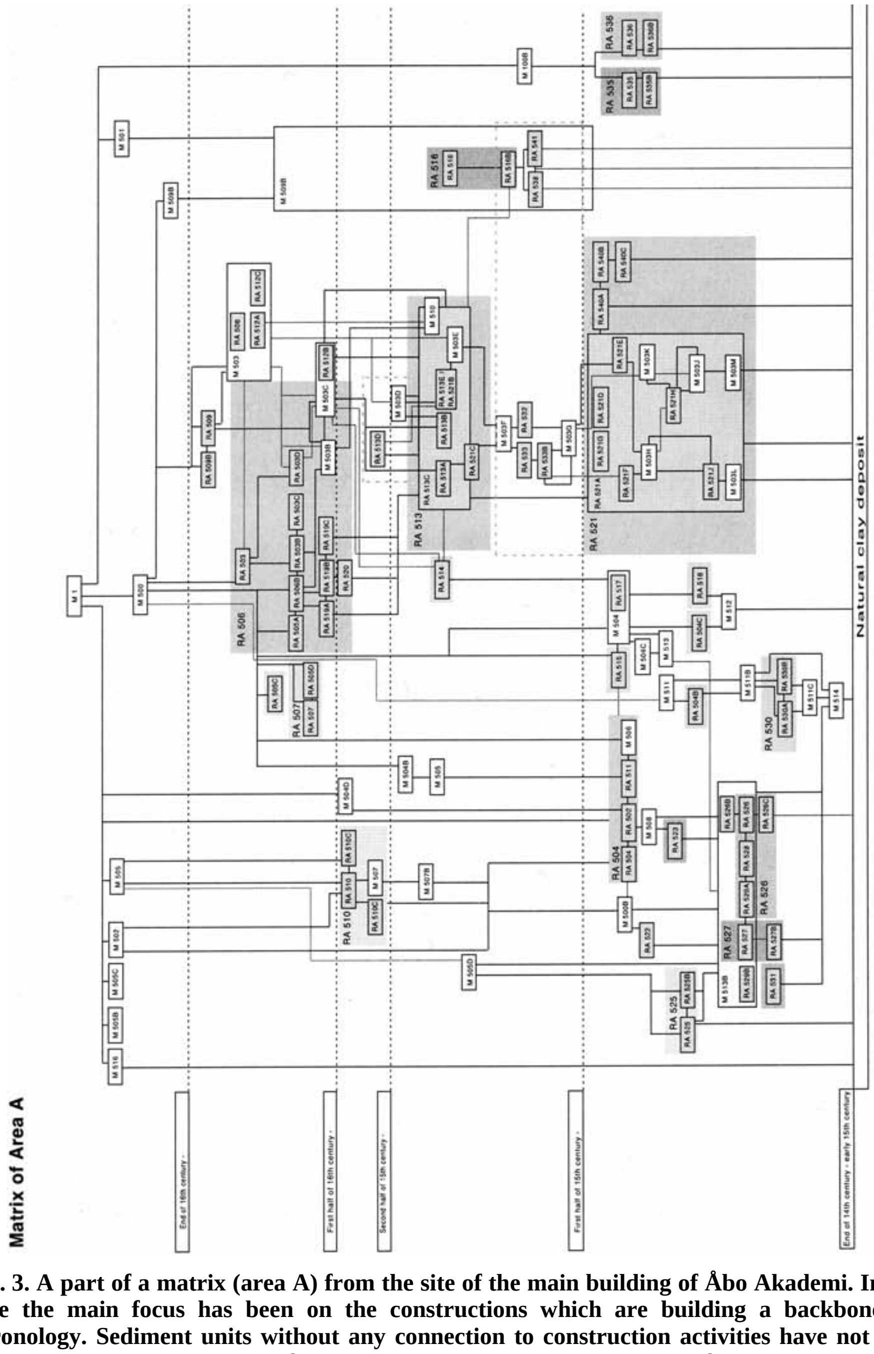

Fig. 3. A part of a matrix (area A) from the site of the main building of Åbo Akademi. In this case the main focus has been on the constructions which are building a backbone for chronology. Sediment units without any connection to construction activities have not been able to be analyzed more specifically. For practical reasons, the sizes of the boxes are not in any relation to reality and the duration of time is presented by lines only. The groups and contexts are presented in their destruction phase when the active life of the unit has come to an end. Different functions of the groups are marked (in the original image) with different colours.

gaps will be filled with cuttings, trenches, parts of constructions, cleaning activities, environmental factors and modern ’interruptions’, which have been cut the stratigraphical chain by dividing it to several sequences (Emery 1993: 51; Lundberg 2000: 100–101). Well-preserved constructions and intensive succession of the remains prove that there have been no extensive negative demolitions in the area of this case study.

Human aspects of the method

When estimating the choice of methods and strategy of the excavations done one should bear in mind that each excavation is different with its own problems and possibilities. The technical development of documentation methods naturally promotes the development of the method itself, but technique is, anyhow, submitted to chosen theoretical views, research problems and practical solutions (see also Johansson Hervén 2000: 109). From the point of view of stratigraphical information, it is most important to understand what is being documented and why. Because documentation includes interpretation of information, the role of the researcher and his/her subjectivity must be acknowledged as decisive factors affecting the possibilities of stratigraphical information. Good interpretation of the material requires knowledge of constructions, artefacts, layers and sediments and ability to understand past in its entirety. The equipment used for documentation are of secondary importance for identifying the activities and for stratigrapical understanding of the past.

The way an archaeologist deconstructs the past into concrete units and copies the layers into documents according to mathematical accurancy has its roots in geological excercises in doing stratigraphy (Harris 1979). However, archaeology is basically a study of human actions in the past. Without underestimating the practicals of geology, one should also use ideas and perspectives from social sciences when collecting, identifying and understanding archaeological data.

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A medieval coin find from Valmarinniemi, Keminmaa, northern Finland

Kirsi Jylkkä

Cape Valmarinniemi: a few things about the site

Keminmaa is a small commune in the mouth of the river Kemijoki, about 100 kilometres north of Oulu. Two kilometres from the coast of the Gulf of Bothnia is a cape called Valmarinniemi. The cape was an important landing place for fishermen and sea travellers already after its rising from the sea, in the 13th century. Near the cape was located a trade place. (Cleve 1955: 4). In the 14th century this trading place of Kemi parish became one of the Swedish crown's approved market places around the northern part of the Gulf of Bothnia. (Luukko 1954: 197).

As early as in the Middle Ages the northern Finnish rivers were famous for their salmon catches. (Luukko 1954: 195–6). No later than the 13th century, German tradesmen came to Kemi with their salt cargos: this started an exchange trade with northern Finnish fish and German salt. Alongside the fish, furs and butter later became important in tax-paying. (Vahtola 1997: 73, 80–2).

Historical sources of early Kemi parish are very few. Apparently Kemi became a part of the Russian territory with the peace treaty of Nöteborg (Pähkinäsaari, Orechovets), which was signed by Novgorod and Sweden in 1323. Still, the bishop of Turku organised a parish and built a chapel at the cape. The aim was to ensure that the Swedish rule would have a position in the area where the Catholic Church had collected its salmon taxes already from the 13th century. The fact that the Swedish quarters put their feet solidly on Russian land caused major problems to the people of the Kemi parish during the 14th and 15th centuries. For instance, the chapel built in the early 14th century was burned, most likely during an attack of the Russian partisans. (Koivunen 1997: 41–7). According to the history sources the second church was taken into use in 1431. (Mathesius 1843: 123; Mathesius quotes Erik Frosterus who quotes Johannes Messenius.)

The cemetery was located in the excavations of 1981. Remains of two different size church buildings and a possible place for a bell tower were found, as well as most of the churchyard. 151 graves were documented and 88 of them finally excavated. Over 1300 findings were made and they included nails, bricks, glass and wooden remains of the church buildings. Also accessories, such as buttons and clerical rings, were found. (Koivunen 1997: 42–5).

Concerning the dating possibilities of the cemetery, the most important finds are the 58 coins and parts of them which were minted in the 14th and 15th centuries. This article deals with the chronology of the cemetery. The subject is approached from the point of view of the coin finds. Coins were found both in the areas where the church buildings were located and in the churchyard. Furthermore, coins were found as loose finds and as grave finds. I am going to approach also the information that can be obtained about the burial manners in medieval Kemi by the fact that coins had been given to the deceased.

A short introduction of the coins

Identifying and dating of the coins were done by studying the stamps and measurement of the silver standards. The amount of silver in the coins was counted in the 1980s by Neutron Activation Analysis (NAA). What has occurred is that the silver standards vary quite heavily according to the origin of the coin and the time when the coin was minted. The standards vary from fairly high (89 % of silver) to very low (9 % of silver). A great majority of the coins were of Swedish origin (30 coins/51,7 %). The second largest group were coins minted in Turku (8 coins/13,8 %) and after them the coins struck in Baltic countries (Old Livonia) (4 coins/3,4 %). The smallest group were the Norwegian coins (2 coins/3,4 %). Finally, the origins of two coins was not determined with full certainty, but they could be from Baltic countries or Germany.

Out of 58 coins, 12 pieces could not be identified at all. The main reason for this was that most of them had been badly burned in the devastation of the first church building and therefore the stamps could not be distinguished.

I have identified the coins by studying the research of some Swedish, Finnish, Norwegian and Baltic numismatists (e.g. Brita Malmer, Lars O. Lagerqvist, Pekka Sarvas and Beda Dudik). The accurate times when the coins were minted are not known in most cases. This is because usually there are no historical sources on which to rely and because the stamps do not include the dates of minting. Therefore, the dating given in this article may often be quite loose, even by many decades.

A rough chronology of the coins: what do they tell about the cemetery?

The early decades: from the 1320s to the 1360s

The oldest coin is a Swedish two-sided penning of King Magnus II Ericson (1319–1363). It has been minted between the late 1320s and the early 1330s. Also the second oldest coin is a Swedish two-sided penning and it has been struck in 1330s. According to this, the first church has been built at the latest in the 1330s. Money seems to have been in use in Kemi already in the early 14th century, even though the use of money must have been marginal compared to the exchange of goods and natural products.

From the 1340s until the end of the reign of Magnus II Ericson, coins were struck in large quantities and used in trade. (Lagerqvist 1970: 88). From the 1340s to 1363, there are 19 coins among the finds. However, in the youngest finds of this group the silver standards are quite low. The Swedish crown had rising economic problems towards the end of the reign of Magnus II Ericson. (Lagerqvist 1970: 91). For example, among the finds there is a bracteate which contains only 9 % of silver. Even though the coin finds are more numerous from the 1340s to the early 1360s, in all likelihood the use of money has not become any more common than before.

The middle phases: from the 1360s to the 1380s

From the time of Albert of Mecklenburg (1364–1389), there are also numerous coin finds. These bracteates have a much higher silver standard. At this time, the crown removed coins of King Magnus II Ericson deliberately from the monetary transactions and trade and replaced them with new coins with higher silver standards. The aim was to improve the value of money and enhance the crown's economy. (Hemmingsson 1979: 56). King Albert of Mecklenburg's bracteates from the cape Valmarinniemi have a standard of 50–77 % silver.

Also Baltic and Norwegian coins have been found from the latter half of the 14th century onwards. Apparently foreign money was known among trade already when the first German tradesmen came to Kemi in the 13th century – some older loose finds have been found from other parts of the Kemijoki river valley. Especially the Baltic coins have a very high standard: they contain from 40 % to 80 % of silver.

The later times: from the 1390s to the 1460s

Next, there is a collapse in the amount of the finds: there are only a few coins from the 1390s to the first decade of the 15th century. Apparently money was not minted at the time of the Danish Queen Margaret I of Denmark (1390–1396). (Elfver & Frösell 1995: 109) and this may explain the emptier phase. Most likely money was still used, even though in smaller quantities because the money floods to the north were quieter for some years. However, money still had minor importance beside the exchange of natural products. The next time money was struck in Sweden by King Eric of Pomerania. He also started coinage in Turku (Abo). (Elfver & Frösell 1995: 111). Even though there is only one Swedish coin among the finds from the 15th century, Swedish money was most likely still in use.

Coins minted in Turku, 4-penning *abos* and bracteates with alphabet A as their stamp, dominate the 15th century part of the finds. By starting the coinage in Turku, the special importance of Finland as a part of Sweden was emphasised. The value of *abo* was measured with Livonian money as its example. This way the money made in Turku would also raise interest among the Hanseatic League. (Sarvas 1997: 60). Even though the Hansa did not operate exactly in the Gulf of Bothnia, coins struck in Turku seem to have had some special importance in the northern trade.

Five bracteates with an A-stamp are known from the Valmarinniemi site. According to an article of Pekka Sarvas from 1997 there are 5 different types of A-bracteates which have been minted in Turku. The Valmarinniemi bracteates represent type 1 and type 3. Also another kind of A-bracteate was found in Valmarinniemi; it differs from the others by its stamp. The five A-bracteate types presented in Pekka Sarvas' article and the divergent bracteate which was found in Valmarinniemi can be seen in the next picture.

Fig. 1. Five types of A-bracteate minted in Turku in the early 15th century. (Sarvas 1997: 66). Below is a sixth type which was found in Valmarinniemi, Keminmaa.

The destruction of the first church building seems to have happened during the reign of King Eric of Pomerania; the coins indicate it may have happened some time in the 1420s. The building has burned. This has caused the area of the building to be seen as a red area in the middle of the excavation area. After the first church building had been destroyed, the second church building was built. According to the priest Mathesius, the third church was taken into use in 1431. The information that the coins give is not in contradiction with this.

The youngest coin find is a Baltic bracteate. It has been dated to 1454–1466. This indicates that the second church was left out of use in the 1480s at the latest. A new church was needed again, but this one was made of stone and built in a totally different place. The third church is dedicated to St Michael and is still located in the present Keminmaa, about two kilometres inland from Cape Valmarinniemi by the river Kemijoki. According to the history sources, it was taken into use in 1519 or 1521. (Mathesius 1843: 123). However, the fact that coin finds end up in Valmarinniemi after the 1460s suggests a possibility that there may have been a need for the third church about 30–40 years earlier than has been thought so far. (Jylkkä 2004: 86–90).

In short, money was moved north by trade. In the 14th century mostly Swedish money was used in Kemi. However, coins struck in Turku became important in the 15th century. Baltic, German and Norwegian money was used as well. At least Baltic and German money was used already from the beginning of the 14th century to the latter half of the 15th century.

Interpreting the coins through the graves

During the Cape Valmarinniemi excavations, 151 graves were documented and 88 of them were studied. It appears that 19 of these included coins. This gives an impression that coin gifts were given only once in a while, but still quite commonly. There has also been a continuation in the habit of giving coin gifts; the oldest coin from the 1320s and the youngest one from 1454–1466 are both from graves.

According to Pentti Koivunen, the habit originates from a Greek myth called *Charon*. It has been adopted in the north through Christianity. (Koivunen 1997: 46). According to that myth, a coin was to be put into the mouth of a dead person as a payment to the ferryman of the Underworld, which was called Charon. The myth still had its place in the Greek popular beliefs in the 20th century. (Iso Tietosanakirja VI 1934: 630).

A coin or two? The amount of money in the graves

It appears that the 14th century finds are more numerous than the 15th century finds. The coin gifts that were given to the deceased were usually pennies. The amount has altered between 1 and 6 pennies. *Most usually the gift was one penny*. It is difficult to estimate the buying power between 1 penning and 6 pennings, but one can say that the difference was not great. Therefore, there have been no ‘rich’ or ‘poor’ burials in Cape Valmarinniemi.

All the deceased did not get coins with them. Reasons may be many: 1) All the people may have not found the habit important; 2) the relatives of some deceased may not have been able to afford giving coin gifts; 3) there were people who did not use money at all. Money was used mainly near the trade places and the parish comprised a large area; 4) the relatives of some deceased may not even have known the habit.

The habit seems to have been in use quite commonly. Nevertheless, its nature was to be a symbolic act, a religious or perhaps a bit superstitious act, which did not require great amount of coins to work. What we must remember is that there may also have been other grave gifts, such as things made of organic materials. There may have been fine clothes or furs, for instance, and these have not been preserved.

Was there a special place for a gift?

According to the myth, the coin was to be put in the mouth. However, there are only two coins that can have been originally put into a mouth of a dead person. Other places where coins have been put are 1) inside the fist of a dead person, 2) next to the corpse or 3) on the hips or on the chest. In these cases the coin seems to have been put deliberately to its place.

Most commonly the coin was only thrown to the ground of the grave or into the sand when the grave was filled. This way the relatives did not have to be in touch with the deceased. This may have been practical, especially if the corpse had already started to decompose.

In any case, it looks like that there has not been any specific place for the coin gifts. Naturally, there is also a possibility that in some cases original place may have changed when sand has been thrown to a grave.

A memory from home? Coins as possible traits of the origin of the deceased

There were never coins of different origin in the same grave. This indicates that the origin of the coin seems to have mattered. So can the deceased be of the same origin as the coin in the same grave?

I think this can be possible, for example with the Baltic and German coins. Foreign tradesmen may have been buried in Kemi cemetery. The Swedish crown tried to permit the access of foreign tradesmen to the Gulf of Bothnia already from the 13th century onwards. (Luukko 1954: 196–7, 200–201). Still, in all likelihood, there was a group of solid German settlement in the Oulu-, Ii-, Kemi-, and Torniojoki river mouths already from the 13th century. (Vahtola 1997: 66–7; more specifically Vahtola 1980.) In Kemi, there may have been German people who fostered their origin. Furthermore, lots of German townsmen lived in Turku, although often temporarily. (Kallioinen 2001: 103) Since they had a firm position in Turku, they may have had an access to northern seas. Some of them sailed to northern trade places many times.

Because the trade travels north took sometimes months, it is possible that some foreign tradesmen passed away there and were buried there, too. In this case, the origin of the deceased could have been emphasised by giving a coin from the homeland with him, especially if the giver of the coin was of foreign origin as well. The person's identity remained the same also when he/she died.

This thought cannot be tested with Swedish coins because they are so common among the data. Norwegian coins were not found in the graves at all. Coins struck in Turku, however, may have some significance. We may assume that most of people buried in Kemi graveyard were of northern Finnish origin. Most of those 15th century coins were found in graves, as compared to the fact that only one Swedish coin is from the 15th century and it is a loose find. If the Turku money was intended especially for the northern trade, was it preferred also in the burial habits of the Kemi people? This would mean that the Kemi people should have had a some kind sense of a national area, which would have had included also Turku. This seems quite unlikely. It is possible that the Turku coins had some special meaning not only among the northern trade, but also among the ordinary parish people. Nevertheless, there was not anything like ”Finnish money” at that time. Furthermore, it may only be a coincidence that Swedish coins are practically absent among the 15th century finds in Cape Valmarinniemi.

As a whole, the Valmarinniemi coin finds give a great comparison material to southern and south western coin finds in Finland from the time of the Middle Ages. Topics such as features of northern money floods can be studied from the point of view of them. In a historical point of view, the site and the coin findings complement our concepts about Northern Finland in the later Middle Ages.

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Resistance is futile, you will be assimilated! Porcelain finds from 17th–18th century Tornio

Janne P. Ikäheimo

Introduction

This paper is a spin-off of the on-going project 'The Material Roots of Modernization in Northern Finland (ca. 1500-1800 AD): An Archaeological Study of Urbanization and Consumption'. The project seeks to understand the beginning of modernization in Northern Finland by undertaking a comparative study of both early modern towns and other sites. As places of trade and consumption, towns were the primary channels through which the forces of modernization reached Northern Finland. Therefore, it is essential to grasp how the daily routines and contemporary material culture were changed in towns in association with the changing world-view. Imported pottery, in particular luxury pottery like porcelain, plays an important role in this analysis. Not only because pottery forms one of the main artifact categories at early modern sites, but also because it serves as a 'barometer' for changes in daily routines and attitudes.

During the 17th century, Northern Finland comprised a peripheral area in the kingdom of Sweden. Therefore, modernization was largely imposed 'from above' by the King Gustav II Adolph. As a part of his mercantilistic aspirations a number of new towns were founded in Sweden. In 1621 the town of Tornio (Torneå) was founded to control the trade between Finnish Lapland and other parts of the kingdom. This trade was virtually a monopoly for the burghers of the town, while the principal trading partners were the cities of Turku and Stockholm (Fig. 1). In fact, the capital of Sweden was in all likelihood the source for the first examples of foreign luxury that were transmitted to Tornio during the early 17th century. This luxury is reflected in the pottery assemblage to be discussed here, which pertains to the excavations carried out in 2002 at Tornio by the Laboratory of Archaeology, University of Oulu.

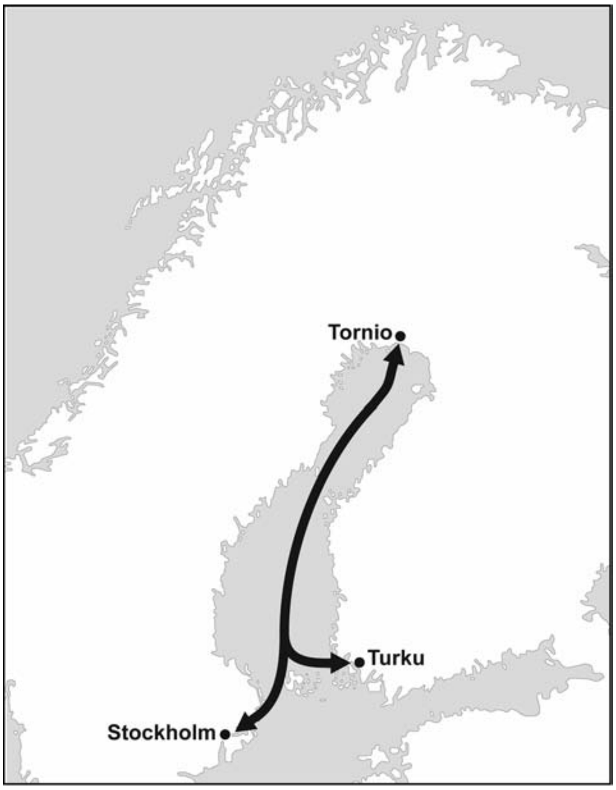

Fig. 1. The location of Tornio and the principal trading routes.

The Keskikatu 2002 excavations and its pottery assemblage

The excavations concentrated on two empty building lots, which are likely to be built over in the near future after several years of abandonment. Together these building lots cover ca. 6000 square-meters, but only an area of 1700 square-meters was excavated. The 2002 excavations were focused on layers bearing witness to the earliest occupation of the town, in other words, to ones presumably dating to the 17th and 18th centuries. The majority of more recent archaeological evidence located in the upper layers of the site stratigraphy, was shifted away with earth-moving machinery.

Both excavation areas were located adjacent to Keskikatu (i.e. Central Street) and divided up into to four smaller areas. Of them, the Rakennustuote lot comprised Areas 1-4 and the Ryhmäkoti lot Areas 5-8. Nearly all areas gave evidence of timber foundation structures and other remains dating to the 17th and/or early 18th centuries. The finds consisted mainly of animal bones and pottery, but examples of other artifact classes typical for post-Medieval layers, such as glass and metal, were equally plentiful. While the total amount of the finds exceeds several hundred kilos, the ceramic assemblage pertaining to the excavations is composed of some 5000 sherds (Table 1) that weigh approximately 56 kilos. This assemblage is evidently dominated by red earthenware, the share of which—as calculated from the figures given in the find catalogue (see Herva 2003)—is over 3/4 by sherd count and nearly 9/10 by weight.

Table 1. The pottery assemblage of the Keskikatu 2002 excavations quantified by sherd counts.

Area	A1	A2	A3	A4	A5	A6	A8	Total	%
Red earthenware	596	1096	781	15	573	630	197	3888	76.22
White earthenware	4	50	3	-	8	28	2	95	1.86
Stoneware	38	34	22	-	23	26	13	156	3.06
Porcelain	4	28	8	-	1	3	2	46	0.90
Majolica	49	66	25	2	49	78	40	309	6.06
Faience	99	75	93	1	23	68	32	391	7.67
Creamware	28	117	23	-	-	5	2	175	3.43
Unidentified	5	15	17	1	-	2	1	41	0.80
Total	**823**	**1481**	**972**	**19**	**677**	**840**	**289**	**5101**	

As one might reasonably expect, the porcelain assemblage recovered during the excavations of Keskikatu is small, regarding both the number of sherds as well as the weight of the assemblage. At first, bearing the remote location of the town in mind, it seems somewhat astonishing that this pottery was found at all in Tornio. However, the examination of the respective table reveals that over three fourths of the finds pertain to Area 2, where the upper stratigraphy was characterized by a house remain tentatively dated to the 19th century. In addition to the elevated amount of porcelain finds, the date is confirmed by the consistent presence of creamware, the production of which began only during the late 18th century.

Nevertheless, the porcelain assemblage of the Keskikatu excavations can be divided into three groups, only the first of which will be dealt with here in more detail. This interesting group of porcelain finds (Fig. 2), found in association with layers dated to the 17th century, consists of half a dozen sherds with blue decorations hand-painted on white surface. The style of these decorations as well as other details strongly suggests that the group consists of Chinese porcelain. The second recognizable group is formed by undecorated white porcelain of Russian origin. The identification of this class was possible, thanks to preservation of nearly complete saucer bearing a maker’s mark in Cyrillic alphabet on the bottom. Finally, a considerable portion of the assemblage belongs to modern, white porcelain cups characterized by gilded rims and transfer printed flower decorations. Cups of this kind were fashionable in the Finnish countryside a couple of decades ago and they have very unlikely lost their appeal thereafter.

The occurrence of porcelain sherds in the 17th century contexts at Tornio was, at first, both intriguing and unexpected. Although the literary evidence suggests that Chinese porcelain was exported to Turku, the former capital of Finland, already by the 1580s

(Hyvönen 1983: 33-35), it never became a common commodity in Finland. Moreover, the few examples of porcelain dating before the late 17th century are usually said to have reached the country as collector's items, in other words, after the presumed date of their active utilization (Hyvönen 1986: 7). At Tornio the latter idea is challenged by the indisputable association of porcelain with the mid-17th century layers. In the majority of cases, the date of these layers can be assured through the typology of clay tobacco pipes and German stoneware, as well as the presence of maiolica and the coin evidence.

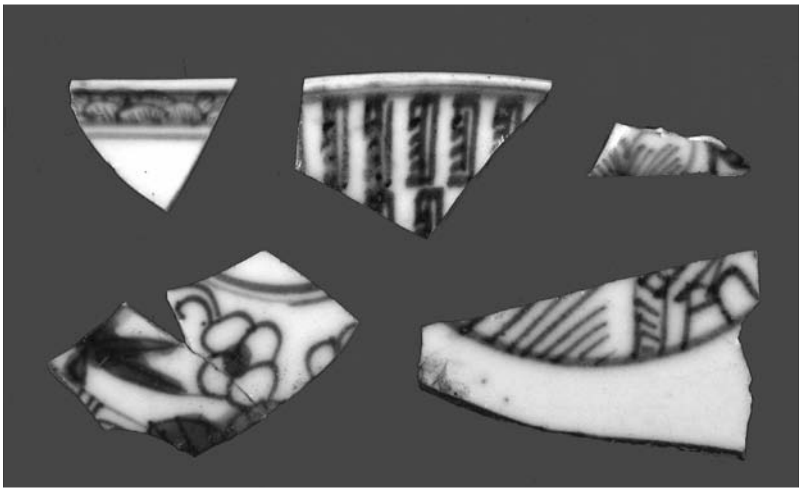

Fig. 2. A selection of porcelain finds from the Keskikatu 2002 excavations.

Of the seven diagnostic sherds of Chinese porcelain, two rims pertain to small cups, while the two base fragments in the study material are in all likelihood from cups or small bowls. Two wall fragments of a cup have blue-on-white decoration on the interior paired with a brown exterior surface. The latter feature identifies the production as so-called *café au lait* –porcelain or Batavian ware, which was imported to Sweden in substantial quantities during the 18th century (Nilsson Schönborg 2001: 35, 40, 48-52). Blue-on-white decorated ware was the cheapest variety of Chinese porcelain both before and after the foundation of Swedish East-Indian Trade Company (Nilsson Schönborg 2001: 67, 71-2; Nilsson Schönborg & Rosén 2003: 35). Undecorated white Chinese porcelain was also imported to Sweden in moderate quantities (Nilsson Schönborg 2001: 51) and some examples found in the 17-18th century contexts at Tornio could belong to this production. An intriguing context, for example, is a fill found underneath a timber floor (SU 1065) that contained several, substantially large pieces of white porcelain together with three coins minted in 1634, 1635 and 1637.

Indicator of status or assimilation?

The significance of the porcelain finds introduced above lies in the observation that by the late 17th century the town of Tornio was a brisk hub of the global market. Before the S.O.I.C., *Svenska Ost Indiska Compagniet* i.e. Swedish East Indian Trade Company was founded in 1731, porcelain was imported to Sweden together with maiolica from the Netherlands (Nilsson Schönborg 2001: 30). Already by the mid-17th century, the *Verenigde Oostindische Compagnie*, in other words the Dutch East Indian Trade Company—founded in 1602—had imported several millions of vessels of so-called *kraak* -porcelain (Emerson et al. 2000: 102, 252). The price of porcelain sunk slowly and it became accessible to wealthy burghers (Hyvönen 1986: 120). Nevertheless, it has been assumed that during the 17th century porcelain was—as much in Sweden as elsewhere in Europe—an exotic but also much wanted status item (Emerson et al. 2000: 12, 102, 136-7; Nilsson Schönborg 2001: 29; Nilsson Schönborg & Rosén 2003: 34).

The situation was drastically changed after the establishment of *Svenska Ost Indiska Compagniet* in 1731. With its 138 voyages to the East (Andersson 1996: 206), the S.O.I.C. managed to import tens of millions (Dahlbäck Lutteman 1980: 72), or perhaps as much as 30-50 million (Nilsson Schönborg 2001: 16), items of Chinese porcelain to Sweden before going bankrupt in 1813. To give an example, in 1746 a ship named Freden arrived to Gothenburg carrying nearly 150.000 teacups with a saucer, some 10.000 coffee cups with a saucer and approximately 80.000 other porcelain items (Nilsson Schönborg 2001: 13-14). A year before a ship named Götheborg had sunk just before it had reached its home harbor. Although it carried approximately 1,2 million porcelain items on board, pottery was only a minor component of the cargo, which included, among other things, 370 tons of tea (Andersson 1996: 212-13).

Regarding these figures, the importance of porcelain, both as a commodity and as a possible indicator of socio-economic status, seems to be exaggerated. It seldom made up more than 10% of the ship's cargo. However, as the only item preserved at some rate to modern ages—one can deduce this from the non-existent market for vintage Chinese tea on eBay—we are keen to see it overly valuable (Andersson 1996: 212). Therefore, we run the risk of projecting the values attached to Chinese porcelain today to the past (Nilsson Schönborg 2001: 71; Nilsson Schönborg & Rosén 2003: 35). By doing so, we also ignore the fact that porcelain wasn't necessarily appreciated by all components of society (see Nilsson Schönborg & Rosén 2003: 36). Moreover, the archaeological evidence from the city of Gothenburg suggests that the possibility to purchase and own porcelain was not only determined by socio-economic status but also by personal connections (Nilsson Schönborg 2001: 28-9; Nilsson Schönborg & Rosén 2003: 27).

Personal connections determined the availability of merchandise, and it would be foolish to think that the intermediaries based in Tornio could decide what was available. Hence, instead of or in addition to playing an important role in building of status and social identity, luxury pottery like porcelain may have signaled the adoption of values that were purposefully imposed by the mercantilistic state. Therefore, instead of a vehicle purposefully used by the inhabitants of Tornio in their social play, the presence of luxury pottery in 17th and 18th century contexts may alternatively be regarded as a sign of collectivism and assimilation.

For a reader who is acquainted with modern popular culture, these two words, collectivism and assimilation, may bring to a mind an imaginary race of cyborgs, the Borg. The television series Star Trek: The Next Generation depicts them as a product of a technology that has managed to 'hardwire' artificial intelligence into the brain and central nervous system. Consequently, all the Borg brains are constantly interconnected and, thus, they share a 'collective mind'. Unless instructed by the 'collective mind', which can see through their eyes and communicate through their implants, it is extremely difficult for a single Borg to act or even to react to immediate surroundings. The main goal of the Borg Collective is to 'assimilate' other intelligent life forms and by doing so improve itself by adding new technologies to its own. Because other races are annihilated in this process, the Borg may be comprehended as an allegory for what collectivism offers individuals: a downright choice between submission to force or destruction (Yates 1997).

The history has shown that mercantilism was a form of collectivism that rose to power by economically enslaving its citizenry and, whenever possible, plundered its neighbors to survive. Hence, collectivism thrived in the 17th-18th century Sweden, where both taxing and strictly regulated redistribution of goods were advocated by those in power instead of producing and trading goods within a free market economy. Mercantilism, too, tolerated the use of force to achieve its goals and for this reason, it has a displeasing record that rivals that of the Borg in Star Trek. If the Borg subsisted by 'assimilating' other cultures, so did the mercantilistic society. Therefore, it can be reasonably suggested that the presence of porcelain and other luxury pottery in 17th or 18th century Tornio does not necessarily signify high socio-economic status of the townsfolk. It may equally tell us that the resistance had been futile. The mercantilistic regime had successfully assimilated the inhabitants of Tornio. Instead of the Borg, they had been assimilated and turned to *borgare*, burghers.

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Stone foundations and wooden cellars: material culture and the reproduction of urban space in Tornio during the 17th and 18th centuries

Timo Ylimaunu

Abstract. *This paper discusses how mercantilism affected the material culture in the town of Tornio, northern Finland, during the 17th and 18th centuries. Tornio was established in 1621 to control the Tornio Lapland trade by the ideology of a mercantile policy. The effect of concentrating trade to the town merchants was that the rural traders slowly lost their old significance in the commerce of northern areas of Sweden by the 17th century. Particularly during the 18th century, a clear rise in the wealth can be seen in the town residents probate inventories' and this had a significant influence on the material culture. At the same time the central power of the state had a significant influence on the urban space by the physical reorganisation of the town. This development can be interpreted from the archaeological finds, especially house remains and the techniques used in their construction. There are many examples from the 17th century of buildings that were placed straight on the ground without any stone settings. The technique changed during the next century, when houses were constructed on stone foundations and wooden cellars were replaced with those made of stone, now commonly encountered by the 17th century.*

Keywords: *mercantilism, stone foundation, Tornio, urban archaeology*

The town of Tornio was established on the island of Suensaari in 1621, which is located at the mouth of the river Torniojoki on the Gulf of Bothnia. As several other towns were established at the same time, the beginning of the 17th century can be called a great era of urbanisation in Sweden. The reason for this rapid urbanisation was the rise of strong central power and the adaptation of mercantilist ideology that tried to make towns into centres of local administration as well as centres of trade and wealth. Tornio was the northernmost town of the Swedish Kingdom and also one of the smallest ones. Thus, the town was a local centre of trade in northern Sweden, and especially well known for its trade with the Sámi people of Tornio Lapland. However, the land uplift caused problems for the inhabitants of Tornio, as the harbour located on the western riverbank of Suensaari became useless already during the 17th century. As a consequence, several plans were made between the 1650s and the 1760s to move the town to a more beneficial location.

In this paper, I will consider the question of what do the absence of the stone foundations and the introduction of them tell us about the change in the physical and symbolical early modern urban environment at Tornio during the 17th and 18th centuries. In order to address the question, we must first look at the development of the town.

Historical archaeology and the rise of the modern wooden town

Several rescue excavations have been carried out in the town of Tornio since 1966, and most of then have been organised by the Provincial Museum of Tornio valley and the Archaeological Laboratory of the Oulu University. First field studies were conducted at the beginning of the 20th century, when Jorma Rinne surveyed the site of the first town church (Rinne 1911, 1921). Then after a half a century, Pentti Koivunen excavated the site of a former town hall. He discovered the stone foundations of the late 17th century and 18th century town halls (Koivunen 1968). Several rescue excavations have been carried out since 1996 in the oldest part of the town, but so far only few short overviews have been published (Ylimaunu 1999, 2004; Herva & Ylimaunu 2004).

So far, about 10 plots have been studied, and seven of them yielded remains of houses or other buildings dated to the 17th century. Two sites yielded building remains dated to the 18th century. There are also a couple of remains which may be interpreted as timber paved yards. The town represents a typical historical wooden town in the north in the light of archaeological evidence; almost everything was made of timber. Similar kind of timber structures, like wooden house floors, paved yards and wells have been found in the excavations of Turku (Kykyri 2003), in the old town of Helsinki (Heikkinen 1994) and in Oulu (Mäkivuoti 1991). Some remains of wooden houses were especially well preserved, which is not very common in 17th or 18th century archaeological material (Herva & Ylimaunu 2004; Ylimaunu 2004).

What is peculiar is that in the 17th century, buildings did not have stone foundations but were erected directly on the ground. Only the town hall and the church are know to have had stone footing (Rinne 1911, 1921; Koivunen 1968). Similarly, what little archaeological evidence there is of cellars indicates that they were also wooden. In Oulu, by contrast, there are several examples of corner stones, stone foundations and stone cellars from the 17th century (Mäkivuoti 1991). There is also archaeological evidence of 16th and the 17th century stone foundations from other towns, such as in old Helsinki (Heikkinen 1994) and in Turku (Kykyri 2003). These archaeological finds indicate a clear distinction between the material cultures of these towns. There is also some archaeological evidence from the countryside of Tornio which shows that stone foundations were not unknown in the surrounding areas of the town since the 16th century, when some excavated houses were built upon a row of stones (Koivunen 1991: 142-5).

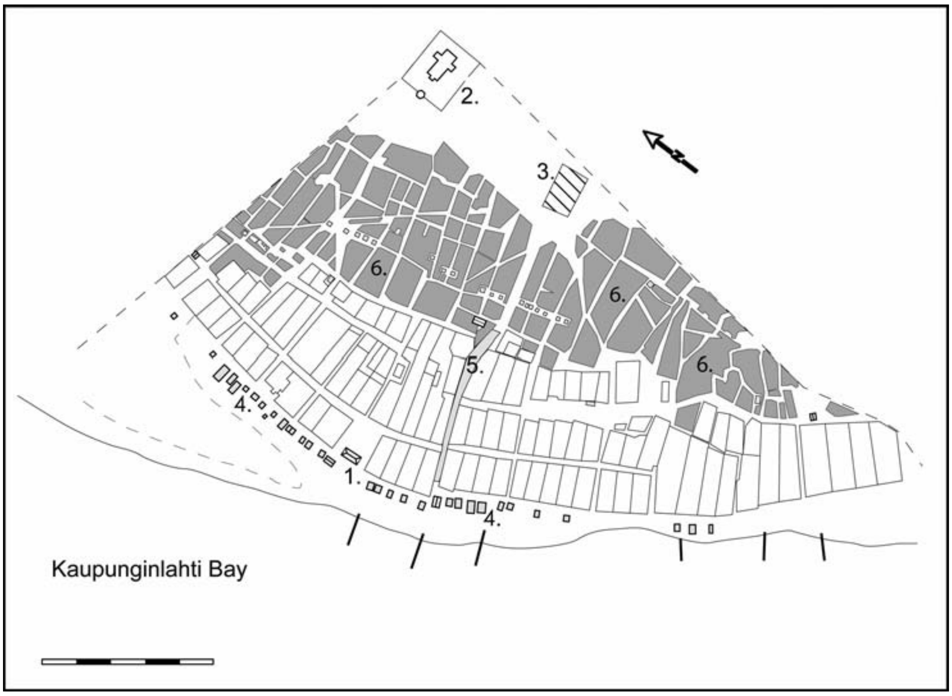

Fig. 1. Tornio at the end of 17th century. 1. town hall, 2. church, 3. Location of the first church, 4. warehouses. Original map by Hans Kruse 1697, redrawing by Timo Ylimaunu.

We have few historical maps of the town area, but the earliest documents tell us little about the development of the urban space. Maps surviving from the middle of the 17th century show only the blocks without plots, and plots without buildings can be seen in a map surviving from the end of 17th century. The overview of the town and the plots were irregular and some plots were as long as three blocks (map of Hans Kruse 1698, Kostet 1995: 79-80). Archaeological evidence appears to indicate that in the 17th century buildings concentred in the central areas of plots (Herva & Ylimaunu 2004). In the Aspio site, the earliest house and a small animal shed from the first half of the 17th century were located in the middle area of the yard. In the late 17th century, the area was covered by the half cut logs (Ylimaunu 1999), which might be the timber paved courtyard. Thus, urban space in 17th century Tornio seems to have been open.

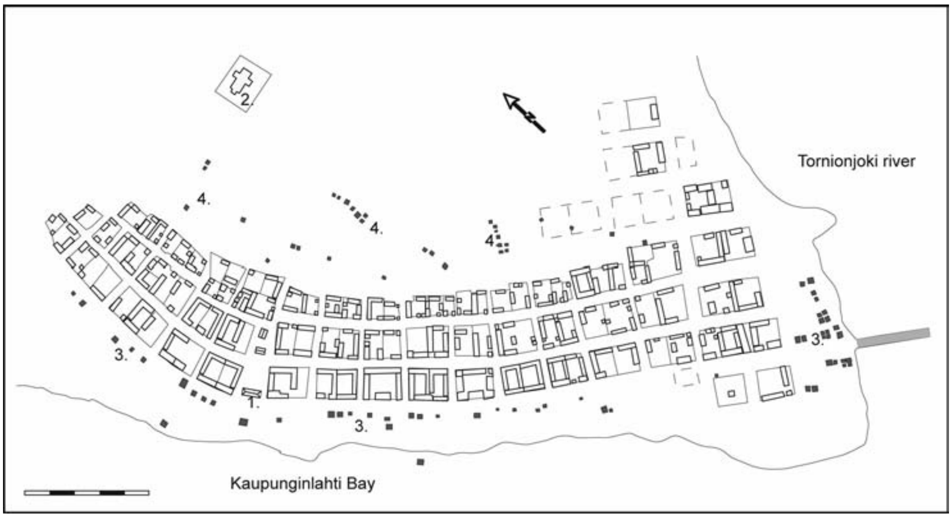

Fig. 2. Tornio at the end of 18th century. 1. town hall, 2. church, 3. warehouses, 4. barns. Original map by A.Fr. Merckell 1782, redrawing by Timo Ylimaunu.

Tornio was reorganised in the 1720s after the destruction of the Great Nordic War. The town was divided into regular square-shaped blocks and each block was divided into just two plots (Kostet 1982; Mäntylä 1993: 223-6). The town map from 1782 shows that buildings were located on the edges of plots, forming thus enclosed courtyards, which in some cases were timber-paved. This order can be observed also from a picture drawn during the winter 1736-37 (Outhier 1975: 120-1). The most significant effect of the reorganisation was that town space became enclosed, which gave to the town an early modern wooden town character in the 18th century. Despite the modern character, the town of Tornio preserved narrow blocks, which gave to the town-plan a conservative and medieval type appearance.

Fig. 3. Stone foundations from the 18th century. On the right is a foundation dated to the first half of the 18th century and on the left a foundation post-dating the fire of 1762. The Provincial Museum of Tornio Valley.

At the time of this reorganisation, stone foundations and stone cellars also became more common. A couple of examples testify, though, that not all buildings had stone foundations even in the mid 18th century (Ylimaunu 2004). But in general it seems that stone foundations became higher and wider in the late 18th century. During this period they are comparable to the stone foundations at Oulu in the 19th century, where the foundations were almost 1 meter high (Kovalainen & Vuojala 2000: 168). In Turku, more massive stone footing became more common at the end of the 17th century (Kykyri 2003).

Building techniques and the development of wealth

Why do we observe this pattern? I suggest there are various reasons to that. First, it must be remembered that Suensaari island is formed of fine riverine sediments and therefore poor in stone. Therefore, it might seem ‘natural’ that the earliest inhabitants did not bother to bring stone from elsewhere. But that, of course, does not explain why stone was finally introduced as a building material.

Secondly, an explanation can be sought in the development of wealth and the values of houses in Tornio during the end of the 17th and first three quarters of 18th century. The data of wealth have been taken from the published probate inventories of Tornio residents; there are 157 inventories surviving from 1666-1776 (Tamelander 1941). Inventory lists are not complete; therefore all of them were not used. There are also some problems of using published probate inventory lists. First not all information were not published and secondly the values of houses usually and in most cases included all buildings in the courtyard. So the value of a house means the value of the courtyard and in some cases even some market cottages at Lapland marked places were included. However the data gives to us as a general image of how the values of assets developed between the town residents during this 110-year period.

Table 1.

	Years 1666-1710	**Years 1750-1776**
Mean value of buildings	494 copper dalers	594 copper dalers
Mean value of wealth	4859 copper dalers	15 518 copper dalers

It seems clear that there is a correlation here between the rise of wealth and the appearance of the stone foundations and stone cellars. The mean value of wealth rose threefold from almost 5000 copper dalers to more than 15 000 copper dalers during the period of 1666 to 1776. There were three persons whose estate value was over 100 000 copper dalers at Tornio during the years from 1750 to 1776. We can compare this situation to Oulu, where there was only one person whose estate value was more than 100 000 copper dalers. This shows clearly how profitable the Lapland trade was among the town residents of Tornio. Nonetheless, during the same 110-year period the mean value of houses, or prices, did not rise.

Table 2.

Years 1750-1776 / Estate value	<800 c d	800-1999 c d	2000-4999 c d	5000-13 499 c d	>13 500 c d
Number of houses	28	14	8	11	17
Mean value of the houses	159 c d	419 c d	494 c d	782 c d	1256 c d

But when we compare the information from different estate value classes, we notice that the mean values of the courtyards in the highest socio-economical class were more than two fold and the price of the most expensive house was almost six fold, over 3000 copper dalers. This might indicate that, at least in the highest socio-economic class, houses had improvements such as stone foundations, which can be observed from the archaeological records.

In northwestern Europe, it has been noted that the prices of houses did not correlate with the position of the owners socio-economical class in the late medieval or early modern period. The house itself did not have a significant role in expressing the social or economic status. The location of the courtyard was more crucial in showing the social position. Therefore towns should be seen as images or as mirrors of the societies inside them and the changes in the physical structures reflect also changes in mental and symbolical values and attitudes among town residents (Verhaeghe 1997: 34-5). In Tornio, dramatic changes occurred in the physical urban space when the town plan was regulated, courtyards were enclosed and houses were built on stone foundations in the 18th century. But at the same time the social structure remained as it was formed since the foundation of the town. The wealthiest merchants lived on the first and second row of blocks and the poorest residents lived on the third row of blocks (Kostet 1982: 163-4).

Discussion

As we have seen, there is a correlation between the economical growth and the development of the building materials at the town of Tornio. One consequence of historical mercantile process was the accumulation of wealth into the towns and the growth of towns (Myllyntaus 1980; Kekkonen 1987: 10-12). In Tornio, the Lapland trade benefited the town residents due to their position between the merchants of Stockholm and the Sámi people. Henri Lefebvre (1992: 76-9, 1996: 185-8) has stressed the economic factors in the development of urban environment. He has pointed out that urban social space cannot be understood without understanding capitalistic production; urban space reflects the production. The surplus has had a crucial role in the historical process of urbanisation and how the physical urban environment was formed. From this point of view, one should consider the growth of wealth among the Tornio residents and its correlation to the values of dwelling houses.

But the introduction of stone foundations and cellars is not a natural consequence of the accumulation of wealth. I suggest that the introduction of stone foundations and cellars marks a more profound shift in the attitudes of people. People do not naturally strive to improve material culture; rather, such a desire belongs to middle-class urban communities. As Matthew Johnson (1997) notes, the improvement of material culture, such as houses, was not a self-evident thing in agrarian communities, at least not in England. Therefore the improvements in the quality of urban vernacular houses may indicate more permanency and the security of life. According to Johnson, 'the higher the investment, the greater the quality and permanence of the house'. Therefore we may assume that improvement in building materials at Tornio indicates more permanence and secure attitudes among the town residents.

What little evidence there is, both documentary and archaeological, appears to suggest that until the early 18th century Tornio was a town primarily in the administrative sense whereas the urban environment and perhaps the lifestyle of people preserved strong agrarian or perhaps conservative, medieval influence. Houses were necessities rather than commodities. And in the mid 18th century, when wealth grew and the plans to move the town were dropped, Tornio assumed a more town-like character both physically and symbolically.

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Karelian Ware: pottery of Slavonic type in eastern Finland

Johanna Enqvist

Abstract. *This paper is based on the author's master's thesis (Enqvist 2004) concerning unglazed, grey earthenware in Eastern Finland ca AD 1000–1800. The so-called Karelian Ware is wheel-made pottery, which resembles remarkably medieval Slav Ware in Russia and Estonia. Karelian Ware can typologically be divided into at least three subtypes. It is particularly interesting that the youngest subtype has been made and used here and there in northern Karelia until at least the 18th century. Karelian Ware from the 17th to 18th centuries can be connected with small orthodox rural communities, which remained something of isolated 'islands'. Preserving the old vessel form could have been one way to passively strengthen the uniformity of the ethnic identity within the society.*

Keywords: *medieval and post-medieval pottery, Slav Ware, typology, type, style*

Introduction

This paper considers types of Slavonic pottery in Finland that is Karelian Ware in medieval and post-medieval times (ca AD 1000–1800) and is based on the author's master's thesis (Enqvist 2004). The types of Slavonic pottery in Finland are presented and a case study of ceramic material from Polvijärvi, northern Karelia, is introduced. The material from Polvijärvi, which forms one subtype of Karelian Ware, will be discussed in more detail. Some problems and concepts relating to this particular case and typological method more generally will be brought up. Finally, the middle-range theory of artifact design by Christopher Carr (1995a, 1995b), which concerns the interpretation of style in material culture, will be discussed. Thoughts and arguments associated with this theory have inspired and affected strongly the thinking of the present author and conclusions of this particular study.

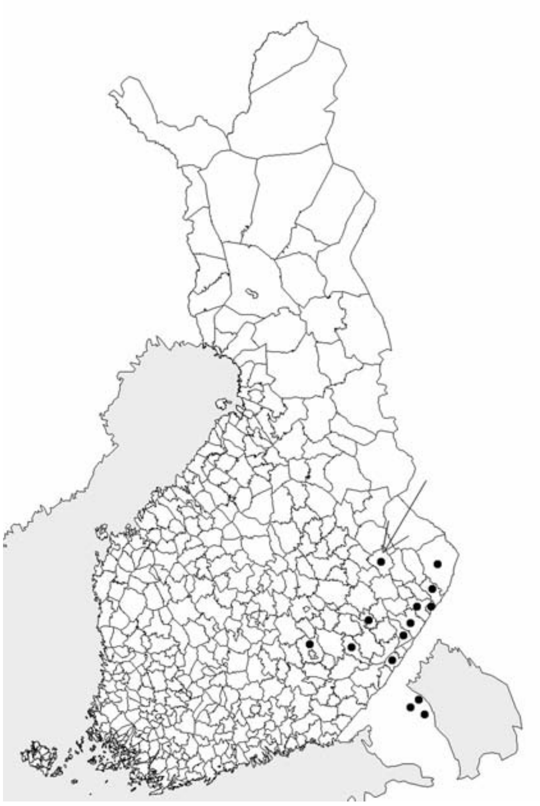

Fig. 1. Distribution of the material studied. Polvijärvi is pointed out with the arrow.

Primary material

Primary material was collected from 41 sites in eastern Finland and on the Karelian Isthmus (in Finland sometimes referred to as ceded Karelia) in archaeological excavations or field surveys. Distribution of all the material studied is shown in Fig. 1. Pottery itself is unglazed, grey earthenware. Most of the vessels were wheel-made. In earlier studies these ceramics had been referred to as iron-age pottery, iron-age-type pottery, Slavonic pottery, Slavo-Karelian pottery or Karelian pottery (Poutiainen et al. 1994; Poutiainen 1996; Pesonen 1998). The biggest problem was that these were not exact types with exact definitions. So the main goal was to create a typology, which would include definite types with different datings.

There were altogether 264 rim fragments, which were divided intuitively into four categories. 24 variables were studied from the fragments, and then the division was tested with statistical analyses. As a result there were four ceramic types, three of which can be considered as bearing the same features and somewhat similar appearance to Slavonic pottery in Russia and also the Slav-Ware influenced ceramic types in Sweden, Denmark, Poland and Estonia (Selling 1955; Bencard & Roesdahl 1972; Forsström 1976; Stenholm 1976; Wahlöö 1976; Broberg & Hasselmo 1981; Carlsson 1982; Kočkurkina 1982; Liebgott 1989; Elfwendahl 1999; Tvauri 2000; Roslund 2001). These three types can be seen as three subtypes of Karelian Ware, which might be a useful expression when referring to pottery of Slavonic type in Finland in general. One of the three subtypes of Karelian Ware is made of white-clay and will not be discussed in this article.

Equivalent to medieval Slavonic or Slav-Ware influenced ceramic types around the Baltic Sea would be the older subtype of Karelian Ware (ca AD 1000-1300/1400), which is wheel-made, highly profiled ceramics (Fig. 2). Some kind of an incised ornamentation appears on the shoulder of almost every vessel. Usually this ornamentation consists of wavy or straight horizontal lines.

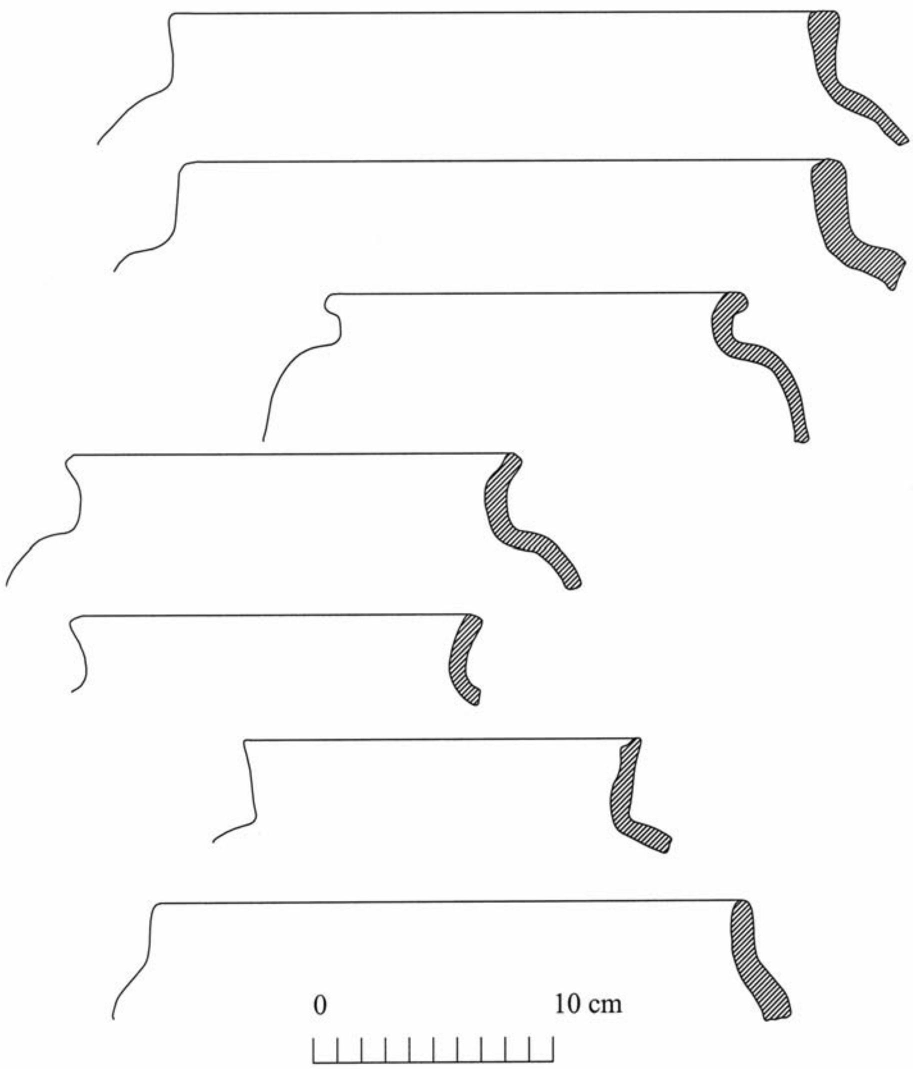

Fig. 2. The older Karelian Ware from Eastern Finland (c AD 1000-1300/1400). Drawings J. Enqvist.

The younger subtype is very similar to the older type, but the trend is towards simpler appearance (Fig. 3). The younger Karelian ware (ca AD 1300/1400-1800) is also wheel-made, unglazed, highly profiled ceramics, which is tempered with fine-grained sand and mica. Temper is slightly coarser in the older subtype. Ornamentation has vanished almost totally. When there is some, it is one straight line in the neck at the most.

There is a strong need for natural scientific datings. The dating of Karelian Ware is very wide at the moment – basically an assumption founded on datings of other finds.

There are two ^{14}C-datings: 115 ± 50 BP (Hela-214) and 195 ± 55 BP (Hela-215), which date a charred vessel from Polvijärvi most probably to the end of the 17th century or to the 18th century when calibrated (Pesonen 1998: 84). The younger type could probably be further divided into several subtypes, as well as the older type. Based on the author's study there are at least three subtypes of the younger type appearing in different parts of Eastern Finland, which may signify local manufacturing. The material from Polvijärvi, then, dates most probably to 17th and 18th centuries.

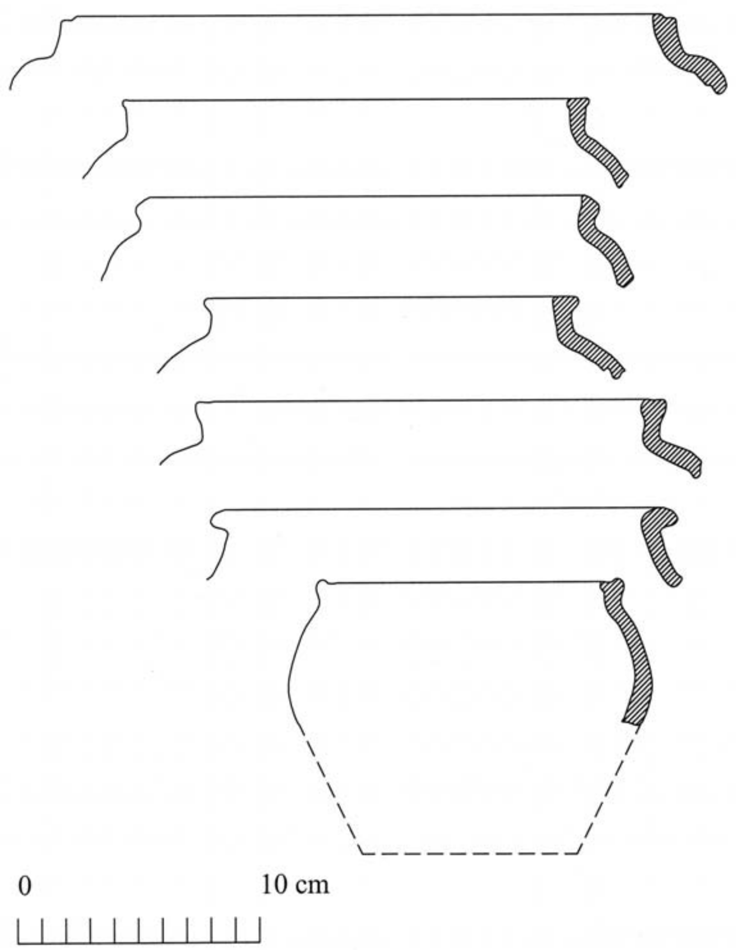

Fig. 3. The younger Karelian ware from Polvijärvi, Eastern Finland (c AD 1300/1400-1800). Drawings J. Enqvist.

What could types tell to an archaeologist?

What do we want of types? Apart from dating and distribution, do they provide any fascinating or relevant information about the past? Or is resolving dating and distribution the meaning of archaeology, that and nothing but that? The purpose of the typology is directly due to the questions asked from the material under study. Chronology and chorology are just basic, minimum information – the starting point. But where to turn? In order to have some guidelines it is crucial to mention a concept of style beside the concept of type. Separating these two terms from each other is a very significant issue.

Type is a tool, typology is a method – these are not results *per se*. Style is the subject, something that is explored, and something, which we are trying to reach as scientist researching humans. Type is meaningful and relevant in the frames of archaeological research and to an archaeologist, but its linkage to the past is very uncertain. Style has been meaningful to the people in the past whether they were aware of it or not. Type can be defined by its attributes – it can have a definition. Style is indivisible. Although we can recognize a certain style and some of its elements, we cannot separate and find out all of its attributes. Style can be understood by intuition. Type could be seen as one aspect of style, and the difference between type and style is comparable to the difference between *etic*- and *emic*-interpretations. (Adams & Adams 1991; Lavento 2001: 15-17, 145-6.)

1.1 Middle-range theory of Artifact Design

Middle-range theory of Artifact Design originates from the typological debate of the 1970s and 1980s in the U.S., and it is based on work and thought of several scholars, but it is collected and edited by two American anthropologists: Christopher Carr and Jill E. Neitzel (Carr & Neitzel 1995). The basic question of this theory is: 'Which specific determinants of an artifacts form are reflected in which of its specific attributes, and under what contextual conditions?' More simply: what is material style? And which are the processes that cause it? Style as a concept is intangible, unclear and implicit. Under the various expressions of style there is however some unity; something that could and should be definited (Wiessner 1990: 106). This theory is developed by considering the previous theories about material style as completing to one another, and not competing ones as earlier. Preexisting theories and the processes they suggest to be behind the material style are seen as different aspects of style. Middle-range-theory argues that artifacts' attributes can reflect several processes: socio-cultural, functional, technological, individual etc, which operate on several levels (e.g. ecosystem, social group, individual). (Carr & Neitzel 1995: 3-17; Carr 1995a: 144; Conkey & Hastorf 1990: 2.)

Unifying attributes to the processes behind them can be made primarily by arranging all the artifacts attributes according to their visibility. Visibility can furthermore be described as AP (absolute physical) and AC (absolute contextual) visibility. There are several other aspects to be considered as well as the manufacturing order or the geographic distribution of an attribute, to mention but a few. (Carr & Neitzel 1995: 9-15; Carr 1995a, 1995b: 185-6, 195, 199.)

The theory of Artifact Design points that the one studying material style should be a 'whole anthropologist', who could and should use all kinds of information and acknowledge available (Carr & Neitzel 1995: 17). The theory states the artifact and artifact class to have a *design* as distinct from the limited concept of type. Type can be thought of as an aspect of design, something that can be associated with the morphology and the visible attributes. Isochrestic variation refers to the limits or frames posed by material and function when manufacturing the artifact (Sackett 1977, 1986: 630). Limited or enabled by these circumstances style can function (Carr 1995a: 165-6). One of the main points is that attributes are considered to be stylistic in a broader sense than in the conventional stylistic research, where only obvious attributes, such as ornamentation, were considered to be stylistic.

Karelian Ware from Polvijärvi (ca AD 1600–1800) in the light of the middle-range theory

The three subtypes of Karelian Ware constitute one proposal for dividing the primary material into categories. An essential question after the division is whether these categories-types have been recognizable and meaningful also to the people in the past. Alternatively, do these types relate to some conscious or subconscious intentions or processes in the past that could be attainable also today by a researcher studying ceramics? In order to reveal these relations, one of the subtypes of Karelian Ware was considered in light of the middle-range theory of Artifact Design.

Ceramics in general have low contextual visibility, and as cooking pots with very modest appearance the Karelian-Ware vessels discussed here do not make an exception. The shape of the vessels, which is the most visible attribute of these artifacts, is virtually the same as it was 700 years earlier. Otherwise the younger vessels are simpler, as ornamentation has disappeared. They show a very unpretentious and unfinished look in general – personal, individual effort or spontaneity have not been used during the manufacture. The lack of high-visibility attributes is very visible. According to Carr, the lower-level attributes refer more like to passive, unconscious processes relating to individuals or small social units than to active communication between large social units. (Carr 1995b: 195, 215-30.)

The picture of northern Karelia from the 16th to the 18th century depicted by historians is that of a fringe area, split by boundary disputes and religious wars (e.g. Pirinen 1988; Kirkinen 1998). A central factor identifying people and generating some kind of stability in a smaller scale is religion. This does not necessarily mean that the orthodox religion would have been the most remarkable factor defining and labeling life and world view of the people. Religion can be also seen as a superficial symbol of the group. Pagan manners and beliefs were still practised and remembered, even old village cemeteries were used in northern Karelia in the 18th century (Piiroinen 1991: 137).

When completing the interpretation of the ceramics with ethnographic prescriptions and historical written sources the conclusions are: these ceramics in the 17th and 18th centuries in Polvijärvi can be associated with limited social groups, small orthodox rural communities. This pottery can be seen as reflecting passively old features of material culture and traditions within the small social unit, strengthening the group unity and identity from the inside, although the functionality of this vessel type must be addressed as well. Active expression of social identity is being made through other artifact classes – crucifixes are common artifacts found associated with these ceramics. The message is very easily decoded: these are personal artifacts, which indicate the group one is belonging to as well as communicate individuals and groups beliefs and conviction.

Summary

Material culture can remain apparently old-fashioned in restricted areas. This can be due to several reasons – people isolating themselves or being isolated by others. Isolation may be expressed on several levels depending on the causes: from passive maintaining and preserving to active manifestation and communication. Isolation can be expressed through the material culture as a whole or through just one artifact class; different artifact classes can also function at different levels.

The main point of this paper was not that one should follow rules or arguments of some theory as a final truth or to make a mechanical interpretations, but to have more tools to work with: more concepts and terms. Terminology should be discussed constantly, developed and explored further as any other method in the field of archaeology to pursue more ways to gain understanding about the past and more possibilities to analyze it – in its full complexity. This means also that we should foster and respect our discipline’s own quiddity and nature, and what it has to offer in contrast to natural scientific research and methods.

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