The Long-Period Dwelling Site of Multavieru at Lake Höytiäinen in North Karelia – Approaching Questions in the Municipalities of Polvijärvi, Kontiolahti, Joensuu and Liperi

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Abstract

The starting point of the paper is the dwelling site of Multavieru, located near the Kiskonjoki River, on the NW side of Lake Höytiäinen in North Karelia. The remains of a dwelling-site area were found in a zone of ca 350 m long and not larger than 80 m wide near the Kiskonjoki River. Multavieru was discovered in 1969 and it has been investigated several times; in addition, it was studied twice by way of teaching excavation by the department of archaeology, the University of Helsinki. The habitation at the site covers the whole Neolithic and Early Metal Age times. A considerable part of the finds implied remains of Medieval Period and iron smelting dating to the 17th and 18th centuries AD. The article illuminates the prehistory and changes in habitation near Lake Höytiäinen from the late Mesolithic to the 20th century AD. The second question addresses the sites close to Multavieru, together with their finds, because this indicates the ongoing changes of culture during the lengthy period under study. Finally, the article addresses the history of the area around Lake Höytiäinen, because many features in the culture have changed considerably, although the area itself has not been considered as very significant, when trying to understand the prehistory of Finland.

1 Introduction

The dwelling site of Multavieru is located near the Kiskonjoki River, on the NW side of Lake Höytiäinen (87,3 m asl.) in the province of Northern Karelia. The site was discovered in 1969 and has been investigated several times; in addition, it has also been excavated two times by the University of Helsinki's Department of Archaeology. The habitation in Multavieru covers the whole Neolithic and Early Metal Age. In the area exist remains of Medieval Period and iron smelting carried out at the same place during the 17th and 18th centuries AD.

The first aim in this presentation will be to illuminate the prehistory and research the changes in habitation near Lake Höytiäinen from the late Mesolithic to the 20th century AD. The second question will concentrate on the sites close to Multavieru itself. The prehistory will be investigated by studying and comparing, in general, the material found at the sites. In practice, the comparison will be done in four different municipalities – Polvijärvi, Kontiolahti, Joensuu and Liperi, and the sites known there. Finally, the investigation will discuss the water history of Lake Höytiäinen, due to the considerable changes in location of dwelling sites on the shores of the lake.

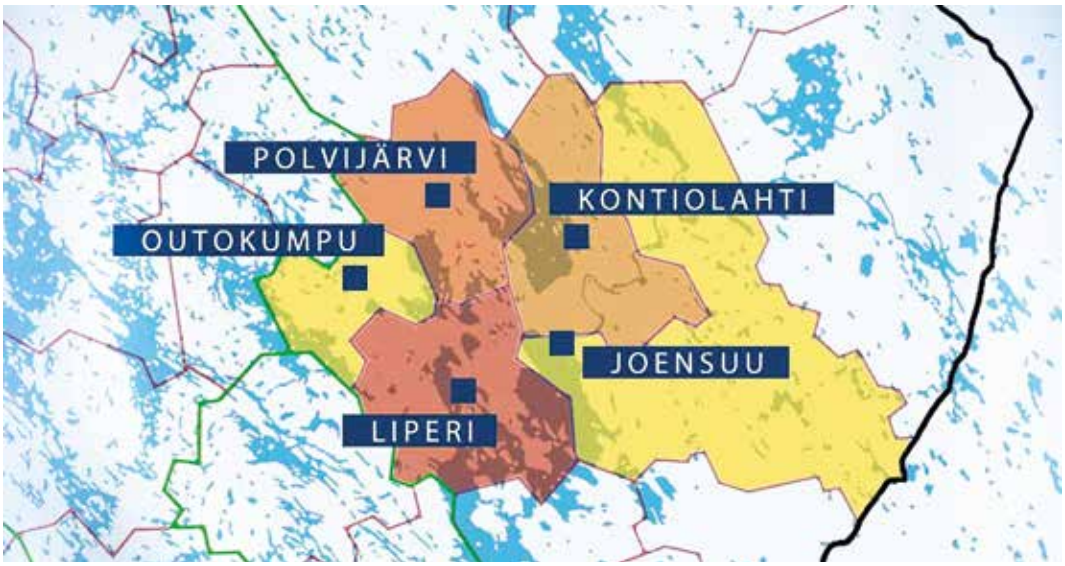

Figure 1. Polvijärvi, Kontiolahti, Joensuu and Liperi in northern Karelia. Outokumpu does not belong to the municipalities inspected in the article.

North Karelia and particularly of Lake Höytiäinen and the northern part of Heposelkä and northern Pyhäselkä in Lake Saimaa are located on the Svekofennian and Karelian Mica schist, Micaceous gneiss and Migmatite and, finally, on the eastern side of it, the Archaean bedrock (Ehlers et al. 1993). The Karelian mountains in eastern Finland developed ca 1920 million years ago. Eventually a copper mine was excavated at the site in Outokumpu (Koistinen 1981). Asbestos was in some places and in particular in Tuusniemi, on the NW side of Outokumpu. Its role in ceramics was central in the large area of Finland during the Middle Neolithic and the Iron Age (Lavento & Hornytzkyj 1996).

Questions

The article addresses three main questions, and the last one is additionally a sub-question. These will be discussed by starting with the results presented already in the lecture in Hämeenlinna in October 2019. Here, the questions will be approached in more detail. The context is slightly larger, too. The approaches are the following:

1. What were the changes of cultures and the habitation near Lake Höytiäinen in the period between the late Mesolithic and the 20th century AD?
2. How did the habitation develop in four municipalities in North Karelia?
3. Where and what are the sites around the site Multavieru in particularly?
4. What were the cultures and how did the material change in Polvijärvi municipality and its three neighbouring municipalities during the lengthy period under study?

The first question of the article addresses the site and living on the Multavieru site encompassing the four municipalities in North Karelia as well. The area is outlined by the municipalities of Polvijärvi, Kontiolahti, Joensuu and Liperi. In my article, the most important area for me is Polvijärvi. This area was emphasised because it had remained under minor investigation by the archaeologists in Finland – despite the fact that the area is large (Fig. 1) and it has been inhabited during a lengthy period of time from at least 7000 BC.

The second question the article addresses is the population in the area and its habitation. The purpose is to find out what the changes were that can be observed in the archaeological material – dwelling sites and the material – that took place in the research area in North Karelia during the time period. This was observed through the material, mostly in the Finnish Register of Ancient Monuments and Sites collected by the Finnish Heritage Agency.

The third question the article addresses is the archaeological excavation and the research of the multi-period dwelling site of Multavieru in the Polvijärvi municipality. The site was inhabited from the Stone Age to the Historical Period without longer breaks. Finally, the site was also used for other purposes during the 18th century, and these historical remains can still be seen there today. In addition, within the larger scope of these efforts, the intention was to carry out the research of soil, habitation and the environment of Multavieru and its neighbourhood (Kouki 1999).

The area has changed during the Holocene because the shore displacement meant that the lakes and rivers developed after the melting of the ice separating the smaller glacial lakes from the Baltic Sea when the ice retreated from Jaamankangas soon after 8 700 BC; the melting ice was in the northern part of Lake Höytiäinen (Pihlatie et al. 1997). The large lake became closed off from the Baltic Sea ca 9200 BC and, because the water of the lake was reduced in 1859 AD, it is at 87,3 m above the level of the Baltic Sea (Donner 1978). The size of the lake is today 282,64 km² and it has as many as 606 islands.

2 Lake Höytiäinen and other lakes

The research area of the article belongs to an environment, which has not researched by archaeological fieldwork in detail. In the area, the Archaeological Commission, Metsähallitus, and the North Karelian Museum briefly studied the municipalities. They all had reasons for fieldwork and in many cases the starting point of the work was land-use planning and, thereafter, building.

Polvijärvi municipality is located between Lakes Viinijärvi in the western part of the area, Pielinen in the east and Orivesi and Pyhäselkä in the northern part of Lake Saimaa. Much interest will concentrate on the area around Lake Höytiäinen and the archaeological observations there (Fig. 1). This is because the University of Helsinki carried out the inventory in the lake municipality, together with the students in 1996 (Lavento 1997) and two teaching excavations during 1996-1997, led by Mika Lavento (1997; 1999a). Some research was carried out at some sites in Polvijärvi municipality (Koivikko & Ruuttu 1996; Mikkola et al. 1998), and the first excavations at the sites have been done already in the 1950s. Among the most important dwelling sites belongs Sola Suovaara (Björkman 1961; Meinander 1962), where very early copper finds was discovered (Taavitsainen 1982), dated as early as ca 3800 calBC (Nordqvist & Herva 2013: 405).

Lake Höytiäinen belongs to the large inland lakes of eastern Finland that developed somewhat synchronously with the northern parts of Lake Saimaa (Fig. 2). However, it does not belong to Lake Saimaa but developed into its own lake in the area of the contemporary municipalities of Polvijärvi, Kontiolahti, Juuka and Kaavi soon after 7500 calBC (Saarnisto 1968). The lakes were studied by Väinö Auer and Matti Sauramo, who separated margin formations in the 1910s (Sauramo & Auer 1928; Donner 1978: 227-229). Antti Rietrikki Helaakoski and Aaro Helaakoski investigated the lake in 1914. However, they were able to uncover organic stratigraphic which implied "dead plans". The areas were studied in Vierevänniemi, which was known by Russian anarchist Pjotr Aleksejevitsh Kropotkin, the researcher of the shore displacement. The research was carried out by A. F. Thoreld, Botanist R. Herlin and Geologist W. W. Wilkman (Pihlatie et al. 1997).

At present, the main depth of the lake is 12 m, but the deepest depth is 65 m and the

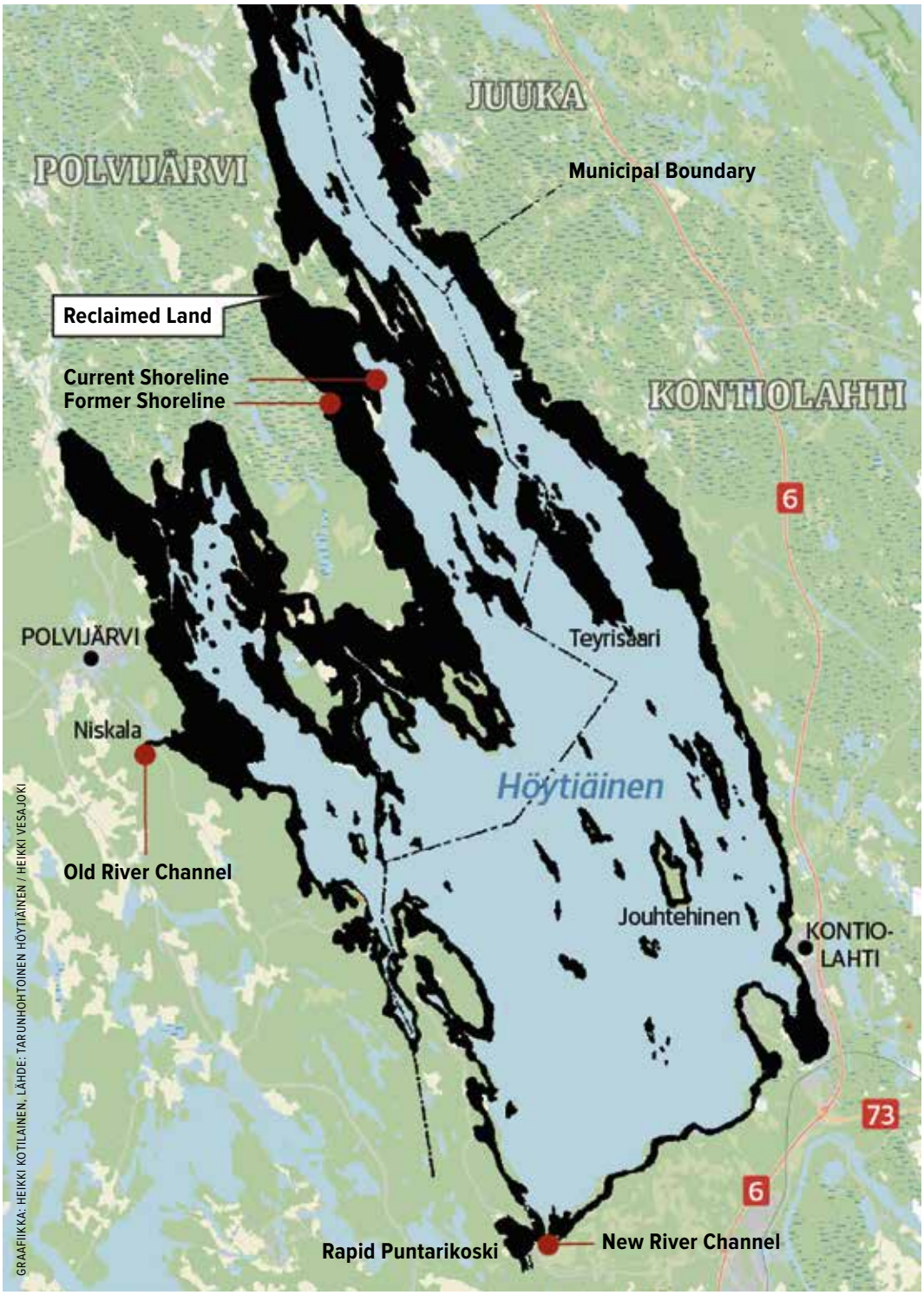

Figure 2. Developing of Lake Höytiäinen. Marked in black the naturally reclaimed land that formed as the result of the water lever drop down of Lake Höytiäinen after 1859.

open area of inland waters has a depth of 50 m. These deeper parts are located on the southern part of the lake and the bays are located on the NW part of the lake. This means that it is a relatively deep lake in Finland.

The most interesting observation about Lake Höytiänen is its history in the 17th century, when the surface of the water was lowered at the request of the local farmers.

In 1859, their group situated in Polvijärvi and Kontiolahti decided to dig a canal from Lake Höytiäinen to Lake Pyhäselkä in Saimaa. The original idea was to lower the water level some few metres. However, the operation did not work out as planned and the water level sank down 11,4 m. Today the highest water level is 75,9 m asl. in Lake Höytiäinen, which is the same as in Lake Pyhäselkä (Donner 1978: 228-229).

Another lake in the Polvijärvi municipality is Lake Viinijärvi, the depth of which is today 78,8 m above the level of the Baltic Sea. Its area is 134,91 km² and its deepest depth is 58,3 m, which means that it is a relatively deep lake, similar to Lake Höytiäinen. The western shores belong to the municipality of Outokumpu and the southern ones to Liperi; all other parts of the lake represent the municipality of Polvijärvi. The level of Lake Viinijärvi was lowered twice in recent historical times, first in 1830 and again in 1858, but altogether only 2 m (Anttila 1967). The water level of the lake is presently at 79,2 m asl.

One should observe that the dwelling sites around Lake Höytiäinen were situated on different elevations that proceeded the contemporary water level. The sites on the lowest elevation were found situated at 87 m asl. and the highest at ca 118 m asl.

3 Archaeological methods used in researching the dwelling sites in the municipalities

As already mentioned, the area in all four municipalities has mostly been archaeologically researched by surveys (Huurre 1985). Despite the surveys, however, the areas are not known in great detail. This is because the areas are large, and several of the targeted areas did not encompass any buildings, which could have served as starting points for detailed surveys or excavations at the sites. In addition, almost all municipalities have lost much of their population and have not had much interest in archaeological fieldwork.

The first general surveys were made in the area of Polvijärvi in 1965 (Sarvas 1965). The surveys were based on loose finds and checking the places where they were found. During the fieldwork, 13 new prehistoric monuments with sites were located. At the beginning of the surveys, one of the problems was that 1:20 000 maps earlier than the 1980s were missing. For instance, Pekka Sarvas and Pirjo Lahtiperä did not have the 1:20 000 maps in use, because this became possible in the area only after the 1980s. Kiihtelysvaara, Pyhäselkä and Tuupovaare areas experienced the same situation (Lahtiperä 1967a, b and c), in that they were separate municipalities before they were connected to the municipality of Joensuu in the early 2000s. In some cases, even the 1:10 000 maps were unavailable in Joensuu (Lahtiperä 1968a).

In North Karelia, a survey of the Early Metal Age and Historical sites was carried out during 1992-94 (Poutiainen et al. 1996) in all these municipalities discussed in the article. The problem of North Karelia in Finland was understood already by historian Heikki Kirkinen (1963: 11), who stated that the area has been insufficiently researched in relation to other areas of Finland. The survey added some information about the later periods, but the real second survey in Polvijärvi was carried out in 2001 (Joona & Ojanlatva 2002b) as part of the project "Polkuja esihistoriaan", which was organized by the North Karelian Museum. During the survey, ten new sites were found, and several loose-find places were located as well.

There have been some difficulties for the practical locating of sites as well as providing the z-coordinate; neither of which give the elevation above the Baltic Sea. Although

Figure 3. Mutala and Siihtala in Joensuu. The destroyed dwelling site of Varaslampi, the roundish, brown mark with red strokes, crossing each other on the northern side of Pond Varaslampi.

the elevations of the sites were later measured, the history of Lake Höytiäinen and the locations of the sites on the z-coordinate have sometimes been left out of the research. For this reason, only the relocating of Lake Höytiäinen is a process that is well-known, whereas the other parts of its history have lacked a detailed investigation. The same entails the history of Lake Viinijärvi. The situation with both Lake Pielinen and the northern parts of Lake Saimaa is better – including the Lakes Heposelkä and Pyhäselkä.

The first archaeological sites in Joensuu were found and studied by Sakari Pälsi (1937) and Jaakko Sauramo (1937) and after that in Mutala and by Ville Luho (1948) in Siihtala (Fig. 3). Pälsi excavated a Mesolithic stone hearth and Luho a Mesolithic dwelling site at Mutala, close to the city of Joensuu. They both date as early as 7700-7500 calBC (Joona & Ojanlatva 2002a: 8). Although the site had a very early dating, it included iron finds – an iron axe and iron slag. The first survey in Joensuu was carried out by Pirjo Lahtiperä (1968a) using 1:20 000 and 1:10 000 maps, after which the five dwelling sites dating to the Stone Age and one to the Iron Age were discovered. The next survey was done by the North Karelian Museum under the guidance of surveyors Juha-Pekka Joona and Eija Ojanlatva (2002a; 2002b).

The dwelling site of Varaslampi in Kettuvaara, first located already in the 1968 survey and carried out due to the building of the main road 6, was excavated by Maarit Suni (1974) and Lea Väkeväinen (1979). The excavation area was unusually large (3192 m^2), but the leaders of excavations stated that only a part of the dwelling site was researched. The site has been classified in the Finnish Register of Ancient Monuments and Sites (Muinaisjäännösrekisteri) as a Bronze Age site. The Textile ceramics and Luukonsaari Ware, the most common material at the site, however, connect it to the Early Metal Age culture.

Earlier surveys in Joensuu and its neighbouring municipalities were made already in the 1970s. Kiihtelysvaara, Tuupovaara, Eno and Pyhäselkä were finally incorporated into the municipality of Joensuu in the 2010s; these municipalities were also surveyed in the late 1970s. Kiihtelysvaara was surveyed by Oili Forsberg (2003a), and Eno by Petro Pesonen (2003a). Kiihtelysvaara and Tuupovaara were first surveyed by Pirjo Lahtiperä (1967a, 1967c) and many sites dated to the Historical Period. Oili Forsberg (2003a) and Taisto Karjalainen (2004) carried out the next large surveys on these municipalities in the project "In Ancient Paths". Some investigations were made after that, but before the municipality was joined to Joensuu. Pyhäselkä has been surveyed already by Pirjo Lahtiperä (1967b) but the larger fieldwork was made by Petro Pesonen (2003b) in the project "In Ancient Paths", after which 20 sites were made known.

In Kontiolahti, the first survey was made in 1968 (Lahtiperä 1968b) and was continued during the project "In Ancient Paths" (Forsberg 2003b). After that, some small areas in the municipality were surveyed by Mikroliitti LtD, for example in Jakokoski (Jussila 2012) and Kontioniemi (Jussila 2014). The copper mine in Kontiolahti was operational in the 18th century AD already (Nyman 2013).

The municipality of Liperi was first surveyed in 1966 when the number of sites was

19 (Sarvas 1966). Some sites in the area were investigated in the 1980s and '90s (Tuomi 1984) and the largest survey was carried out by Petro Pesonen in 2002 in the same project organized by the North Karelian Museum. During the survey, 36 new dwelling sites were discovered (Pesonen 2002: 7).

4 Dwelling sites in the area of four municipalities

In Table 1 can be seen the list of the number of dwelling sites of all periods that are known in the four municipalities in question. This Table is based on the information that has been collected from the Finnish Register of Ancient Monuments and Sites kept by the Finnish Heritage Agency.

The number of dwellings per site is the largest in Joensuu. This is because several municipalities around the city of Joensuu have been associated with it only after 2005 or later. They are the municipalities of Eno, Kiihtelysvaara, Tuupovaara, and finally Pyhäselkä in 2009, which enlarged the city's area. In other rural districts, the number of sites varies between 50 and 100. According to these observations, there are no clear concentrations of dwelling sites at any period of prehistoric time. Although some sites were inhabited for hundreds of years, they do not concentrate on the groups of sites. However, the sites indicate in detail how various the habitation itself has been. When looking at the material and their dating, it is possible to interpret the meanings of sites in the local areas.

The sites have primarily been found through surveys, and only secondarily in excavations and, finally, on the basis the of stray finds. In general, most of the archaeological sites in North Karelia date from the Stone Age, and the majority of them date to the Neolithic. The dating of the Stone Age dwelling sites is often based on the archaeological find material – quartz or flint scrapers and flakes – that are not necessarily easy to help in dating their period of use. Often, the Mesolithic dwelling sites are not counted as part of this group.

Table 2 will present the number of dwellings sites in all four municipalities. The data is based on the information calculated from the Finnish Register of Ancient Monuments and Sites. One must realize that, when calculating the number of dwelling sites in different phases, the results will usually be different. The main reason for this is the fact that new sites are found all the time and the

Municipalities	number of dwelling sites	extent of municipalities (km²)
Polvijärvi	47	958,32 km²
Kontiolahti	41	1 029,83 km²
Joensuu	133	2 750,96 km²
Liperi	63	1 161,23 km²
Together	284	5 900,34 km²

Table 1. The number of dwelling sites in four municipalities in the province of North Karelia, in eastern Finland. The coverages of the municipalities in km² are presented in their situation at present.

Municipalities	Stone Age	Early Metal Age / (Bronze Age)	Iron Age	Middle Age	Historical Period
Polvijärvi	36	1 (1)	1	0	16
Kontiolahti	37	2 (2)	0	0	1
Joensuu	109	2 (2)	0	0	21
Liperi	42	4 (1)	0	0	16
Together	224	9 (6)	1	0	54

Table 2. The number of dwelling sites in four municipalities in the North Karelia, in eastern Finland during the different period of the past.

Figure 4. Area 1, layer 4 at the dwelling site of Multavieru in 1997 from SE to NW. Foto: M. Lavento.

number is continually changing. The sites have been found in surveys, checking the find places of loose finds and observations carried out by amateur archaeologists. Furthermore, the sites have occasionally been reclassified with new datings of sites.

The results that are visible in the figures of dwelling sites are relatively simple (Figure 4). The Stone Age and Historical Period dwelling sites become evidently visible, whereas the other periods disappear from the others. The Iron Age and Middle Ages site are small in number, and they often remain devoid of information; at some sites, a Lapp cairn has been found (Saipio 2015: 14-15). This period becomes visible practically only at the multi-period sites.

The number of Early Metal Age dwelling sites is smaller than during the Neolithic Stone Age. Dividing the places into two different groups yields some inaccurate definitions. The known dwelling sites are slightly more in inland than in the coastal zone, although they have recently found more also there (Ikäheimo 2020).

Making the division of the hunter-gatherer sites between the Bronze Age and Early Metal Age groups needs good and transparent arguments. The main problem is that the same dwelling site can be classified on the basis of both categories. This problem makes the division imprecise and difficult to address with certainty. Although both periods began relatively synchronously, we know that the Early Metal Age has been dated in Finland proceeding to the end of Roman Iron Age, whereas the Bronze Age ends already in 500 calBC (Carpelan 1999: 271-273; Lavento 2018: 122-125). It is possible to see differences in the types of dwelling sites and how the populations have lived. But this difference is still problematic to decipher.

Iron Age dwelling sites are almost invisible in the area so far. In addition, sites from the Middle Ages and the Historical Period have been found in the area. One unusual site so far in Joensuu is Linnankukkula between Kiihtelysvaara and Tuupovaara on the eastern part of the city of Joensuu. It was

found in 2016 and the site has been dated to between 1300 and 1400 AD (Laakso & Tiilikkala 2018).

5 The scientific analysis of ceramics at the dwelling site of Multavieru

Table 3 describes the Neolithic ceramics, divided by type, found in the different municipalities of North Karelia. It is also one means of following the activity and the change of each population in the areas.

The earliest ceramic type, the Säräisniemi 1 Ware, is known only at one site in the area. Although it has been dated in Finnmark in Norway during the period 5400-4500 calBC (Skandfer 2009: 357) or 5630-4100 calBC (Skandfer 2011: 171), it has been dated in Finland to ca 5200-4400 calBC (Pesonen & Leskinen 2009: 302). The Early Comb Ceramics is known in Polvijärvi and Kontiolahti at two sites. These early sites nowadays belonged to practically the same phase, and they date to the period ca 4300-3800 calBC (Nordqvist 2018: 58). They have recently been dated by the AMS to the shorter period, 4030-3830 calBC (Pesonen & Oinonen 2019: 256-261).

The Early Asbestos Ceramics is known in all of North Karelian´s municipalities and, therefore, in of special interest here. The different asbestos minerals were possible close to the sites, which began in ceramics during the early part of the 5th millennium BC (Lavento & Hornytzkyj 1996; Nordqvist 2018: 104-105; Pesonen 1996).

The Typical Comb Ware is known at 24 dwelling sites in the municipalities discussed in this article. During the time the ceramics were in use, the population grew to its largest extent during the Neolithic, although this is not evident on the basis of the available information at the moment (Mökkönen 2014; Tallavaara et al. 2014). The Typical Comb Ware people migrated to the area of contemporary Finland from the Middle- and Upper area of the Volga River. This took place soon after 3900-3800 calBC (Pesonen 2021: 28-36). The use of ceramics changed, when the Late Comb Ware, Kierikki Ware asbestos ceramics and even Rhomb-Pit ceramics came into use at some sites in Polvijärvi and Kontiolahti (Mökkönen & Nordqvist 2018). This indicated the various populations that prepared these ceramic types, which were synchronous for some time. The Rhomb-Pit ceramics is dated as slightly younger than the Late Comb Ware and it is known in Polvijärvi and Joensuu.

During the Middle and Late Neolithic, asbestos ceramics come into use, too. Asbestos ceramic types were first Early Asbestos Ware, then Kierikki Ware and finally Pöljä Ware. The Early Asbestos Ware came into use dur-

Ceramic types	Polvijärvi	Kontiolahti	Joensuu	Liperi	together
Pöljä Ware	2	1	4	13	20
Kierikki Ware	2			7	9
Corded Ware					
Pit-Comb Ware	1		2		3
Late Comb Ware	1	1			2
Typical Comb Ware	5	3	6	10	24
Early Comb Ware	1	1			2
Early Asbestos Ware	3	2	3	2	10
Säräisniemi 1 Ware			1		1
Together	15	8	16	32	71

Table 3. The number of Neolithic sites with separate ceramic types in different municipalities of North Karelia.

Municipalities	Polvijärvi	Kontiolahti	Joensuu	Liperi
Lepnaja Ware	7			
Iron Age ceramics	1			7
Kjelmøy Ware				
Sirnihta Ware	1			1
Luukonsaari Ware	1	3	4	3
Anttila Ware				
Kalmistonmäki Ware				
Kainuu Ware				
Tomitsa Ware	1		1	1
Sarsa Ware	1			

Table 4. Early Metal Age and Iron Age ceramic groups in the four municipalities of North Karelia.

ing the period 4600-3800 calBC (Nordqvist 2018: 58; Pesonen 1996). The Kierikki Ware came into use already ca 3600-2900 calBC (Nordqvist 2018) and Pöljä Ware was in use already during the period 3400-2500 calBC (Nordqvist 2018: 58; Nordqvist & Mökkönen 2017: j-k). Kierikki Ware is known in Polvijärvi and Liperi, but Pöljä Ware has been found in all four municipalities, which indicates when the use of asbestos ceramics reached a peak in ca 3400 calBC in North Karelia. Corded Ware has not been found in North Karelia.

One should note here that the Final Neolithic is a 500 year-long period, during which ceramic wares were not much found in the area during ca 2500-2000 calBC. The end of Pöljä Ware usage has usually been dated already at ca 2500 calBC. However, earlier in this period Jysmä Ware had come into use (Carpelan 1979: 15; Edgren 1964: 25). It must be remembered that we do not know enough about the end of the Final Neolithic. Recently, for example Nordqvist (2018: 107-108) has assumed that the type "does not exist as an individual type" but belongs to Pöljä ceramics.

The Early Metal Age sites imply a smaller number of fragments of ceramics than the Neolithic sites. The period is almost 2500 years shorter than the Neolithic. It begins in North Karelia with Textile ceramics, which has been divided in Finland into four subtypes (Lavento 2001). The Textile ceramics known in the area are mostly the eastern subtype of the main type.

Perhaps the most important dwelling site dating to the Early Metal Age is probably Varaslampi in Joensuu, which was excavated and then destroyed due to the construction of the main road 6. The material at the site includes mostly Textile ceramics but some Luukonsaari ceramics (Lavento 2001: 231).

In the area, Sär 2 ceramics was also in use. Its use began ca 800 calBC at the latest and it continued into the 4th century AD. In the Lake Saimaa region, two subtypes of Sär 2 ceramics were used in particular and two subtypes were both originally found and separated from the dwelling sites in Saimaa. The Luukonsaari type was originally decorated in Kuopio (Meinander 1969), but they were known in all municipalities in North Karelia. The Sirnihta Ware, which was originally separated in the municipality Kesälahti, in North Karelia (Carpelan 1999), is known still only at two dwelling sites in the municipalities of Polvijärvi and Liperi. Ceramics was at least locally in use at the end of the Early Metal Age, i.e. between ca 500 BC and 300 AD.

Of interest here is that the ceramics dating to the Iron Age ceramics and the Middle Ages was found at seven sites, but in differ-

ent municipalities. The Iron Age ceramics are known in Liperi and the Lepnaja ceramics at several sites in Sotkuma in Polvijärvi (Enqvist 2002). The spinning of a potter's wheel began in the Karelian Isthmus in the mid-10th century BC and the using of the technology continued to the beginning of the 20th century (Uino 1997: 396-397).

6 The excavation at the dwelling site Multavieru in Kinahmo in Polvijärvi

Perhaps the best known archaeological site excavated in Polvijävi municipality is Sola in Suovaara, because of its early copper finds (Taavitsainen 1982). In the municipality of Polvijärvi a historical dwelling site was excavated here as well (Pesonen 1997a). However, the largest inhabited dwelling site from the Late Mesolithic to the Middle Ages was that of Multavieru in Kinahmo, in the northern part of the municipality.

Multavieru is the dwelling site area found within a zone of ca 350 m long and not larger than 80 m wide near the River Kiskonjoki, which empties into Lake Höytiäinen. The site was found in 1969 (Luukkainen 1969) by Tuomas Björkman (1969) and it was first investigated only after two years (Keskitalo 1971). The site was again surveyed by Hannu Poutiainen's group in 1993 and 1996 (Poutiainen et al. 1995; 1996). It was further studied at the end of the 1990s (Mikkola 1998; Pesonen 1997b) and finally in 2002 in connection with the survey of the whole of Polvijärvi (Joona & Ojanlatva 2002b).

Two excavations were carried out in Multavieru by the Department of Archaeology, the University of Helsinki in 1996 and 1997. The fieldwork was a teaching excavation and took place in the area where the site was partly destroyed, due to the operations of a gravel pit. Several periods of settlement were observed at the dwelling site. The excavated material implies material from the Late Mesolithic to the Middle Ages; this is visible in the change of stone material and the beginning of ceramic vessels and the change in the ceramic types in use at the site (Lavento 1997; 1999b: 30-32). The largest excavation area in Multavieru was 120 m^2 in 1996 (NM = National Museum number 29635:1-945) with its size being reduced to 113 m^2 in 1997 (NM 30767: 1-1018).

The excavation was led by Assistant Mika Lavento in 1996. The general maps were produced by Assistant FL Anne Wikkula together with Assistant BA Marja Mustakallio-Jussila. MA Derek Fewster was the expert who helped students to draw level- and profile mapping. The maps were drawn by BA Raija Ylönen and documented by MA Esa Mikkola.

Lavento led the excavation in 1997, but Lic. Phil. Petri Halinen was in charge of teaching general mapping and sampling. PhD Tuija Rankama, who was Acting Professor in Ari Siiriäinen's absence, taught drawing the level and profile mapping together with students. Esa Mikkola did the mapping of finds using a Tachymeter and drawing the maps together with three students.

The excavation was carried out in eight various areas, the largest in 1977 being 76 m^2 and the smallest 2 m^2 in size. One of them was the profile of the sandpit. The reason for this was that only part of the dwelling site was possible to excavate, whereas the area implied remains from different periods that were essential to understand. Two areas were excavated already in 1996 and the others in 1997. The four largest excavation areas and the profile are located close to the sandpit and the others to the north of it, the farthest being over 100 m away.

The research methodology at the excavation implied several natural scientific analyses that opened the viewpoint onto the long prehistory of the habitation at Multavieru. The first methods are based on the research of the geology of the environment that connected with the history of Lake Höytiäinen. The site was located near the shore of Lake Höytiäinen, until the water level drained down over 11,5 m in 1859 (Donner 1978, 228). We must remember that, before this, the water level was stable at almost the same level for several thousand years.

Area	flint point	flint artefact	flint flake	quartz artefact	quartz scraper	quart nuclei	quartz flake	stone fragment
1	1	1	8	3	28	23	1048	5
2					1	1	47	
3				1			95	
4			6	1				
5								
6							1	
rim of sandpit			2	1			27	

Table 5. Stone finds found in different excavation areas in Multavieru during 1996-1997 (NM 29635:1-945 and 30767:1-1018).

Area	ceramics rim	ceramics bottom	ceramics pieces	burnt clay	asbestos	burnt bones	iron slag
1	21	5	447	10 928	42	771	1
2			9	30			
3							
4	3		25	4		9	22
5						62	6
6							
rims of sand pits	1		1	514	42	125	1
together	26	5	483	11 476	42	967	30

Table 6. The amount of ceramic, asbestos, burnt bones and iron slag fragments in the excavations of Multavieru during 1996-1997 (NM 29635:1-945 and 30767:1-1018).

In Figure 5, one can see the location of the excavation areas of the field work during 1996-1997. In the excavations, several types of material were found to have been handled and prepared by human beings, but in some cases, these were difficult to date. Interestingly, though the site was in continuous use for a long time, there was only one flint point discovered, as well as one other artefact made from flint material. The 16 flint flakes indicate that very little raw flint material was brought to Multavieru. In the excavation finds, only a small number of other stone artefacts were found.

Table 6 indicates that a piece of burnt clay is the largest group of material finds at the dwelling sites in Multavieru. This was due to the historical iron casting at the site. The largest prehistoric materials at the site are burnt bones. An easily visible stone-find group is quartz and its flakes. This supports the assumption that they were preserved in use during the long period in the area. It is evident that, in spite of the long period of continuous living at the site, material was possible to find in the environment. Local quartz is the most important material for many artefacts.

Although ceramics is various and date to the long period of habitation, the number of pieces is very large. First of all, it was found in excavation area 1, which is the largest excavation area. Only evident ceramic pieces were separated in the excavations, together. Some ceramics were found particularly in areas 2 and 4 and the rim part of the site,

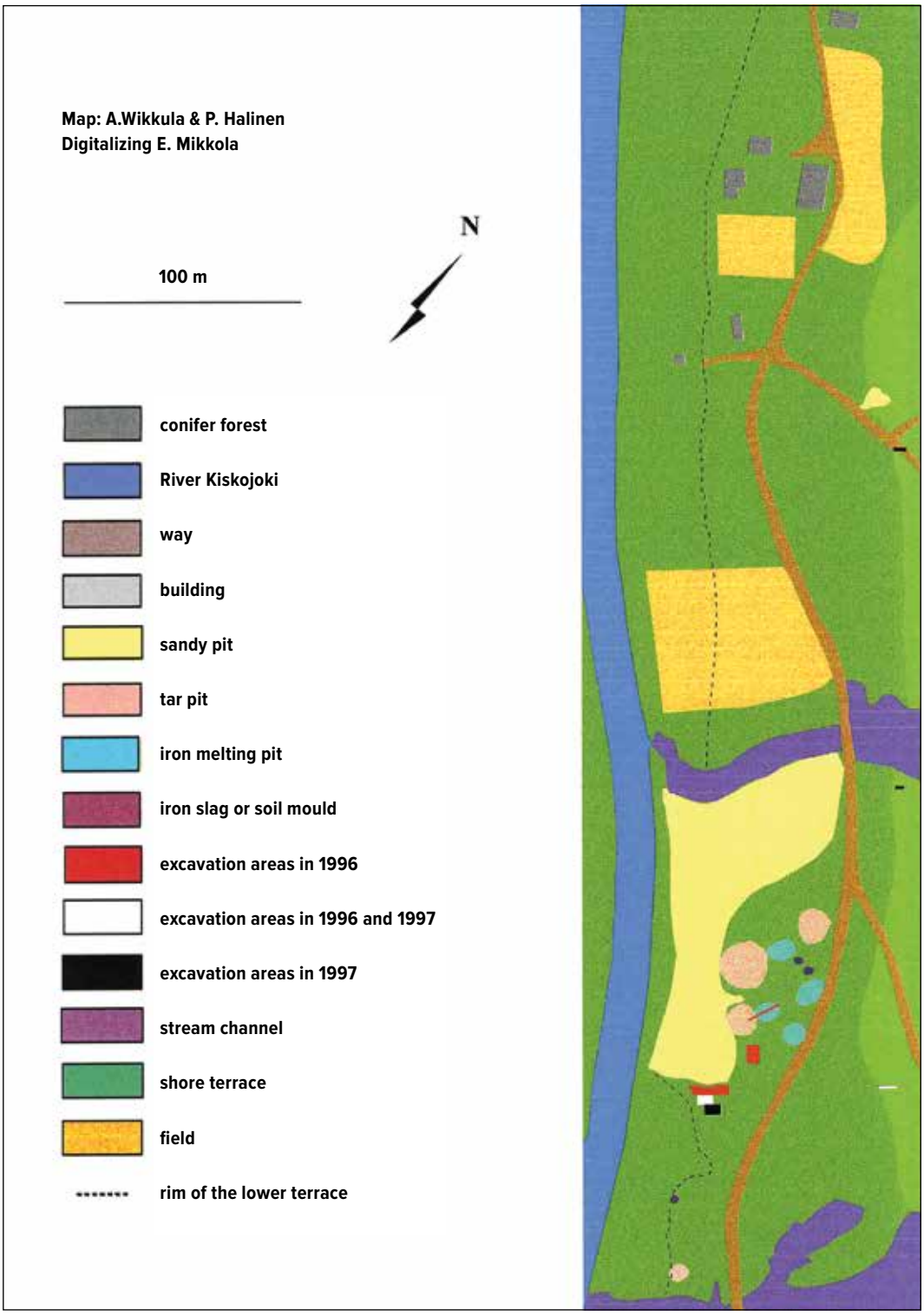

Figure 5. The general map of Multavieru teaching excavation area between 1996-1997.

which was mostly collapsed because of the gravel pit. The situation is the very same with other find types in the site with the ceramics. In other areas, ceramics were not found.

At the dwelling site of Multavieru, the ceramic material is rich and various and indicates how the site was inhabited during the whole Neolithic and Early Metal Age periods. The number of vessels is not large but indicates which ceramic types are visible at the site. The earliest groups at the site are Early, Typical and Late Comb Ware. The use of asbestos began with the Early Asbestos Ware but followed by Kierikki and Pöljä types. The habitation continued at the site during the Early Metal Age, which is easily visible in the Textile ceramics and Luukonsaari type of Sär 2 ceramics (Lavento 2001, 236).

What is particularly unusual is the appearance of Slavic-Karelian ceramics, which date to the Middle Ages. Ceramics came into use in northern Saimaa as early as ca 1000 AD and, interestingly, it continued as long as into the 19th century AD (Enqvist 2006: 412-413). In the area of Polvijärvi municipality, this ceramic has been found at several dwelling sites.

The dwelling site area in Multavieru was researched by doing the analysis of phosphorous and other elements. These analyses were done by student Paula Kouki. The topic of her MA thesis was based on the material at the site (Kouki 1999; 2000). The measurements were done by Atomic Absorption Spectroscopy (AAS) with FAAS and by Inductively coupled plasma mass spectrometry (ICP-MS). FAAS analysis belongs to AAS methods with the purpose of using the flame atomizer, the temperature of which is as high as 2300 degrees C. The method itself is the oldest, but the most commonly used in atomizing types in AAS flames (Broekaert 1998).

It became possible for Kouki (1999) to separate 11 elements, the amount of which was influenced by the activity of human beings. The elemental analysis indicated where and how active habitation had taken place in Multavieru. One problem – although a strength – for the soil analysis was the long settlement period from the Mesolithic to the Historical Period, which has mixed the earlier layers of soil. Although anomalies were possible for dating, the phases of the habitation were difficult to separate.

The dwelling site is located at the esker that developed when ice began to melt after the Dryas Age ca 14 000 BP. Soil at Multavieru is podsol, which has developed over the course of several hundred years and implies the aggregate sandy layers. Its main element after iron and aluminium are P and Ca, but Mg is connected with the high values of P/Ca. Zn and Mn have to accumulate with Ca and they are concentrated on the B horizon in ca 30 cm from the surface (Kouki 2000: 9-13). The analyses indicate the activity of human beings although the results are not self-evident.

Altogether, 289 phosphorous samples were taken altogether – 133 in 1996 and 156 in 1997. The analyses were carried out by the Arrhenius-test in the laboratory with Citron acid soaking (Jussila et al. 1989: 25). The values deverged quite a lot in the area, but the clustering is visible in two areas, in particular. The first concentration is located around the gravel pit, close to the excavations, and the second is located on the northern side of the small ditch and road in the research area, ca 150 m to the north of the excavation areas. The highest phosphorous values in the area were over 1000 mgP/kg and the smallest only 0 mgP/kg (Kouki 2000: 9-13; Lavento 1997: 12-13; 1999a: 17). This indicates active habitation that has lasted a thousand years at the same place and that the human activity has mostly concentrated to upper terrace.

Macrofossil analysis was done by BA Tanja Tenhunen with the help of FT Terttu Lempiäinen. Samples were taken from areas 1 and 4. The sites dating to the more recent part of the habitation, from Sär 2 ceramics and later, imply mostly rye (*Secele Cereale* and *Cereale*) which indicate grain crops. Fat hen (*Cheopodium Album*) and sorrel

Sample	area	year	Hel-number	^{14}C dating	calibrating
2		1996	3909	380±80	1449(0.57)1530 1560(0.43)1630
12		1996	3910	1480±80	450(0.14)490 510(0.86)650
13		1996	3911	5550±120	4590(003)4560 BC 4540(0.86)4320 BC 4290(011)4240 BC
10	rim	1997	4147	450±60	1400(1.0)1495
9	3	1997	4148	1950±80	90(1.0)180
4	3	1997	4164	1210±80	610(1.0)890

Table 7. Datings at the dwelling site of Multavieru in 1996 and 1997 calibrated by OxCal 4.1.

(*Rumex Acetosa*) in another sample indicated the collections from the Stone Age (Tenhunen 1988). In the 1996 analyses, the excavation mentioned that macrofossils are the most visible ones observed, but very visible are the raspberry remains (*Rubus Idaeus*), "the grape of the bear" (*Arctostaphylus Uva-ursa*), and common knotgrass (*Polygonum Aviculare*) (Tenhunen 1997). They are archaeophytes that have spread in the areas due to human impact.

FM Pirkko Ukkonen did the osteological analysis of the bone material. In general, the majority of the find material of the excavation was burnt bone and it was excavated in area 1. Bone remains were small but still possible to analyse. According to Ukkonen´s analysis, most of the bone material was fish and identified as *Teleostei*; the only exception she observed was Eurasian beaver (Lavento 1999a: 18). This is easy to understand because the place was located by the ancient shoreline and the excavations took place particularly there. The analysis is not done in detail from all the material of the excavations.

In 1996, 13 separate ^{14}C samples were taken and, in 1997, a total of 11 were taken. Together, six of these samples were analysed at the dating laboratory of Luomus, the Finnish Museum of Natural History, at the University of Helsinki in 1997 and 1999 (Table 7). Further, four TL samples were taken from the hearths in excavation area 3. So far, these samples have not yet been analysed.

Dating samples have come mainly from the different contexts of habitation, which were not easy to separate during the excavation, however. Two of these samples are quite recent and indicate that the dwelling site was used in the beginning of our era. The site was still inhabited during the early and middle Iron Age, which is unusual in North Karelia. This is from the Luukonsaari as well as Sirnihta ceramics found at 2/3 layers in the excavation areas and Slavo-Karelian ceramics in layers 1/2, in particular. It is probable that the most recent dates in Multavieru are probably between the 14th and 17th centuries AD (Lavento 1999b, 32-34) – though use of this site in Karelia has continued into the 19th century (Enqvist 2006, 417).

Multavieru is a versatile dwelling site where also a Historical Period is well visible. The first example of this period is located in excavation area 1 and on the SW side of the iron smelting places, which date between the 17th and the 18th centuries AD. Other remains of this period include tar burning that is visible in the area, as the tar burning pit was used in the 18th century AD. Both activities are well visible on the surface at the site (Lavento 1997). These activities were both used in the dwelling-site area because soil is mostly gravel and relatively easy to dig into. The wood that was used in both cases was pine.

Iron smelting was the method that was both practical and handy in eastern Finland during the Historical Period. Four historical smelting furnaces were located at the site (Fig. 5). One trench was opened across the smelting furnace in 1996. It indicates how the furnace was made and the similar type of structures it is possible to find in eastern Finland. They are known in the municipality of Ilomantsi in East Karelia, and they date between the 16th and 19th centuries AD (Mikkonen 2007) as well as to the same period as the smelting furnace in Multavieru. Iron ore was easy to hand quarry from Lake Höytiäinen and alongside the Kiskonjoki River and its tributaries. This gives an impression of how important the role of local iron smelting played for many historical local peasants around Lake Höytiäinen.

Three large tar-burning pits are visible inside the dwelling site, but probably their number was larger before digging the gravel pits. They are located outside the dwelling-site areas separated during the excavation project, too. This is because the same kind of area continues in the southern and northern part of it, and it is possible for that. The areas were utilized for both purposes and it means that the area was not needed for habitation. Numerous remains of tar burning were found, but the pits were not excavated during the fieldwork. Moreover, although the research of the historical tar trade has concentrated on Ostrobothnia in Finland (Turpeinen 2010), it is evident that large amounts of processing took place in the Saimaa region as well. In this regard, the archaeological research on tar is still awaiting work.

People who lived on the shores of Lake Höytiäinen began to seek suitable places for living that were well suited for agriculture; this took place at the beginning of the Early Metal Age, at the latest, but perhaps even earlier (Grönlund 1995; Grönlund et al. 1993; 1995). Multavieru was such a place; though the habitation continued there during the greater part of the Iron Age.

It has already been mentioned that the late Middle Ages and, in particular, the Historical Period starts becoming more visible at the dwelling sites also in North Karelia. One example of this was Kylälampi 2, which was excavated by Lic. Phil. Petro Pesonen and PhD Tuija Rankama in 1997. It was located on the western side of Multavieru, in Venepohja near Lake Viinijärvi (Pesonen 1997a). The habitation at the site began in the 1660s AD and it has continued there to the present. The research at the site was carried out by archaeological methods and natural scientific methods, such as macrofossil analysis. The excavation and the results achieved were interesting to the extent that they were new. The results were partly synchronous with the use of the dwelling site of Multavieru and its excavation was carried out in 1997. Further, the material at Kylälampi 2 implied the Slavo-Karelian ceramics, which was not well known.

7 Conclusions

The find material and sites constitute the totality of habitation from the late Mesolithic to the Historical Period in North Karelia. Almost all periods imply the archaeological remains of habitation. The area has been archaeologically researched by way of normal surveys; the extent of excavation work has been relatively restricted because the areas have not been actively built-up. Excavations have taken place mainly in cities and along some road alignments.

Most dwellings sites in North Karelia are known as a result of surveys. Few sites have been studied and only a small part of them have been excavated. Almost all ceramic types that can be assumed are known in the area. The information is visible in more detail in the chapter "Dwelling sites in the area of four municipalities". An unusually interesting ceramic group is that of the Slavic-Karelian Lepnaja group, which came into use in some areas during the Middle Ages.

At the end of the Stone Age, the habitation in these areas decreased considerably, but increased again during the Early Metal Age. This is visible at some dwelling sites where people lived during the late part of the

Early Metal Age. What the real situation was during the Iron Age, when iron came into use, is not known to us on the basis of contemporary archaeological material.

The population has been very small in general and the number of each group of people may have numbered only in some tens of people. The estimate for the largest population size possible, on the basis of the archaeological material, dates to the Typical Comb Ware II. This estimate is reflected in the numbers of dwelling sites and on the number of archaeological materials. The population receded at the end of the Final Neolithic but began to grow again from the beginning of the Early Metal Age. Habitation increased closer to our own era, but afterwards the early phase of the Iron Age was no longer so easily visible. This may refer to the receding habitation in the area. The settlement began again during the Viking Age and particularly toward the coming of the Middle Ages.

At the dwelling site of Multavieru in Polvijärvi municipality, a large part of the area was excavated and investigated by other methods. One must still remember that a considerable part of the dwelling site was destroyed as a result of digging a rather sizable gravel pit in the area, before the site was located. On the shores of Lake Höytiäinen, some areas were long in use at same places, because water or some raw materials were available at these places.

On the other hand, shore displacement in Lake Saimaa has affected the environment and, furthermore, it is changing all the time. The excavation material indicated the changes of the culture at the site, but it is essential that the habitation continues during the long term without gradually receding. Finally, the use of the Multavieru dwelling site was preserved during the Iron Age and the Middle Ages, when the area was inhabited by the farmers – who came to the northern Karelia area from the Karelian Isthmus, Häme and Savo. Thereafter, Multavieru was inhabited during the Middle- Ages and this habitation continued there into the Historical Age. The site was still used for other purposes, such as for making iron and finally tar burning during the 18th century AD.

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