LANDSCAPES OF THE PAST AND FUTURE

Current Finnish Research in Landscape Archaeology

EDITED BY PAULA KOUKI & TUIJA KIRKINEN

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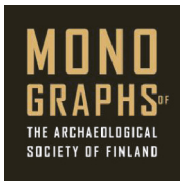

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Archaeological Sites and Land Use Planning in Finland

ABSTRACT: The Finnish Antiquities Act is a very strong law, mandating the protection of all ancient sites immediately after they have been found. However, it is very inefficient in preserving the surrounding environment or landscape of the ancient sites. All land use in Finland is governed by plans. The Local Master plans are the most important for defining the allowed land use in the vicinity of ancient sites. This paper explores how ancient sites and their environment have been treated in these plans. The analysis showed that a significant portion of the ancient sites covered by the Local Master plans are situated in environments that can be characterised as modern. In addition, the places that are situated in economically less important and less modern environments are those that will be best preserved in the future.

KEYWORDS: Ancient remains, cultural landscape, cultural environment, land use planning, local master plans.

INTRODUCTION

Ancient monuments are the oldest historical layers of the landscape. It is not only the visible structures that are part of the landscape, but also those structures which are hidden under soil or water. A very important question is: how can we preserve those ancient features of the landscapes, and how do we manage to pass them on as an inheritance to our descendants? There are archaeological sites which cover the last 10,000 years in Finnish soil. The oldest remains are dated to the end of the last Ice Age, and the youngest are close to the present day. In Finland, archaeological sites are protected by the Antiquities Act of 1963. The Act extends automatic protection to all ancient monuments and sites. According to the law, they must be taken in to account in land use planning (Schauman-Lönnqvist 2009: 125–130; Maaranen 2004: 46).

The Finnish Antiquities Act is a very strong law. It automatically protects, without separate measures required, all antiquities which are within the definition of the act, and prohibits action that might endanger the preservation of these antiquities. It also takes into account the requirements the Valletta Treaty (entered into force in Finland on 25 May 1995). However, the Finnish Antiquities Act is already over 50 years old, and in many ways it is obsolete. In 2003 the Archaeological Society of Finland organised a seminar about the Act. In some presentations it was stressed that the law is very strong and provides good tools for the protection of antiquities (Purhonen 2005: 12–16), however the flaws of the Antiquities Act were also brought into question (Schauman-Lönnqvist 2009: 17–21; Lähdesmäki 2005: 22–266; Lavento 2005: 26–35).

The matter came up again in 2013, 50 years after the law came into force. It was pointed out

that the law is problematic when applied to land use planning. If we accept the idea of the cultural environment as a unified whole, we cannot deal with ancient monuments as separate dots and layers, as currently other different elements of the cultural environment are protected by different laws (e.g. Enqvist 2013: 9; cf. Kumpulainen & Silen 2016). One of the weakest points of the Act has turned out to be the fact that the definitions are inadequately defined (Halinen 2013: 20–25; Enqvist 2016: 133–144). The Antiquities Act also has shortcomings in its relation to constitutional property rights, the Land Use and Building Act (132/1999, amendment 222/2003 included), and the Environmental Protection Act (527/2014). Due to this, the National Board of Antiquities has set a working group to consider what the Act's strengths and weaknesses are, and how it should be developed (Haapala 2012: 16–17; Maaranen 2016: 18).

In addition, because the development of archaeological research has increased at a rapid pace since 1963, our understanding of the ancient sites has changed. The Antiquities Act considers ancient sites simply as structures and layers, but when it comes to the surrounding landscape of the site the law does not provide any tools for preserving it (Schauman-Lönnqvist 2009: 128). This is despite the fact that the landscape is often a crucial part of the ancient site, and the monument cannot be fully understood without its original context, as the question of why the site was situated where it was cannot be answered without it (Barford 2000: 85–91). Therefore, it is important to ensure that the archaeological heritage in the landscape is dealt with properly, through sustainable development and land use planning (Fairclough 2002: 25–37).

Landscape can be viewed horizontally, as a contemporary document that illustrates the past, or it can be viewed vertically, as a historical document that shows us how we arrived at the present. Landscape structure can be used to explain the present landscape, but it could also be used as an archive for reconstructing the past landscape (Howard 2011: 16). Landscapes are continuing to change, because there are many simultaneously occurring natural and cultural processes which affect them (Antrop 2008: 59). Freezing them at some point in time is not possible, and therefore the change should be managed so that their characteristic attributes do not disappear, even if the details do. Landscapes are one of the components that create our identity (Dejeant-Pons 2002: 13–24; Howard 2011). Therefore, the loss of landscape diversity is experienced as threatening. The meaning of the landscape as one of the most important pieces of our identity is commonly acknowledged (Fairclough 2002: 25–37).

The fact that landscapes are becoming uniform all over the Europe is the result of similar and mutual social and political processes in different countries. Because of this trend, it is generally accepted that the unique aspects of the European landscape need protection. In order to protect the European landscape, the Council of Europe has developed the European Landscape Convention, which aims at promoting European landscape protection, management, and planning. The Convention has also established the principle that landscape is a common cultural resource, and that the maintenance of landscape diversity is an important goal. (Fairclough 2002: 25–37.) The signatory states are committed to implement the Convention both at the national and international levels, and also at local and regional levels, by establishing and implementing policies aimed at good care of landscape. They are expected to set out the tasks and measures for which each level is responsible, and lay down the rules of such measures where town planning and regional planning instruments are concerned (Antrop 2008: 57–58; Dejeant-Pons 2002: 13–24). In Finland, the treaty came into force in 2006, and at the time that this article was written, in 2015, there were 38 signature countries.

In Finland, land use is steered by the Land Use and Building Act, passed in 2000 (MRL 132/1999). It constitutes the legal procedures in land use planning processes. According to this Act, the cultural environment should be taken into account in planning and construction, and other activities changing the environment should be done in a manner that does not lead to the decrease of the value of the cultural environment (Ekroos & Majanmaa 2005: 15, 56, 110–110).

According to the Land Use and Building Act, land use in Finland is directed by land use plans.

If the planning bodies have enough good will to protect the cultural heritage and environment, the Land Use and Building Act provides the tools to do so. If there is good will, it would be reasonable to assume that measures that cause considerable impacts on the environments of ancient sites should also be avoided. In the end, it depends on the politics and the economic potential of the area, which goals and standpoints are emphasised, and how well the protection of the cultural landscape is carried out in the land use planning (Mäntysalo 2000: 117–118).

It is important to recognise how well the principles of the Convention have been brought into practical use. In this article, the focus is on the type of land use the planners have directed to the areas where ancient features and sites are located. This study tries to find out the changes that are happening now, and suggest what they indicate for the future. The research area is the most southerly part of Finland, the region of western Uusimaa. It covers eight municipalities/towns, each of them with their own land use strategy. The material for the analysis consists of the local master plans for land use that were written between the years 2000–2014 in western Uusimaa, and the archaeological sites which are covered by those plans. Only underwater sites were omitted.

The local master plans were chosen for this analysis because of the strategic decisions on land use made in them. Only those plans which were started after the present Land Use and Building Act came into force, and which have been approved before the end of the year 2014, have been analysed. However, it is important to keep in mind that a plan is just an estimation of the future state of the place where it is to be implemented (Mäntysalo 2000: 72). The local master plans are regional development strategies drawn up by the regional councils (Ministry of the Environment 2005). It is always possible that the plans are cancelled, or will never be implemented, for example due to changes in economic or demographic circumstances.

The database for archaeological remains is the national register of archaeological sites, which is kept by the Finnish National Board of Antiquities. The register is not always completely up to date, but it is used both by the land use planners and the archaeological authorities during the planning process.

LAND USE PLANNING IN FINLAND

The Finnish land use planning system is organised hierarchically, and divided into four administrative levels. The higher planning levels steer the lower levels. At the highest level, there are the national land use guidelines, which have been approved by the Council of State. The guidelines concern, for example, issues which have more than just regional bearing on regional structure, or those which have a significant impact on national cultural or natural heritage (Ekroos & Majanmaa 2005: 101). The main guidelines concerning cultural heritage are listed in the inventory of nationally important cultural historical environments (RKY 2009). In those areas, planning and developing must be done in a manner preserving their cultural value.

The regional land use plans are guided by the national land use guidelines (Fig. 1). Each of the 18 regions of mainland Finland is covered by its own regional land use plan. They are long-term development strategies that are presented on maps. The regional land use plans define a general framework for the more detailed local plans, which are drawn up by the municipalities, and they transfer national and regional land use goals to the local level. The nationally important cultural historical environments are shown on these regional land use plans, along with other constraints. The regional plans must be taken into account when planning and preparing local plans (Ekroos & Majanmaa 2005: 121–130).

Local master plans are the general land use plans of municipalities. They outline general development in municipalities and give the guidelines for local detailed plans. A local detailed plan is the lowest plan level, which designates areas for different purposes and directs construction and other land uses. These plans define the number of buildings permitted on a property and the placement of the buildings (Ekroos & Majanmaa 2005: 180).

At all the plan levels, ancient sites and monuments must be addressed on the scale that the plan

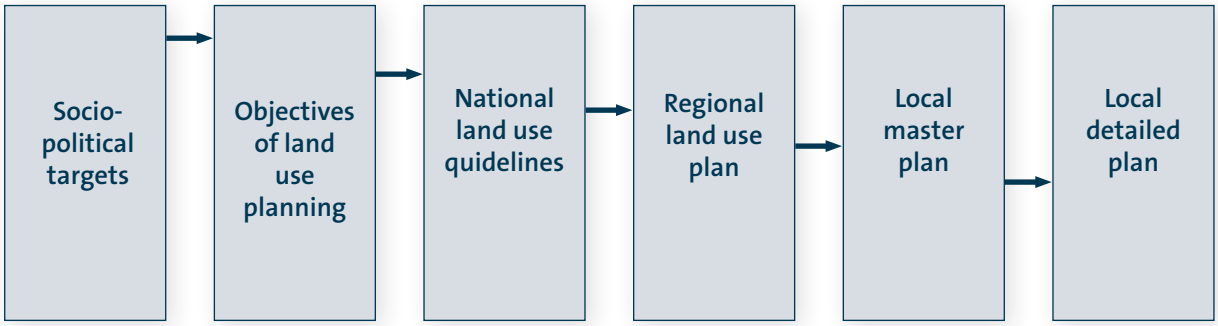

Figure 1. Hierarchy of the Finnish land use planning system

requires. For regional plans, they are often listed only in an appendix, but on the more precise plans they are shown as accurately as the scale of the map allows. Even though the Antiquities Act does not protect the landscape of the ancient sites, the landscapes can be protected by the choices made in the land use planning. (Schauman-Lönnqvist 2009: 129.) The surroundings of the archaeological sites are best protected if the land use plan confirms the cultural heritage values of the landscape, for example when the area is designated for recreation, farming or forestry.

WESTERN UUSIMAA AND ITS ARCHAEOLOGY

Western Uusimaa is located on the coast of the Baltic Sea in Southern Finland. It is not an administrative region, but the western part of the Uusimaa Region. However, it has its own distinctive identity and history. It is characterised by its proximity to the Capital City Region. In particular, the eastern parts of the region are very closely connected to the Helsinki region, and the land use planning in these eastern municipalities (Lohja, Kirkkonummi, Vihti, Siuntio) is strictly bound to the decisions made in Helsinki.

Western Uusimaa is mostly an agricultural area, with the exception of the most eastern parts. The landscape is primarily rural in appearance. Even though the area is located by the Baltic Sea, there is only one economically significant harbour, which is in the town of Hanko. In addition, there are some smaller scale ports, such as of the Inkoo harbour and the port of Kantvik in Kirkkonummi, but their influence on the landscape is small.

The topography of western Uusimaa is interesting. It is hilly, being characterised by the First and Second Salpausselkä formations, which are large moraine ridges formed during the last glacial, running across Southern Finland in a southwest-northeast direction. The Salpausselkä formations have also determined the location of settlement and communication routes throughout history. The road to the Häme region along the Salpausselkä ridge existed already in the Middle Ages (1150–1500 AD), and the topography has determined the direction of other roads as well (Kuusisto & Rinkinen 2010: 22–34; Kuusisto & Rinkinen 2012: 12–13).

The oldest dwelling sites in western Uusimaa are dated to the Mesolithic period (8850–5200 BC). There are no older traces of human activity in Finland, because of the scouring effects of the last Ice Age and its glacier. It is obvious that the region was settled soon after the glacial ice melted and the land uplift made the area habitable (Halinen 2015: 19–28). Although originally located in a coastal setting, the oldest known settlement remains are nowadays situated at the height of 45–50 m a.s.l. and at least ten kilometres away from the present coastline, due to land uplift.

The Bronze Age (1500–500 BC) in Finland is best known for the burial cairns in the coastal area. In the western Uusimaa region they were also usually situated along the coast, and in the archipelago of the ancient coast (Tuovinen 2002: 202–204). Even today, most of them are located in the coastal zones of the Inkoo, Kirkkonummi, Raasepori and Siun-

tio municipalities. During the Iron Age (500 BC–1150 AD), the inhabited area expanded south to the Hanko peninsula and the archipelago, and north to the Lohja lake district. Even so, the most densely populated areas were still located in the former municipalities of Karjaa and Tenhola (nowadays parts of Raasepori) (Jansson 2011: 147).

The Middle Ages in the coastal areas of Uusimaa are characterised by colonisation from the central parts of Sweden (Uppland and Södermanland), and from the archipelago of Finland proper. The administrative units began to be established in the first part of the 14th century. The Swedish crown strengthened its position in the area through the 14th century, when the castle of Raseborg was built (Haggrén 2011: 154). In the late Middle Ages, the populated area expanded further, and in the 17th century the first mines were founded, especially in the Karjaa region. The mining industry also created secondary means of livelihood, such as charcoal production.

Military sites can also be seen along the whole coastal area. Different types of defensive structures have been built through the ages on the coast, but

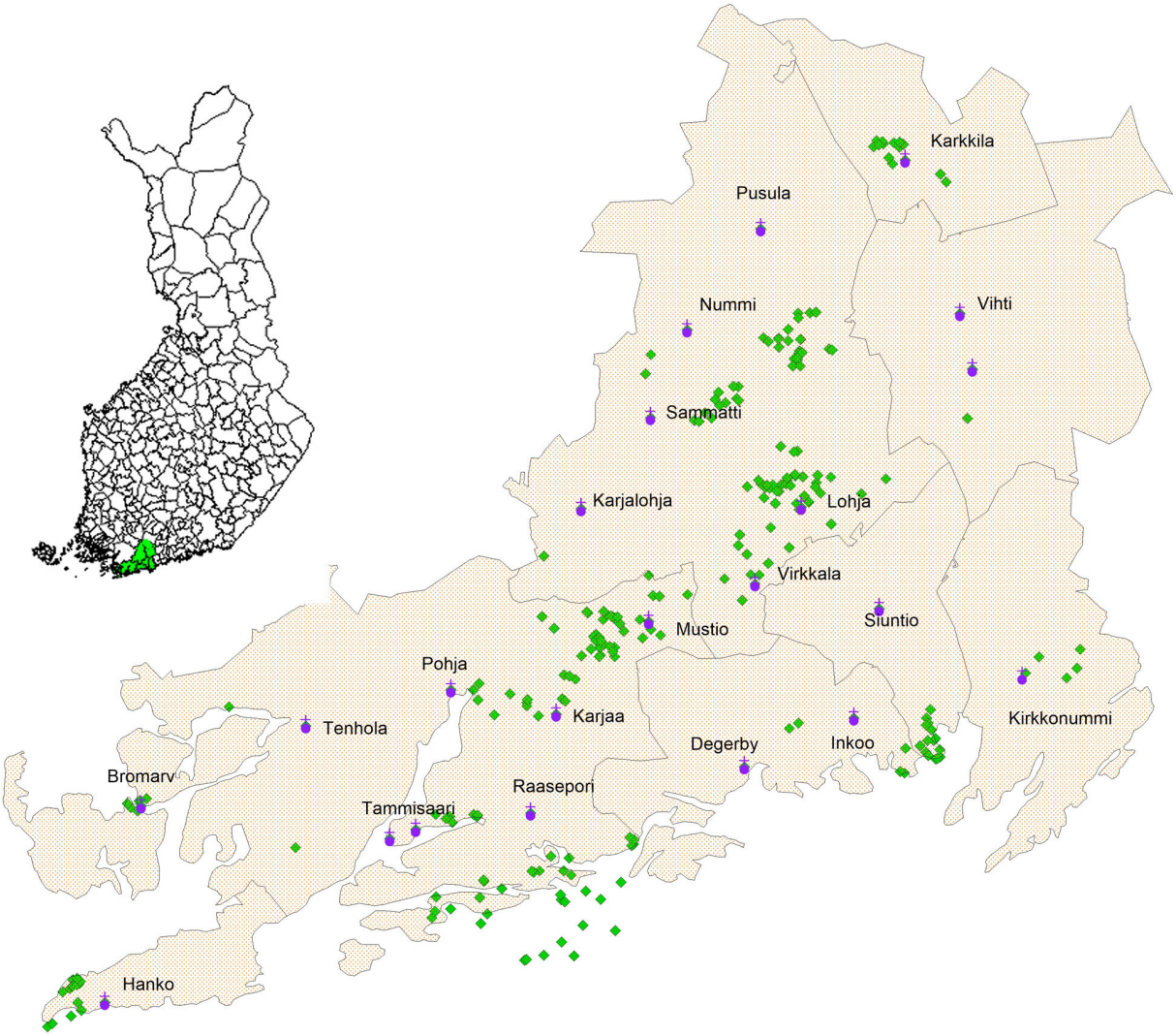

Figure 2. On the left, western Uusimaa on the map of Finland; and on the right, the ancient sites of the research area covered by the local master plans of land use (green dots = ancient sites covered by the local master plans for the study area; violet dots = medieval churches in the area. Dots outside the mainland are situated on islands).

Figure 3. Typical landscape of western Uusimaa at Raasepori: fields, forests and unploughed stony islands in the fields. The Hjälmäng Stone Age settlement site is in the background. Photo: Teija Tiitinen.

the earliest remaining structures date to the beginning of the 17th century. The most recent military structures listed as ancient monuments date from World War II. The most important of these is the Harparskog defensive line in the Hanko peninsula.

THE STARTING POINTS OF THE ANALYSIS

This study examines the decisions that have been made in the land use plans that steer the land use in the surroundings of the selected archaeological sites. It is also important to find out which kind of effect they will have on the environments of the sites, and how they are going to change the landscapes of these areas.

The four questions of the analysis are:

1. In what kind of environment are the archaeological sites now situated?
2. What kind of activities have been planned in the land use plans for the areas where the archaeological sites are located?
3. How close to the archaeological sites are the structures of the modern built environment located in the plans?
4. How significant are the changes that the decisions on land use plans cause in the landscapes of the archaeological sites?

The aim of the analysis is to find out how land use planners have respected the essence and history of the ancient monuments. The strategic decisions, which are visualised in the plans, reveal how our society appreciates its cultural heritage and history. Even though the plans are made by authorities and the decisions are based on the regulations, the plans must be approved by a municipal council. The councils are implementing the general values and principles of society. However, the authenticity of the environment of the remains was not evaluated, because the focus in this article is on the

present day and on the decisions regarding land use policies.

In the analysis, the evaluation of the forthcoming changes in environment and landscape has been made in a flexible way in regard to ancient sites from different periods. For example, if a Stone Age (covering both Mesolithic and Neolithic, c. 8850-1500 BC) settlement is zoned so that it will be surrounded by modern buildings, it has been evaluated as a negative development in this article. Modern buildings in the vicinity of a Stone Age site make it difficult to understand why the ancient site was once established just in that particular area. On the other hand, if a medieval village is still located at the same site as an existing, historical village, and the land use plan is directing that some new buildings be constructed there, it has been evaluated just as the natural continuation of land use for the area, since it does not prevent understanding the nature of the ancient site. Likewise, if the Stone Age settlement was already in an urban area before the new land use plan was made, new buildings no longer make the landscape less understandable, as it has already lost its original character. Because there is no established model for objectively evaluating landscape change in the surroundings of ancient monuments, the results of this evaluation can be considered as subjective.

ARCHAEOLOGICAL SITES IN THE LOCAL MASTER PLANS OF WESTERN UUSIMAA

According to the national register of the archaeological sites, there are 1420 ancient sites (on dry land) in western Uusimaa that are protected by the Antiquities Act. The other cultural heritage sites – like the military structures from World War II – have been registered in this database only during the last ten years. Before this, most of these structures were still the property of the Finnish Defence Force, and were not seen as cultural heritage sites. There were 192 cultural heritage sites in the register at the time of the analysis (in Spring 2014). These sites have been added to land use plans only from the early 2010s. Thus, only a few archaeological cultural heritage sites have been added to the local master plans discussed in this article, and therefore they have been omitted from the analysis. At the moment, the national register also lists 762 uncertain archaeological sites and 399 stray finds of artefacts in the western Uusimaa region, but because they are not marked on the land use plans, they have been left out of this analysis. However, if a site was registered as an ancient monument at the time when the land use plan was drawn, but its heritage status changed later, it is included in this study. This contradiction between

	National register of archaeological sites	Local master plans	Percent of total
Date			
Prehistoric	18	3	**16.6**
Stone Age	294	53	**17.0**
Early Metal Age	15	3	**20.0**
Bronze Age	232	19	**8.6**
Iron Age	219	38	**17.3**
Middle Ages	52	13	**7.6**
Historic	456	73	**13.3**
Multiperiod	15	5	**33.3**
Modern	20	1	**5.0**
Undated	99	28	**17.7**
Total	**1420**	**236**	**16.6**

Table 1. Ancient remains covered by the local master plans in western Uusimaa region.

	Environment								
Date	Village	Built area	Field in built area	Field	Field islet	Forest	Island	Other	Total
Prehistoric		1	1			1			3
Stone Age	2	1	1	40	3	2	2	2	53
Early Metal Age					1	2			3
Bronze Age	2		3		1	13	1		20
Iron Age	3	2	3	3	7	18	2		38
Middle Ages	5	1	1		2	1		4	14
Historic	15	2	11	3	8	22	5	7	73
Multiperiodic			1	2		2			5
Undated		2			1	18	5		26
Total	27	8	21	48	23	78	15	13	235

Table 2. The current environment of the ancient remains.

the national register and the plans can be explained by the fact that the database is a living and changing entity, but the plan is a permanent document in the form agreed upon at the time when the plan was approved.

There are 230 analysed archaeological sites covered by the local master plans. Since six of the sites are located in areas which have already been zoned twice, they have been presented in tables as two different cases. Therefore, the sum of the sites which are presented in the tables is 236. Fifteen of the remains are not marked on the plans at all. This can be due to their discovery only after the plan was approved, but it may also have happened by mistake. Six of the ancient sites are located in areas which have been marked as needing more precise planning. They are so-called "white areas" on the map, where a local master plan process will take place in the near future. Three of the sites are represented by a number of plan symbols. This is because the ancient site is so large that it extends into several land reservation areas. Depending on what aspect is being evaluated, the number of the sites varies in the different tables. For example, the sites which are located in the "white areas", are included only in those tables that give background information about the research area.

The local master plan areas contain ancient sites from different archaeological periods in the approximately same proportion as in the whole western Uusimaa region (Table 1). Sites dated to the Stone Age, the Iron Age, and the Middle Ages are the most common in the local master plan areas, both in absolute and relative terms. The number of Stone Age sites is perhaps surprisingly large, possibly because the locations of the Stone Age sites are unrelated to modern activities.

THE MODERN ENVIRONMENT AND LANDSCAPE OF THE ARCHAEOLOGICAL SITES IN THE LOCAL MASTER PLAN AREAS

In order to be able to evaluate the impending changes in the environment of the remains, their present situation should be examined first. The ancient sites in this analysis were divided into seven categories based on their present environment. In addition, the category "other environment" was formed, because some environments exist in the research material only once, e.g., a mansion, ironworks, or a tollbooth. In this category there are thirteen sites. (Table 2.)

Forest is the most common environmental context for the ancient sites in the local master plan areas. As much as 33 percent of the sites are in forested areas. Most of them date to the historical period (1200-1900 AD) and are related to forest economic activities, such as charcoal kilns or tar pits. They may also be related to grazing, such as stone walls or other stone structures. However, the settlement sites from historical times are often close to the modern villages, or located in the same spot of land. In addition, the Bronze Age sites – mostly cairns – are usually situated in wooded areas. Many of them are still located in the archipelago or very close to the sea shore. In other words, they still are in landscape settings which are very similar to those they were built in.

The second largest number of ancient sites are situated in fields, and on non-ploughed stony islets in the fields. Stone Age dwelling sites are the dominant type fond in the fields. However, the situation for the field islets is slightly different, because they contain ancient sites from all periods, although Iron Age sites and sites from the historic period dominate the group of ancient monuments found in field islets.

No less than 76 percent of the Stone Age sites are situated in fields, even though Stone Age dwelling sites are most commonly thought of as being located in forests. The image of the forested Stone Age is emphasised in popular archaeology (as shown in Fig. s in Kotivuori 2003: 9; Muurijärvi 1992: 23; Halinen 2015: 75). However, it must be remembered that this analysis includes only those remains that are marked on the local master plans, which are usually made for the areas which have active land use nowadays. If the research material would have consisted of all Stone Age settlements from the western Uusimaa region, the result might have been different.

There are only eight sites in urban areas, and they represent almost all archaeological periods in this region, although most of them are not dated later than the Iron Age. The occurrence of sites in urban areas seems to be a random phenomenon, since these sites do not have any common denominator. Most of the 22 sites in suburban woodland date from the historic times (c. 1500–1800 AD). Most of them are also related to settlements such as villages, mansions, and crofts, and three cases are related to production sites.

MODERN ELEMENTS IN THE PRESENT ENVIRONMENT AND LANDSCAPE OF THE ARCHAEOLOGICAL SITES

The current condition of the landscape of the ancient sites covered by local master plans was also evaluated, by observing the existence of modern elements in the vicinity of the sites and their distance from the built environment. Based on this analysis, the modern elements are most often situated in the landscapes of Stone Age sites. This is understandable, if we remember that a great deal of them are situated in the fields, which are often close to populated areas. The Bronze Age remains seem to have only few modern elements nearby. For the surroundings of the Iron Age or more recent sites, the proportion of modern elements is quite high. Modern buildings characterise the surroundings of 25 percent of these sites. (Table 3.)

Modern elements are even more prominent when they are studied as a part of the visual landscape. The proportion of modern elements (like modern buildings) in the landscapes of Stone Age sites is over 50 percent. It seems that modern elements have a very important role in the landscapes of all ancient sites. This is slightly surprising, be-

	Modern elements in environment			Modern elements in landscape			Total
	No	Yes	Yes %	No	Yes	Yes %	
Prehistoric	1	2	66.6	1	2	66.6	3
Stone Age	33	20	38.5	23	30	56.6	53
Early Metal Age	3	0	0	3	0	0	3
Bronze Age	18	2	10	15	5	25	20
Iron Age	28	10	26.3	28	10	26.3	38
Middle Ages	11	3	23.1	9	5	38.5	14
Historic	52	21	29.1	45	28	38.9	73
Multiperiod	2	3	60	2	3	60	5
Undated	24	2	7.7	20	6	23	26
Total	**172**	**63**	**26.8**	**146**	**89**	**38.7**	**235**
Red shaded cells indicate the age categories in which modern elements comprise at least 25% of the cases							

Table 3. The current landscape and environment of ancient remains from different ages.

	Modern elements in environment			Modern elements in landscape			Total
	No	Yes	Yes %	No	Yes	Yes %	
Settlement areas	70	35	33.3	48	57	54.2	105
Graves	12	6	33.3	8	10	55.5	18
Churches	1		0.0	1		0.0	1
Stone structures	62	17	21.5	59	20	25.3	79
Roads	1		0.0	1		0.0	1
Cult places	1			1		0.0	1
Earth structures	1	1	50.0	1	1	50.0	1
Groups of remains	8		0.0	6	2	25.0	8
War history sites	3	3	50.0	3	3	50.0	6
Supplies of raw material	5		0.0	5		0.0	5
Memorial art	2		0.0	2		0.0	2
Industrial sites	1		0.0	1		0.0	1
Production areas	6	1	12.2	5	2	28.6	7
Total	173	63		141	95		235
Red shaded cells indicate the age categories in which modern elements comprise at least 25% of the cases							

Table 4. The current landscape and environment of ancient remains of different types.

cause only in eight cases were the sites situated in an urban environment. In other words, this means that nowadays different urban elements are also common in other types of environments.

If we look at the different types of ancient monuments, the modern elements are most visible in the landscapes of settlement sites and graves. The location of Stone Age settlements in the fields makes them vulnerable to changes in the landscape. Likewise, the settlement sites from historic times, which are very frequent within the study material, are quite often situated close to modern activity areas. The majority of them are in environments where modern building is strongly affecting the landscape. When it comes to the landscapes of graves, it is difficult to explain why the relative proportion of modern elements is so high. With the exception of one Bronze Age grave and two historical graveyards in Hanko town, the grave sites are all dated to the Iron Age. Because the modern construction work only started recently in their vicinity, this relationship cannot be explained by the historical context, unlike in the case of medieval villages, where the vicinity of modern villages can be explained by the historical continuity. The fact that the Iron Age graves are situated in the vicinity of the modern built environment seems to be a coincidence without an explanation. (Table 4.)

THE DIFFERENT ACTIVITIES PLANNED FOR THE ANCIENT SITE AREAS IN THE LOCAL MASTER PLANS

The provisions and zoning symbols used in the local master plans in Finland were defined by the Environmental Ministry, with a few exceptions. Zoning regulates the types of activities that can take place in a certain area. It also orders the ways that buildings can be situated (Ympäristöministeriö 2000). In this study, a slightly broader coding system was used in the analysis of the environments and landscapes of ancient sites. If the more detailed categories were used, the compilation of statistics would have led to the division of the data into too many small classes, and the overall picture would have been blurred. The main group was created by combining all symbols referring to residential and commercial built environments into the same category: B Likewise, all symbols referring to different kinds of farming and forested land were combined into the same category FF. land use categories used in the study are as follows (note that the abbreviations derive from the original Finnish):

- B Residential and commercial buildings
- BF Centralized farming infrastructure
- FF Land dedicated to farming or forestry

F1 Prime farming land
FX Land reserved for farming
FFR Farming/forestry with sports and recreational services
FL Farming land with special landscape/ overlook value
N Land reserved for nature conservation
RB Recreational areas integrated into built areas
RR Remote recreational area for camping or hiking
RS Sports and recreational facilities

Despite the simplified classification system, there are still eleven different categories covering different kind of land use. In addition, there are six ancient sites that are located in the "white" areas (areas where a more precise plan is required), which do not have any zoning symbol at the moment, unless on an earlier local detailed plan in force. Three of the analysed sites are in areas where more than two main land uses meet (e.g., an area for built areas (B) / an area for farming with special values of farming fields (F1) / and an area for farming (FX)). These sites have been classified as the class "several symbols", as shown in Figure 1. There are also some areas which have two different zoning symbols. If the second symbol is used just to define the first one, it has been classified according to the first symbol (e.g., an area for farming and forestry (FF) / an area for farming with special values of landscape (FL)). However, in those cases where there are two symbols, and the other one allows buildings in the area, the case has been classified as "residential area". There are ten such cases in the research material. (Fig. 4.)

The largest group is formed by the sites that are situated in areas which are used predominantly for agriculture and forestry (FF = FF/FFR/FLB). Most of them (45 percent) are stone structures from the Bronze or Iron Ages. In total, there are 32 such sites. There are also 17 settlement sites in these areas (13 percent of the total). The rest of the sites situated in areas which are planned for agriculture and forestry are distributed quite evenly amongst the different categories of ancient sites. They include monuments of military history of different dates, and graves, as well as a few sites of unknown function.

The second largest group of ancient sites is situated in the areas zoned for residential activities (B). There are 55 sites altogether, representing 23 percent of the entire dataset. They are divided into three categories: settlement sites, graves, and all kinds of miscellaneous stone structures such as clearance cairns

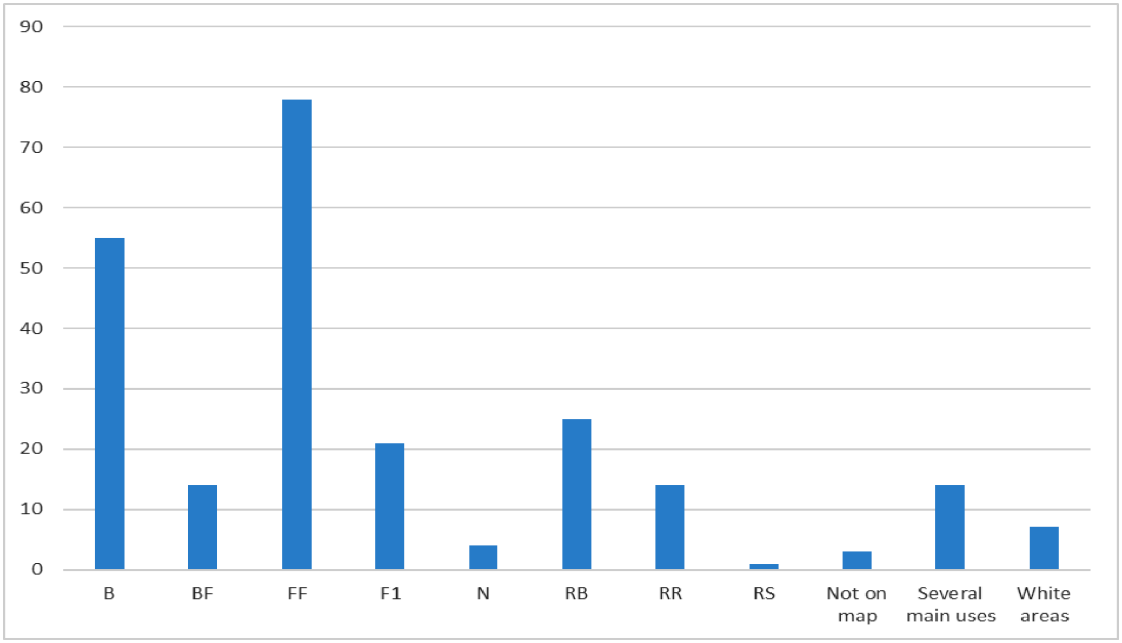

Figure 4. The Main use of the areas where the ancient sites are located in local master plans.

	Current situation				After implementation				
Type	Mean	Median	min	max	Mean	Median	min	max	n
Settlement areas	101	50	0	1000	118	0	0	1000	**105**
Graves	155	70	0	520	171	0	0	1000	**19**
Churches	20	20	20	20	50	50	50	50	**1**
Stone structures	209	130	0	1000	200	50	0	1000	**79**
Roads	300	300	300	300	50	50	50	50	**1**
Cult places	40	40	40	40	50	50	50	50	**1**
Earth structures	205	205	120	290	0	0	0	0	**2**
Groups of remains	186	75	30	600	168	25	0	500	**8**
War history sites	106	20	0	500	183	25	0	1000	**6**
Supplies of raw material	212	120	40	570	150	50	0	500	**4**
Memorial art	250	375	100	1000	350	25	0	1000	**3**
Industrial sites	0	0	0	0	0	0	0	0	**1**
Production areas	135	60	30	500	114	50	0	600	**7**
Red shaded cells indicate cases where there will be a significant reduction in distance.									

Table 5. The distance between ancient sites and buildings: current situation vs. after the plan is implemeted.

or stone walls. Eight of the settlement sites are dated to historic times. In these cases, it is probable that the ancient settlement has influenced the location of the modern one. This is even more obvious in the areas which are zoned for farmsteads. There are fourteen such cases in the analysed data. The second most common category in the areas zoned for residential activities are Stone Age settlement sites, but these cases differ from the historic settlements in that there is no association between the ancient settlement and the modern habitation. In most of these cases, the existing built environment is very modern (from the reconstruction era after the Second World War, c. 1950-), without any direct connection to earlier times. Confusingly, the analysis has shown that for all those sites that are situated in the residential areas (B, eleven cases), the planners have placed/planned buildings exactly on the very spot where the ancient site is situated. In the other words, there is an obvious contradiction between the activity zoned to the area and the protection values. There are also areas where modern building activity had already reached the area long before the planning process had started. In these cases, the relation between the buildings and ancient sites does not indicate anything about the planners' willingness to protect the ancient remains.

In the areas designated for farming with special values for farming fields (F1), there are 21 ancient sites (10 percent of the dataset). The majority of them are settlement sites (17), of which 14 are dated to the Stone Age. A field is a problematic location for preserving a Stone Age settlement, as the structures there are undergoing constant modification caused by the ploughing, but on the other hand the landscape may be similar to how it was in the Stone Age. However, changes in the landscape and in the environment will not be so extensive in the future. Three of the settlement sites are dated to historic times, and in those cases there is continuity through to modern times. In addition, those ancient sites that are situated in the F1 areas are quite close to the centres of farms. From the point of view of the preservation of the landscape and environment of the ancient site, being in a F1 area is relatively good, because construction in those areas is avoided and changes in the landscape are unlikely.

In the residential areas at the centres of farms (BF areas), the majority of the ancient sites are from the historic times. Most of them are settlement sites or villages, including the Medieval settlements. They all have a clear continuity from the past to the present. Their location at the centre of a farm complex is well suited to these sites, but when the plan is implemented the importance of the area must be recognised and the new buildings must be constructed so that the culture historical values of the site do not suffer.

A relatively large group, 39 sites in total, are those which are in areas reserved for recreation (RB areas) and outdoor activities (RR). In the areas re-

served for outdoor activities, many of the sites are from historic times. Most of them are settlements, historical period military sites, or different kinds of sites related to various economic activities. The majority of the areas zoned for outdoor activities and recreation are forests. Both the RB and RR areas are suitable for the protection of ancient sites and their environments. In addition, they can easily be used for education and tourism.

THE DISTANCE BETWEEN THE ANCIENT REMAINS AND THE MODERN BUILT ENVIRONMENT

Because the local master plans usually cover areas of active land use, it was expected that the sites in those areas would be quite close to modern buildings and built environment. When the mean value of the distance between all the 235 ancient sites and their nearest buildings was calculated, the result was 150 metres. The distances were measured from maps, and no fieldwork was done to confirm the data. Thus, the present locations used for the buildings were those recorded when the maps were drawn. (Table 5.)

It can be deduced that buildings more than 100 metres from an ancient site do not have a direct impact on the landscape of the site. However, if we use the median as the measure of the central tendency, instead of the mean, the picture is slightly different. The median distance is only 70 metres. The impact of the built environment on the ancient sites is, therefore, quite significant. It means that the majority of the ancient sites in the western Uusimaa region which are covered by the local master plans are already located in a quite modern environment, and the modern built environment strongly affects the impression one gets of the ancient site. This should be noted especially in those areas that are to be covered later by a local detailed land use plan.

If we look at the situation after the land use plan will be implemented, the zoning has a very important role in determining how the landscape will look. The plans direct the land use in such a manner that the distance between buildings and ancient sites will become even less than it is today. The distance to the nearest residential area (B) shortens, and the median will be only 10 metres. Figure 3 shows the distances between the ancient sites and the nearest buildings on the plans. Both in the B areas and in the BF areas, most of the sites are almost side-by-side with buildings. The sites will be left either in the yards, or even totally or partly underneath the buildings. In most cases, these are settlement sites of historical times, where the habitation has continued and the development therefore has been natural.

In the areas designated for farming and forestry (FF), in the areas for farming with special values for farming fields (F1), in the recreational areas (RR), and in the areas for nature conservation, the distances between the ancient sites and buildings or modern built environment are noticeably longer, as

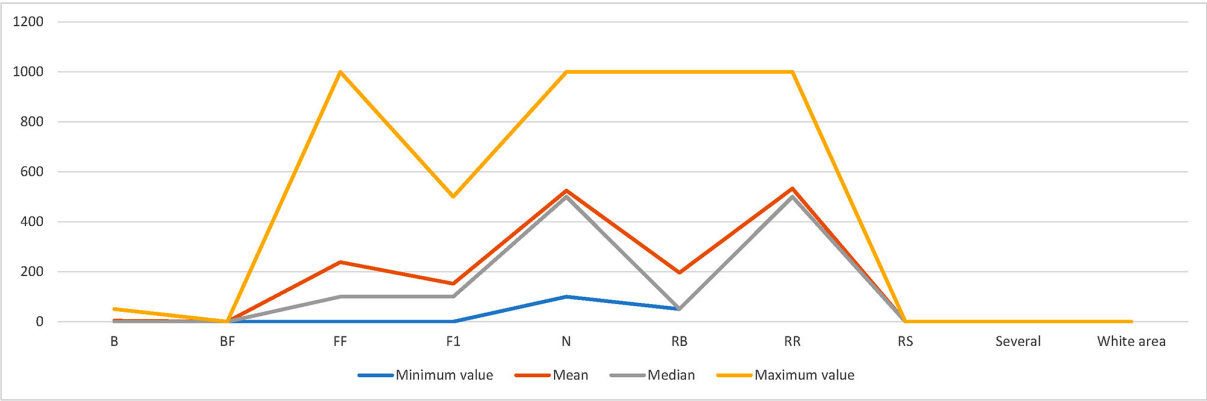

Figure 5. The distance between buildings and ancient sites when the plans are implemented. The maximum distance is always 1000 metres, even though the real distance is longer.

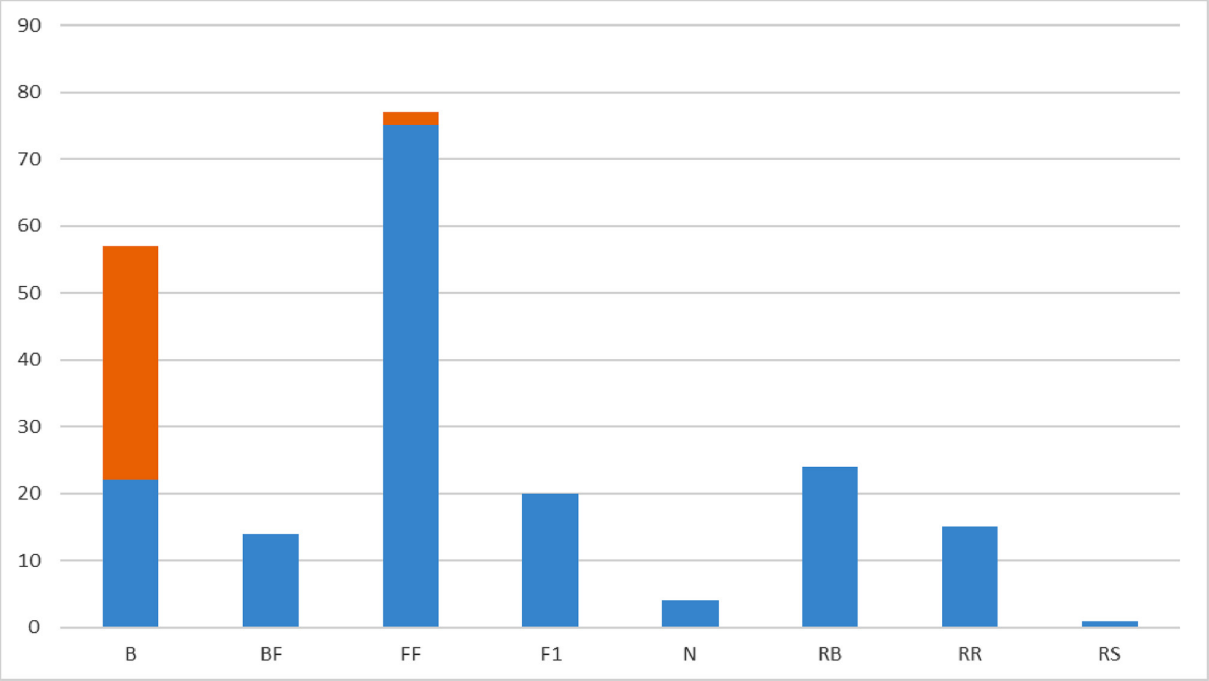

Figure 6. The changes in the environments of ancient sites on different main use areas on the local master plans. Red colour displays the cases where the changes are going to be significant.

was to be expected. In these areas, the modern built environment has a minor impact, and it will be easier to preserve the elements of the landscape that support the understanding of the ancient sites. (Fig. 5.)

Those sites that have been left out of the land use plans are all located in close proximity to either existing buildings, or buildings which are regulated in the plan. This presents major challenges for both the archaeologists and the local authorities who regulate the land use in municipalities.

Of all the different site types, the settlement sites are situated closest to modern habitation. The mean value between them and modern buildings is 100 metres, and the median is only 50 metres. When the zoning in the plans is implemented, the distance is going to become even shorter. Likewise, the grave sites are relatively close to modern habitation, and the distance is getting closer, as in the case of the settlement sites. The other types of ancient sites tend to follow the same trend. The median values of the distance between them and modern buildings will decrease when the plan is implemented.

THE ENVIRONMENTAL CHANGES ON THE ANCIENT SITES CAUSED BY ZONING

The key starting point for the creation of a zoning plan is often to change the character of the planning area. The goal is usually to get more space for active land use. The change in the land use may have a severe impact on the landscape and environment. The change in the areas that are reserved for different land use purposes was analysed by comparing the present state to the forthcoming situation. Virtually all changes are connected to the B areas (residential areas). The B areas will expand into their surroundings, or to an area that was earlier reserved for another activity and will then become reserved for building. As shown in Figure 4, there are 35 cases where the current land use (agriculture, recreation, and so on) will be replaced by a building activity. At the moment, in fourteen cases the ancient site is in the forest, in eight cases the site is situated in an urban forest environment, in seven cases on a field, and in six cases in a field islet. Thus, forest and agricultural environments are to diminishing locally.

Before this study, it was expected that most of the ancient sites situated in the areas where the future changes are going to be insignificant would date from the Stone Age. This turned out to be true, but the difference between the sites from the metal-using periods and the Stone Age is surprisingly small. Regardless of the age of the ancient site, there will be significant changes in their environment and landscape when the zoning is implemented (Table 6, Fig. 4). In spite of that, the relative amount of change in the environment is the largest for the Iron Age sites when compared to all the analysed sites. A total of nearly 32 percent of all the ancient sites covered by the local master plans are located in areas where the changes in landscape will be significant in the coming years. A relatively large part of the Stone Age sites (19 percent) are likewise situated in areas which have been zoned for future construction. (Fig. 7.)

58 percent of the Bronze Age sites are located in places where no significant changes to the landscape are expected. Supposedly, the reason for this is related to them being mostly Bronze Age burial cairns, located on the sea coast during the Bronze Age. The majority of these locations are still outside the areas of active land use. In the places where the height differences of the ground are large and the land uplift is slow, the landscape may still be quite similar to what it was when the cairns were built. Even though almost half of the Iron Age sites are located in places where no substantial landscape changes are anticipated, the environment and landscape will change significantly at 31 percent of the Iron Age sites in the future.

The major changes are going to happen in the environments of graves and settlement sites (Table 6), although a quite large number of them are located in urban or semi-urban areas, and the modern elements have thus already taken over the surrounding landscape. Different kinds of stone structures are also quite frequently in the areas which have been zoned for active land use. The majority of these structures are dated to historical times.

The most significant landscape changes are going to occur at the sites that are situated in the B areas. Zoning will also heavily affect the BF areas, although the changes will be smaller than in the B areas. In the areas which have been mainly zoned as forests (FF/RB/RR), or as fields that are significant for the landscape (F1), the changes in landscape and environment are going to be limited. Approximately half of the ancient sites of western Uusimaa that are covered by local master plans are situated in these areas of minor environment changes. This gives us a chance to protect their landscape and environment. The surroundings of the site can remain the same, without new landscape elements disturbing our understanding of the placement of the ancient site. On the other hand, the other half of the sites are located in environments that are changing constantly. In some cases the change is slow, but for others it will happen fast, and the changes to the landscape of the ancient site will be dramatic.

	Settlement areas	Graves	Churches	Stone structures	Roads	Cult places	Earth structures	Groups of remains	War history sites	Supplies of raw material	Memorial art	Industrial sit	Production a	Total
B	24	6	1	19					2	1			1	**54**
BF	13			1										**14**
FF	24	7		36				7	2	1			3	**80**
F1	17	1		1				1					1	**21**
Not in plan		1		1						1	1			**4**
RB	7	3		8		1			1	2	1		1	**24**
RR	2			9	1		1						1	**14**
RS	1													**1**
Several uses	1							2						**3**
White areas	5			1										**6**
Not in plan	9			3					1			1		**14**
Total	**103**	**18**	**1**	**79**	**1**	**1**	**1**	**10**	**6**	**5**	**2**	**1**	**7**	**235**

Red shaded cells indicate the cases where the most significant changes will occur when the plans are implemented. Blue shaded cells indicate the cases where no significant changes are expected.

Table 6. The location of the different types of ancient remains on the different land use areas of the local master plans.

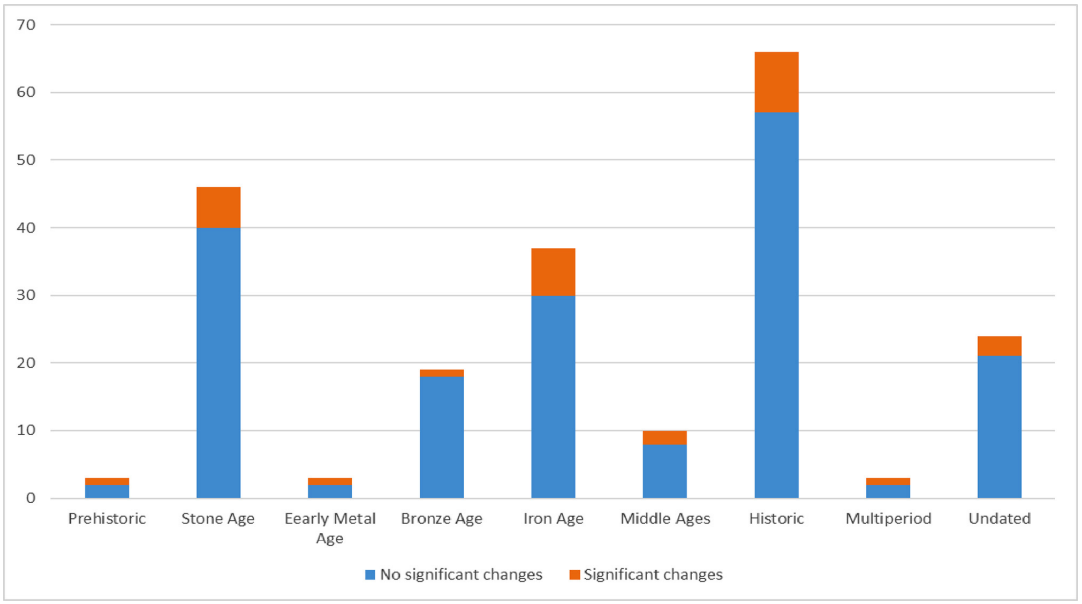

Figure 7. The expected changes in the landscapes and environments of the ancient sites.

CONCLUSIONS

The local master plans for land use in western Uusimaa do not represent the whole of Finland very well. The region is one of the most rapidly developing areas in Finland, and therefore the land use there is also more intensive than in most parts of the country. However, a large part of the known ancient site types are situated in the region, and they also represent very well the ancient sites elsewhere in the country, with the exception of some types of sites that have been found only in northern Finland so far (e.g. Halinen 2015: 116–117). Therefore, we can assume that the zoning of the areas of ancient sites in western Uusimaa reflects the situation in Finland, at least to a degree. (Fig. 8.)

The analysis showed that a remarkable proportion of the ancient sites covered by the local master plans are situated in surroundings where the modern elements can easily be seen. About a half of the Stone Age, Iron Age, and historical sites are situated in places where the landscape changes will be significant when the new zoning is implemented in the years to come. It is a cause of concern that in 38 cases the zoning will allow construction in the immediate vicinity of ancient sites. It is obvious that the zoning in these cases has not followed the spirit of the Land Use and Building Act. In addition, there is a clear contradiction between the zoning decisions and the protection of the ancient sites and monuments.

Although it is usually stated in the goals of land use plans that cultural values will be protected, this often does not become reality. At least this seems to be the situation with respect to ancient sites. In many cases, the areas surrounding the sites are already dominated by the built environment. In such cases, the zoning only strengthens the existing situation. At the same time, acceptance of the situation also increases the modern elements in the vicinity of ancient remains. On the other hand, the analysis also showed that the majority of the ancient sites in the areas covered by local master plans in western Uusimaa are situated in environments where the changes are going to be small. This is a positive finding. The biggest landscape problems are in the areas where the Iron Age sites are situated. When the lower level land use plans are developed, special attention should be paid to those Iron Age sites which are still located in the most authentic settings. Because such sites are rare, their landscapes should be protected. The settlement areas from historic times should also be treated very carefully. Those environments should

be planned in a manner that preserves the characteristic elements of the historical villages.

The decisions being made in land use planning seem to protect the major part of the ancient sites and monuments in western Uusimaa. There are 11 sites that will be destroyed when the local master plans are implemented; that is 5 percent of all the ancient sites covered by the land use plans. It is quite a large number, but on the other hand 95 percent of the sites will survive if the recommendations of the plans are followed. Instead of the actual destruction of sites, a bigger problem seems to be that the sites have been considered only as separate monuments instead of having been understood as composite entities including the surrounding landscape and physical environment. It is obvious that the value of cultural heritage has not been recognised as an important resource. In zoning, the focus is on economic and technical issues. The landscapes and environment of the ancient sites and monuments are best preserved in the economically less important areas.

Also, it is clear that the ancient sites in the land use plans still are just spots on the map without any larger landscape context. When the Antiquities Act is to be renewed, it might be appropriate to replace the separate laws with one unified cultural environment law (cf. Enqvist 2013, 9). The Museum of Central Finland provided a good example of unifying the different elements of the cultural environment when the background information was collected for The Regional Land Use Plan of Central Finland (Kumpulainen & Silen 2016). In that project, the background information was collected by using GIS data in a very innovative way to visualise the central areas of cultural environments. The method that was used in this project has enabled the understanding of the history of the landscape in this area in a new way. Now it is possible to separate those areas where the variety of different cultural elements and time layers are richest. On the other hand, it is also possible to find those areas where the environment is most authentic. This is valuable informa-

Figure 8. Lohja, Moisio village. The village is in the vicinity of the town of Lohja. The village was settled for the first time during the Stone Age, but it is better known for its medieval phase. At the moment, it has a rural feel, but large areas have been zoned for new building. In the future, the landscape is going to look very different, and its nature is going to be urban. In the background, there is a medieval manor house near the lake. Photo: Teija Tiitinen.

tion for land use planning. It would be unrealistic to think that all landscapes containing ancient sites could be preserved as they currently exist. Therefore, it is important that as least those areas which have been evaluated as representing central cultural environments will be treated by land use plans in a culturally sustainable way. It is certainly the case that the level of archaeological guidance and input in the zoning process should be higher in the future. If this does not happen, we will lose a remarkable part of the oldest cultural landscapes in Finland.

THE LOCAL MASTER PLANS USED IN THE ANALYSIS

Municipality, Local master plan / Approved by municipal council

Hanko, Kantakaupungin yleiskaava / 14.3.2012

Inkoo, Inkoon yleiskaavan muutos – Ingarskila-Ålkila / 28.8.2006

Inkoo, Kopparnäsin yleiskaava / 26.5.2005

Karjaa, Mustionjokilaakson osayleiskaava / 11.6.2007

Karkkilan, Karkkilan keskustaajaman ja kaakkoisosan osayleiskaava / 10.4.2014

Kirkkonummi, Gesterbyn ja Sepänkylän osayleiskaava / 10.3.2014

Kirkkonummi, Jorvaksen ja Inkilän osayleiskaava / 10.3.2014

Kirkkonummi, Kuntakeskus 1. vaihe / 26.3.2009

Lohja, Härjänvatsan osayleiskaava / 11.2.2005

Lohja, Keskustan osayleiskaava / 22.10.2013

Lohja, Karnaisten osayleiskaava / 24.8.2008

Lohja, Nummi-Pusulan eteläosien yleiskaavan muutos / 12.9.2007

Lohja, Nummi-Pusulan itäosan osayleiskaava / 21.10.2011

Lohja, Sammatin pohjoisosien osayleiskaava / 16.4.2007

Lohja, Särkijärven osayleiskaava / 3.3.2006

Lohja, Taajamaosayleiskaava / 30.4.2013

Raasepori, Bromarvin kirkonkylän osayleiskaavaehdotus / 17.9.2013

Raasepori, Ekenäs, Östra skärgården / 25.3.2010

Raasepori, Gropfjärd–Dragsvik osayleiskaava / 24.4.2006

Raasepori, Mustionjokilaakson osayleiskaava / 28.9.2005

Siuntio, Kuntakeskuksen yleiskaavan muutos / 21.11.2013

Siuntio, Storsvikintien ja Kantatien et. alueen osayleiskaavojen tarkastus / 20.1.2007

Vihti, Nummelan eteläosien osayleiskaava / 15.1.2014

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Urban Archaeology and Heritage

as a Part of Contemporary City Planning and Identity Building

ABSTRACT: This article discusses the role of archaeological excavations and research in urban planning, development projects and the contemporary townscape of Finland. Using the examples of two Finnish towns, this article demonstrates how archaeological and cultural heritage are represented in urban townscapes today, as a part of their history and city building. One of the towns, Turku, is the oldest town of Finland, with a long history of urban archaeology. The other town, Lahti, was established in the late 19th century and was the site of archaeological excavations in the 1990s and 2010s.

The author reflects on the work of the last few decades and makes some overtures about developing collaboration and on-going dialogue among urban archaeology, city planning and urban development. No matter what the nature of collaboration among these parties is, it certainly has a great impact on a city's environment and the formation of its identity. Furthermore, it also affects how people living in and visiting the city feel and experience it as well as how their awareness of the city's past is inculcated and supported.

KEY WORDS: Finland, urban archaeology, cultural heritage, city development, identity.

ARCHAEOLOGY, CONTRACTS AND CONSTRUCTING A CITY

People living and working in or visiting a city often have the opportunity to meet archaeologists unearthing hidden evidence of the city's past on urban excavations related to construction work and land-use projects. Everyone who has ever worked on an excavation knows that these encounters with the public or developers and other workers involved in the project may have either a positive or negative outcome and that archaeologists can affect how attitudes can be changed.

In most cases, archaeology and excavations attract and fascinate people. Archaeology is connected with unexpected findings, discoveries and intriguing information about an unknown past. Excavations are interesting pop-up performances that may result in new ideas and experiences and offer a concrete view into the past. But what happens to this past after the excavation is done?

In Finland, investigations and surveys are generally carried out in advance of development projects and land use activities or alongside them if they come under the purview of the Antiquities Act and are required by the authorities responsible for archaeological heritage. Urban excavations conducted exclusively for research are rare and exceptional. For example, in Turku, which is the oldest town of Finland and has been the site of nearly 600 fieldwork

Original map: https://commons.wikimedia.org/wiki/Maps_of_Finland#/media/File:Finland_1996_CIA_map.jpg

Figure 1. Map presents the location of the Finnish towns mentioned in this article 1 – Turku, 2 – Lahti.

investigations of different kinds so far, there have been only a few excavations without any connection to development or building projects. (KL; Pihlman & Kostet 1986: 68–117.) Consequently, there is a direct and consequential relation between city planning, archaeological excavations and construction activities. Although this relationship is not always balanced, archaeological research is clearly subordinate to planning and construction activities.

There may be considerable differences between different excavations depending on many factors such as the previous archaeological history of and practises in the town, the organisations responsible for the excavations and the different parties involved in the project. Naturally, archaeological practises and collaboration with different parties including city officials, developers and the public are highly dependent on individual archaeologists and their way of conducting projects. Traditionally, the National Board of Antiquities has been responsible for the majority of excavations, except the ones carried out in Turku, where the excavations have been conducted mainly by the local city museum, The Museum Centre of Turku. In the city of Lahti as well, the local museum, Lahti Historical Museum, has been responsible for the excavations in the area. Today, there are eighteen parties conducting archaeological fieldwork and excavations in Finland. These include organisations such as the National Board of Antiquity, various museums and universities as well as small private companies. Furthermore, there are fifteen organisations and companies that conduct underwater excavations and marine archaeological projects of different kinds. (http://www.nba.fi/fi/kulttuuriymparisto.)

According to prevailing archaeological practises, prior to beginning any construction project, the developer is supposed to consult with the authorities responsible for the archaeological and cultural heritage of the area regarding the possible existence of heritage on site. The officials must then provide their authoritative statement regarding the development project. They estimate the impact of the project on the cultural heritage of the area and define the level of archaeological investigations needed if the heritage is likely to be affected by the development work. In case archaeological research is needed prior to the development project, the developer is responsible for arranging the required investigations. Furthermore, the developer may decide who will conduct these investigations and on what terms. Unfortunately, far too often, the decision is

made on the basis of costs alone, and it is not unusual that the selection criterion (the lowest cost) is mentioned in the request for offers. This means that the archaeologists who may have the best experience and knowledge of the area and period in question are not necessarily chosen for the job. In 2014, the National Board of Antiquities that is responsible to give permits for archaeological investigations in Finland set general guidelines for archaeological fieldwork. These guidelines are meant to standardise archaeological fieldwork practices, to monitor the quality of investigations and enable comparisons between the practises of different parties carrying out archaeological excavations. The guidelines, however, are more like suggestions, which are compiled as best practises but need not necessarily to be followed to the letter. (http://www.nba.fi/fi/File/2905/laatuohje-2016.pdf)

Sometimes, archaeological heritage is seen as a hindrance to the construction and development of city areas, and archaeologists are positioned as cultural saviours of the past, who collect and document the findings of areas where objects of cultural heritage may be destroyed due to development work. During the fieldwork conducted prior to construction projects, archaeologists translate the history of the site into text, numerical and visual data, disconnect the information and material evidence from where it was formed and house it in the relevant museums, archives and storages. After the excavations, clearance is done and the development of the city may go on. This practice does not give archaeologists many opportunities to participate in planning development or construction projects. Usually, construction and development plans are already made by the time an archaeologist comes into the picture.

After the excavation, archaeologists continue analysing and reporting the data, storing the findings and documents in archives and hoping that someday somebody will have the resources, time and money to continue with research and publication of the data collected. Consequently, the role of the archaeologist is restricted to conducting excavations only as stipulated by the Antiquities Act. Is this role sufficient? Could much more be achieved through a wider collaboration where the role of archaeologist extends beyond planning and conducting surveys and excavations and archiving the cultural heritage found on the site?

Even though the acquisition and storing of material evidence and data is important for the new information, research and understanding the past, archaeology's contribution to urban research extends far beyond merely studying materiality from the past. Urban archaeology is also concerned with documenting and explaining the multi-layered history and multifaceted structure of a city in a more holistic way and aims at answering larger questions such as, how have cities been developed and formed; what kind of local, national and global features do they have and why; how cities accommodate the juxtapositions of architecture of different kinds with different cultures and how cities operate as places of innovation, opportunity and development but also as places of oppression, destruction and settings of political power and actions? Consequently, archaeological research is not only restricted to studying the material remains and evidence found underground but also to those above the ground, including all existing features, standing buildings, constructions, space layout, landscape and functions. The challenge of urban archaeology is to weave the material and spatial evidence of the city together with historical records and the functions and aims of the people. (E.g., O'Keeffe & Yamin 2006.) In this article, using the examples of two cities, I reflect on how urban archaeology has been practised in Finland so far and what kind of role it fulfils.

URBAN ARCHAEOLOGY, BUILT HERITAGE AND COMMEMORATION OF THE PAST IN TURKU

In Finland, the history of urban archaeology spans more than one century. Turku, the oldest town of Finland, has been the target of antiquarian research and archaeological excavations since the late 19th century (Fig. 1). So far, nearly 600 registered excavations and archaeological observations have been made in the town area of Turku, resulting in an abundance of different kinds of discoveries and material. (KL; Pihlman & Kostet 1986.) Until the 1990s, the main focus of archaeological interest was in the first few centuries of the town, the peri-

▲▲ Figure 2. Despite all the destructions, the cathedral has faced, the cathedral of Turku looks almost the same as it did at the end of the 15th century. The surroundings of the cathedral have, however, changed a lot. Since the big fire of 1827, the monumental cathedral has become surrounded with squares, streets and parks, while before the fire it was surrounded by a dense settlement. Photo: Lasse Andersson.

▲ Figure 3. Turku Castle has welcomed arrivals from the sea for more than 700 years. Today, the castle is surrounded by the park as well as harbour activities and parking areas. Photo: Liisa Seppänen.

od from the late 13th century until the 16th century. (Pihlman 2007; Pihlman & Kostet 1986.) From that period, there are only two visible monuments in the townscape of Turku today, the cathedral and the castle, that were probably the first two buildings erected as the main symbols of the town. (Niukkanen et al. 2014: 30, 77; Uotila 2003b.) In the past 700 years, both of these buildings have experienced some changes, but they still symbolise the Middle Ages and give Turku its visible identity as a historical town (Figs. 2 & 3).

One can find concrete evidence from medieval times in the Aboa Vetus & Ars Nova Museum located approximately 400 metres from the cathedral, downstream the Aura River (Fig. 4). The origin of the museum is in the early 1990s when excavations were carried out as part of a construction project in the area. The aim of the project was to build a storehouse for the artworks of the Matti Koivurinta Foundation, which bought the plot along with the Rettig Palace building in 1991. The excavations carried out in the area in 1992 and 1993 revealed well-preserved remains of masonry houses, which were regarded as worth preserving *in situ*. After negotiations between the Matti Koivurinta Foundation, the National Board of Antiquities and the Ministry of Education, the decision was made to build an archaeological-historical museum on site and preserve the remains for museum visitors of future generations. The museum was opened in April 1995, and since then, several small-scale excavations have been carried out on site as part of the museum's exhibition activities. (Sartes 2002: 374–375; 2003: 77–79.)

These excavations were revolutionary in Finland since they were able to change the course of the original construction plans. If the original plans had been followed, the archaeological material and data would have been collected, preserved and stored in the Provincial Museum of Turku, which was responsible for excavations in 1992 and 1993. We may ask why the decision to preserve the heritage site was made and how archaeology at that time was capable of changing the original construction plans. Among the archaeological reasons were the centrality of the place, the size of the excavations (c. 1200 m^2) and the level of preservation of the brick and stone con-

structions. However, there had been discoveries of similar kinds in Turku since the beginning of the 20th century, with the discovery of several cellars and well-preserved constructions. There had also been archaeological observations and excavations on the site of the present-day Aboa Vetus & Ars Nova Museum at the end of the 19th century and at the beginning of the early 20th century as well as in 1927–1928 when Rettig Palace was under construction. However, in the early 20th century, the remains were either demolished or hidden under new constructions and filling layers. In the 1990s, however, this site was considered as a unique ensemble of the history of Turku.

Due to the previous excavations and findings in the early 20th century, it was no surprise that the excavations in the early 1990s revealed masonry constructions dating back to the Middle Ages and the Early Modern period. Furthermore, the history of the area was quite well known especially from the 18th century onwards due to preserved written and cartographical sources. However, there was no reliable information about the preservation and condition of the archaeological remains found in the eastern part of the area. (Uotila 2007: 19–20.) The findings were considered unique and their destruction would probably had led to discussion about the constructer's priorities and the values of the Matti Koivurinta Foundation.

In the mid 1990s, the timing was right in many respects. Methods of building conservation had advanced and ideas of preservation were widely acknowledged in Finland among archaeologists. Interest in medieval times had grown and the general attitude towards history and archaeology was highly positive. However, this was a cultural, financial and political decision, which was completely up to the individuals involved in the negotiations related to the matter. It was entirely up to their particular set of values, interests, ideas and determination how to handle the situation and make decisions about the remains of the past.

When the decision was made to preserve the remains *in situ* and to build a museum to protect and present them, it was decided that all of the remains from different periods, over 500–600 years of the area's history, were equally important. This decision presented a great challenge for archaeologists as well as for building conservators. (Uotila 2007: 20.) In archaeology, we are normally used to the idea that if

◀ Figure 4. The ruins of a "lost city" can be seen in the Aboa Vetus & Ars Nova Museum as well as in its lobby and cafeteria. Photo: Markus Kivistö.

▼ Figure 5. Old Market Square of Turku has preserved its shape since the early 14th century. Today, the elongated square is no longer the heart of the city but silent and deserted most of the time. The square is packed with people only twice a year—during the medieval markets held in the summer, and in December during the Christmas markets and the declaration of national Christmas peace on Christmas Eve. Photo: Liisa Seppänen.

Figure 6. Luostarimäki Handicrafts Museum offers a view into life on the outskirts of Turku in the 18th and early 19th century. Photo: Liisa Seppänen.

we want to reveal older features and layers, we need to destroy the younger ones covering them. In some cases, we can estimate and even prove that the older constructions and layers were likely destroyed when the younger ones were built and formed, but this is not always the case. The main question is, however, on what basis we make decisions about what to preserve and what to destroy, when not everything can be saved for future generations.

Visitors to the Aboa Vetus & Ars Nova Museum who wish to continue learning about Turku's medieval and early modern history should head towards Old Market Square near the Cathedral. This square has had the same elongated shape since its construction at the beginning of the 14th century. On the eastern end of the square is an old Town Hall dating back to the 19th century, standing on the very same spot where the first Town Hall was constructed probably at the beginning of the 14th century. (Uotila 2003a: 116.) The southern side of Old Market Square is surrounded with handsome buildings, just as it was in the Middle Ages, although the buildings standing there today are from the construction phase of the early 19th century (Fig. 5).

The present layout of Turku, including the old medieval centre in the vicinity of the cathedral, was constructed after the big fire of 1827, which destroyed nearly three quarters of the town. Today, there are only a few buildings standing that were built before the fire. Most of these buildings are situated in the open-air Luostarinmäki Handicrafts Museum, which also preserves remains of the lifestyle and skills of craftsmen from the pre-industrial period (Fig. 6). In 1827, this area was situated on the outskirts of the town and was thus saved from the flames. Discussions about the preservation of the area as an open-air museum had already started at the beginning of the 20th century. In 1931, a new city plan was made to build new multi-level houses in this area. This plan triggered a discussion about the protection of the area and, in 1937, the Town Board of Turku decided to save the area from demolition. This decision was upheld by the Ministry of the Interior in the following year. All in all, this decision required 30 years of discussion and persuasion. (Drake 1995: 118–119.)

Over these years, Finland experienced great changes and impactful events including general strikes in 1905 and 1917, independence from Russia in 1917, a destructive civil war in 1918, political conflicts and the beginning of modernism in the 1920s and the recession at the beginning of the

1930s. (Virrankoski 2012: 285–372.) We may speculate, if this decision had not been made in 1937, would it have been made at all after the Russians attacked Finland in 1939. This attack after all resulted in many years of war and the resultant heavy reconstruction and modernisation of several Finnish cities, including Turku.

In the centre of the town is yet another museum, Qwensel House, which has preserved the atmosphere and milieu of the 18th century. The house was built before the big fire in 1827, and today the building houses the Pharmacy Museum of Turku. The museum was opened in 1958, after a construction process of over twenty years. This was possible due to substantial financial support from The Association of Finnish Pharmacies, who in 1956 gave one million Finnish marks for the protection of the house and opening of the museum. The donation helped the members of the town board feel more favourable about the project, and the town signed the property over to the Historical Museum (now known as the Museum Centre of Turku), which immediately proceeded with the practicalities needed to turn the building into a museum. (Drake 1995: 128–129.)

The protection of these 18th century buildings in Turku took a couple of decades. In archaeology, 30 years does not seem to be a long time, but it is an eternity in the context of urban archaeological research and excavations, which are typically tightly scheduled, intense and closely intertwined with on-going construction projects. Decisions about possible preservation and changes in construction plans need to be made within a matter of days or weeks at most, since time-sensitive construction work means it is not possible to wait for several years for a decision. Furthermore, the construction schedule and plans are usually made well in advance and can be changed only for very good reasons. Therefore, archaeologists should be involved in city and land use planning activities very closely, from the

▲ Figure 7. Pieces of ceramics found during the excavations have been presented in a showcase outside the restaurant, with a sign that reads, "On this spot there has always been a restaurant – the fragments prove it". Photo: Liisa Seppänen.

► Figure 8. Some of the ruins found during the excavations in the mid-1980s have been preserved inside the new building. Today, they can be found surrounded by groceries. Photo: Liisa Seppänen.

very beginning, and have the ability to conduct archaeological and geophysical surveys and test drillings. More proactive involvement would also enable them to make more precise estimations about the preservation of material and to discuss in a more collaborative spirit about the wider role of archaeology in projects of different kinds.

In Turku, some archaeological remains have also been preserved beyond the Aboa Vetus & Ars Nova museum. However, the situation was somewhat different a decade before the opening of the archaeological-historical museum. In the mid 1980s, the construction of a new building complex including a hotel and a cinema theatre resulted in archaeological excavations on the western side of the Aura River. During the excavations, the remains of buildings and a graveyard with more than 600 graves were discovered along with the remains of a masonry building believed to be a church dedicated to the Holy Spirit. (Kykyri 1985; Laaksonen 1984; 1985; Pihlman 1994.)

The construction of the new building complex was completed as planned, but some of the archaeological remains were preserved *in situ*. A private chapel was built to house the remains of the church and the skeletons of the deceased. Some pieces of ceramics found during the excavations have been presented in a showcase outside the restaurant next to the chapel (Fig. 7). Another presentation of the past can be found in a grocery store inside the same building, where some of the archaeological constructions have been preserved and presented *in situ* (Fig. 8). Thus, archaeological discoveries can be presented in different ways to fulfil different purposes of the people.

In 1998, three years after the opening of Aboa Vetus & Ars Nova Museum, excavations of a similar scale were conducted approximately 150 metres south of the Cathedral, on account of a new construction project. These excavations revealed more than 100 constructions from the Middle Ages and the Early Modern period along with an abundance of different kinds of finds. This time, there was no discussion between the plot owner and the constructor, the Foundation of the Åbo Akademi University, and the party responsible for the excavations, the Provincial Museum of Turku (today the Museum Centre of Turku), about whether the remains should be preserved. Most of the constructions were made of wood and therefore the conservation of the remains would have been expensive and difficult. The remains of only one building were saved on the initiative of the National Board of Antiquities. The archaeological material found in the excavations has been studied in many theses and articles of different kinds, but a large part of the material still remains to be studied. (E.g., Halonen 2007; Harjula 2005, 2008; Kirjavainen 2004; Martiskainen 2008; Seppänen 2012; Sipiläinen 2002; Tourunen 2002.) Today, one can find some information about the exca-

▲▲ Figure 9. A few artefacts found in the excavation of the new main building site of Åbo Akademi University are presented in a showcase in the entrance hall. Information about the excavation and the history of the site is available only for those who know to look for it inside the building. Photo: Liisa Seppänen.

▲ Figure 10. Ruins found at the Rettiginrinne site are today visible in the garage of the building erected on the site. Photo: Jani Vidgren.

vations in a small exhibition in the entrance hall of the building (Fig. 9).

A couple of years later, in 2000 and 2001, extensive excavations were conducted across the Aboa Vetus & Ars Nova Museum on the Rettiginrinne site, on account of the construction of a new residential building. A stone foundation unearthed in the excavations was left *in situ* and is presented in a showcase in the garage accessible for the residents only. (Fig. 10).

These examples demonstrate that historical buildings and archaeological remains are visible in Turku today if one knows where to look for them. One can find archaeology and history in the museums (*in situ* and in open-air museums) as well as in glass cases inside new buildings erected on the sites where these remains were found. However, we may ask in what way the past discovered in excavations communicates with the present city and its development. Although the excavations have been frequent and increased remarkably our knowledge about the past and attracted lots of attention of the public, urban archaeology is mainly limited either to protect and preserve archaeological heritage underground or to move data from excavations into archives and storages. I am not saying that this is not enough considering the resources available for archaeologists today. However, archaeologists can contribute much more to urban planning and development. Furthermore, the dissemination of information about the history of a town could be done in various ways, in order to give glimpses and views into the past beyond traditional museums and showcases.

URBAN ARCHAEOLOGY IN THE BUSINESS CITY OF LAHTI

While Turku firmly holds the title of being the oldest city in Finland, Lahti on the other hand used to be known as the youngest city of Finland (Fig. 1). Although the urban history of Lahti is 600 years younger than Turku's, the town's history dates back to the medieval times. The town of Lahti was preceded by a village, which was destroyed in the big fire in 1877. The destruction of the village gave birth to the town, which was built on the ruins of the village. Historical records of the earliest times of the village are very limited, and archaeological excavations conducted in the area have not revealed much evidence of the village from the medieval and post-medieval periods. The village was first mentioned in 1445 and, according to historical sources, there were 23 houses in the village in the 1520s, meaning that it was a lively village of a considerable size at the time. The size of the village remained more or less the same, with only minor changes in the number of houses and people until the end of the 18th century. Lahti started to flourish especially at the end of the 1860s and early 1870s due to the construction of the railway, which attracted industrial activity and more people to the area. (Airamo 1999: 53; Hassinen 1999: 20–22.)

Although the city of Lahti is not usually combined with history and archaeology, the earliest inhabitation of Finland was in the region of Lahti, dating back to 9000 BC. (Takala 2004.) Besides this, there is one event, which is highlighted in the history of the town: the civil war in Finland in 1918 with its dramatic events in Lahti. (Takala 1998.) Otherwise, the town has actively branded itself as a business city and Finland's capital of winter sports and events. The town and especially the market square of Lahti has been a focus of major archaeological excavations organised by the local City Museum in 1997, 1998 and 2013. Although the excavations have revealed some evidence from the 14th century onwards, the clear majority of the findings and remains are from the 19th century representing the last few decades of the former village. (Poutiainen et al. 1999; Poutiainen & Uotila 1999.)

The excavations conducted in 2013 were the largest urban excavations carried out in Finland thus far, covering an area of approximately 12,500 m^2. The reason for the excavations was the construction of a two-level parking lot underneath the market square. The archaeologist of the museum, Hannu Takala, had negotiated and agreed on the conditions and plans of the excavation project with the city planners, architects and developers responsible for the project. After the plans were made, a team of archaeologists, including me as the responsible excavation manager, was hired to realize the excavations. The fieldwork lasted six months as planned and was

carried out alongside the construction of the parking lot.

The excavation revealed plenty of information about the last years of the village, prior to its destruction in 1877. Remains of several houses, outbuildings, yard constructions, wells, plot borders and three roads were found. None of these could be preserved *in situ*, because the parking lot was constructed to a depth of nine metres. During the excavations, we collected all find material in order to get a holistic idea of the use of the area. The material older than the 19th century is quite limited and the majority of the finds are from the late 19th century contexts. All in all, approximately 1408 kg of material was found, ranging from pins to bombs, the latter being related to the events in 1918. The findings also included a large amount of glass and ceramics, textiles, metal and wooden objects of different kinds as well as waste material resulting from the production of different objects (Figs. 11 & 12). The assemblage of finds provides information about the material culture, trading, way of life and cultural contacts of the people as well as about the early industrialization of Lahti.

▲▲ Figure 11. A large amount of glass was collected during the excavations. The material was not classified to be saved but to be reused or destroyed. Photo: Liisa Seppänen.

▲ Figure 12. Some pieces of ceramics from the late 19th century will be saved and stored. The majority of the ceramics was found in a shop destroyed by the fire. Today, a variety of these material findings are presented in museum exhibitions. Photo: Liisa Seppänen.

Although the material found provides insights into the life of the people and the history of the village, we had to select the material that was important enough to be stored and archived. This meant that we needed to create criteria for the evaluation of the material and then categorise the findings accordingly. To begin with, the material was divided into two main categories: A) material to be archived and saved in museum collections, and B) material that could be removed, reused or destroyed after its listing and documentation. The majority of the artefacts (86%) belonged to category B and only 14% of the objects were categorised as worth saving and displaying as part of the museum's collections. The bones found on site have not been included in these figures, but they primarily belonged to category B.

During the fieldwork period, I presented some ideas on how the archaeological data and material that would not be archived could be presented or utilised in the parking lot and in the reconstructed market square. For example, ceramics, glass and metal could have been used as decoration on surfaces or as material for artworks. Plot borders or the location of houses and other constructions could have been marked with different kinds of paving in the market square. Photos taken during the excavations could have been used as decoration inside the parking lot or in the ventilation and lift cabins. Also, the names of the plot owners and of the houses of the village could have been used to demarcate sections in the parking area. Since the majority of the findings (86%) would not be preserved after listing and analysis, I suggested that this material would be given to local artists for reuse and possibly for making installations of some kind in the market square,

◄ Figure 13. There are no visible traces of the village and archaeological excavations in the Market Square of Lahti. The idea to represent the plot borders or locations of the buildings by altering the colour of the paving was not executed. The reason given was the accessibility of the market square for disabled and elderly citizens. The markings, however, would not have limited the accessibility of the area. Today, symmetrical squares and straight lines create a sense of harmony in the market square. Photo: Liisa Seppänen.

▼ Figure 14. The car park of Lahti does not hint at the archaeological excavations and heritage found on its site prior to its construction. Photo: Liisa Seppänen.

to commemorate the village of Lahti and its former inhabitants.

These suggestions were not seriously considered or discussed, the ideas remained unrealised and the development of the area was completed according to the original plans (Figs. 13 & 14). Artwork made by Jan-Erik Andersson, an artist from the city of Turku, was erected on one end of the square along with a playground for children and exercise equipment (Fig. 15).

Those who are interested in the history and archaeology of Lahti can visit the local City Museum where some of the material is displayed along with information about the excavations (Figs. 11 & 12). The 19th century village of Lahti is presented in a model that was made some years before the excavations and the model is based on a map representing the village in 1870 (Fig. 16). Another model was made in the spring of 2014 in collaboration with the students of Lahti School of Applied Sciences and the team of archaeologists working on the project. The 3D model shows a shop from the end of the 19th century and its surroundings as revealed in the 2013 excavations.

In the spring of 2015, I was able to test some of my ideas presented above with a couple of students from Lahti School of Applied Sciences. The students created virtual models of some of my ideas, for instance, we created a model of the parking lot as it is and added photos, decorations and artwork as per my suggestion. The models showed that the additions we made virtually did not suit the existing constructions and spaces. On the basis of this, I am convinced that it would be better if ideas of different kinds were taken into account when plans are made. This is not only relevant to Lahti or the ideas presented above but for all construction activities and city development projects undertaken at different levels and in different places.

DEVELOPMENT, HERITAGE AND COMMEMORATIONS

History is more or less bunk. It's tradition. We don't want tradition. We want to live in the present, and the only history that is worth a tinker's damn is the history we make today. (Little 2007: 13.)

Figure 15. Artwork made by Jan-Erik Andersson on the western end of Market Square frames a statue of a young woman. Photo: Liisa Seppänen.

Figure 16. A model representing the village of Lahti in 1870 can be found in the City Museum of Lahti. Photo: Liisa Seppänen.

This famous quote by industrialist Henry Ford is from one hundred years ago, but we still encounter his viewpoint today when we need to justify and reason why the past matters and why the work of historians and archaeologists is important. I have justified the work I do by saying for example that understanding the past helps us to understand the modern world, where we come from and why we are where we are. Even though information about the past as such is important for humanistic studies, it does not seem to be important enough to the decision-makers of today. Therefore, we still need to be able to connect and reason the importance of the past for society today and decisions to be made for the future. In fact, this is an extremely important aspect of and justification for history. Naturally, archaeology and history are always practised for reasons as they stand in the present—whatever they may be. However, in practice, archaeological and historical research does not seem to have much relevance when plans and decisions are made for the future. Only then when the plans and development projects are contradicting the protection of cultural heritage, archaeologists and other professionals involved in heritage management are consulted for solving the problem.

Depending on one's view, the past can be considered as a problem or as potential. Regardless, the past is an integral part of our identities – whether we are talking about human identities, national identities or identities of different places, towns and states. Places as well as humans reflect the past in their experiences, circumstances, events, appreciations, destructions, ambitions, ideas and hopes for the future. The way we pay attention to the past and understand it transforms us and changes our ideas about life, affecting how we experience the surrounding world. Consequently, understanding and experiencing the past is important. The past shapes the identities of towns like it shapes our own identities, creating a continuum where the past becomes the basis for the present as well as for the future. However, the present only reflects the past, which no longer exists as it was. Change is inevitable – we can only decide how it happens and when.

If some people have difficulties in understanding how the past impacts real life and real places, how can we expect that history would be significant to them in contemporary life and that they would think of it as something that needs to be taken into account when planning for the future? When the past is viewed as just something to be housed in a museum, does it have any connection to the present beyond the walls of the museum? We create the past, whether it is inside or outside museums, displayed in glass cases or experienced and sensed in one's townscape. We create the past with our interpretations, images and memories. As Alfredo González-Ruibal (2013: 15) said, archaeology is the technology for producing material memory. Archaeology provides us with images of the past and cannot exist without interpretations. According to him, by

producing material memory, archaeology produces public memory. But does it only create it for those who are able to view it and to whom it is presented as a creation of the past? Another question is, whose memory and history are we presenting and why? Barbara J. Little has posed a vital question: What is important enough to study, to commemorate, to interpret and present to the public? The ways in which archaeologists and other researchers, organisations and sponsors prioritise and elevate certain research topics or time periods into the category of 'worth studying and presenting' are closely related to judgements about what is interesting or important enough to preserve, commemorate and disseminate. (Little 2007: 139.)

Medieval Turku was memorialised in the Aboa Vetus & Ars Nova Museum through the preservation of its ruins, which help create images and memories of a different kind. The village of Lahti was remembered and commemorated in the museum, whose personnel recreated its past by presenting historical views, information and interpretation. These memories and interpretations are available for everybody who wants to see them and can pay the entrance fees to the museum. But do these ruins and remains in showcases really reach everybody; are they truly an integral part of the city?

People value historic environments in different ways and for different reasons. Before making irrevocable decisions, it is important to find out and understand why a particular site or area is important, to whom and for what reasons. Each site's value from a cultural, educational, academic, aesthetic, recreational and resource perspective should be discussed and considered along with its economic value, a factor that far too often seems to dominate the discussion around urban planning. (English Heritage 2008: 315–316.) According to a study conducted by English Heritage in the year 2000, people value historic environments for the quality of life they afford. To others, visiting historical places offered inspiration, information and enjoyment. The poll showed that 87% of the people in England think that historic environments should be preserved using public funding, and 85% consider historic environments important for the revival of towns and cities. A survey in the United States conducted in the year 1999 had similar results. Almost all the respondents (99%) believed that archaeological sites have educational and scientific value, 94% recognised their aesthetic and artistic value and 93% appreciated the value of their personal heritage. (Schofield & Johnson 2006: 111.)

Hopefully, the figures and opinions will remain the same despite the economic downturn and changes in the political and ideological atmosphere. Studies of this kind revealing the opinions of people about the significance of cultural heritage and historic environments are not new in Finland. My own encounters and experiences from Lahti and Turku prove that the history of the town and the roots of urban identity matter to the citizens. The opinions of the citizens are important as they reflect the values of society. However, the opinions of people in charge of making public decisions play a more significant and decisive role when considering the pros and cons of cultural heritage in the context of urban development.

The actual question is who, on what grounds and with what information and values can make decisions about our living environment, shape the identity of the place as well as create public memory by selecting which things are worth preserving and presenting and which can be demolished and replaced. When political decisions are made by people who consider the past as an important part of the identity of a town and a sound basis for its development, the past becomes an important part of planning and may even change the future of a city.

In this regard, I would like to mention the example of the city of Bordeaux in South West France (Fig. 17). The history of the city dates back at least as far as the 5th century BC. In the 18th century, the city experienced the golden age of its economic growth due to its port and the development of worldwide trade, which brought along wealth and wellbeing for the citizens of Bordeaux. They modernised the city, improved the living conditions and constructed beautiful buildings to improve the city's landscape. The second half of the 20th century was marked by a gradual decline of the port, which caused a decrease in industrial and trade activities. This in turn resulted in the downturn of its

Figure 17. Bordeaux experienced an intensive period of regeneration since 1995, which was based on a respect for its cultural heritage and history. In 2007, the city was appointed as a UNESCO World Heritage Site. Photo: Liisa Seppänen.

economy and a reduction in the population. From 300,000 inhabitants in 1900, the population of the city fell to 200,000 in the next 95 years. This was accompanied with the abandonment of many of the city's industrial sites, due to which hundreds of hectares of land were deserted. Bordeaux became an abandoned city with little appeal and few attractions.

In 1995, Alain Juppé was elected as the new mayor of Bordeaux. He started working to bring the city dubbed "the sleeping beauty" back to life. All his decisions were based on the city's heritage, which he considered the city's most precious possession. This heritage consisted of urban layout and architecture whether it was religious, aristocratic, industrial, sporting, educational, military or vernacular. Its non-architectural heritage included the river Garonne, its landscapes, squares and gardens, which were also considered equally valuable. He launched a project to revive the city and invited experts to collaborate for the common aim of developing the city. The development project was based on the idea that heritage is essential for the future of a city and its identity. For more than a decade, Bordeaux was an important building site. As a result of the mayor's efforts, the city regained its former splendour and charm by adapting its history into its contemporary way of life. In 2007, Bordeaux was listed as a World Heritage Site by UNESCO. However, the town did not become a museum—on the contrary, in the 15 years since its revival, Bordeaux's population has increased by 30,000 people and the historic centre has once again became the lively site of many activities. (Moniot 2016.)

As this example of Bordeaux demonstrates, there is no contradiction between heritage and urban development. Urban heritage including archaeological heritage can be used as a starting point to develop cities, thus increasing their individuality and making them unique. There are several examples of cities – Rome is the most well-known and iconic example – that would not be the same unless the layers of their history had not been maintained as alive and visible reminders of the past we can experience today

However, decisions around city planning are often made by professionals in charge of urban development such as politicians, planners, developers and architects. Not all of them think like Alain Juppé nor share his opinion that a city's most precious possession is its heritage and history. Historians, archaeologists and others working in the sphere of urban heritage have, however, the possibility to change their views by sharing information, explaining the significance of history and increasing an understanding of and interest in the past. It is our duty to build bridges between the past, present and future.

These bridges can be made tangible in townscapes as well as in landscapes. Some places, periods and events can be publicly memorialised in the form of art, architecture or with the help of archaeology.

Memorials built for places or events may help convey selected and interpreted information about the past but, more importantly, they reflect the memories and ideas, which were there when the memorials were created. However, integrating elements of history and heritage into the present is not only about creating memorials of the past. It is about building and sharing the unique identity of each place.

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Ritualisation of Landscape in the Finnish Lake District during the Early Metal Period

The Forms and Landscape Settings of Early Metal Period Burial Cairns

ABSTRACT: Early Metal Period sites in the Finnish Lake District are almost exclusively either dwelling sites or cairn sites, so-called Lapp cairns, which number 200–300. They are typically built on bedrock promontories on lakeshores. The adoption of cairn building in the Lake District has traditionally been interpreted as a sign of increasing territoriality and culturalisation of landscape. However, such an interpretation is in contradiction with the contemporary dwelling site material indicating mobile settlement pattern. Furthermore, Lapp cairns are not monumental but usually only 2.5–10 m in diameter and 0.25–0.7 m in height. Finds from excavated Lapp cairns connect them with mortuary rituals and sacrificial activities.

Scrutiny of the natural environment around the cairns suggests that they were not made to stand out from the landscape but to integrate with it. Attested Lapp cairn sites have had long and wide lake-views. The ritual significance of the connection with water through stone is further indicated by more than half of the verified Lapp cairns being situated on rocky lake islands. It seems that during the Early Metal Period in the Lake District, human-made stone structures and natural lakeshore stone features were both part of the same ritual landscape, governed by the same perception of ritual time. Such cosmology is also implied by the re-use of old lakeshore cairns, and by Early Metal Period sacrificial activities at Stone Age rock painting sites on lakeshores.

KEY WORDS: Early Metal Period, Arctic Bronze Age, Finnish Lake District, Lapp cairns, burial cairns, ritual archaeology, ritualisation of landscape

INTRODUCTION

"Landscape" is an amorphous concept that is obviously hard to define. It generally refers to a geographic space consisting of topographical, vegetational, and possibly also architectural features, experienced as some kind of entity by human perception. As pointed out by Richard Bradley (2000: 31), landscape is for the archaeologist both a promising and deceptive line of inquiry in reconstructing past human experience. Some landscape features may remain quite similar over millennia, but the way they are experienced is highly cultural specific. However, there are also some discernible patterns in cultural notions attributable to the concept of landscape. Christopher Tilley (1994) has noted that for small-

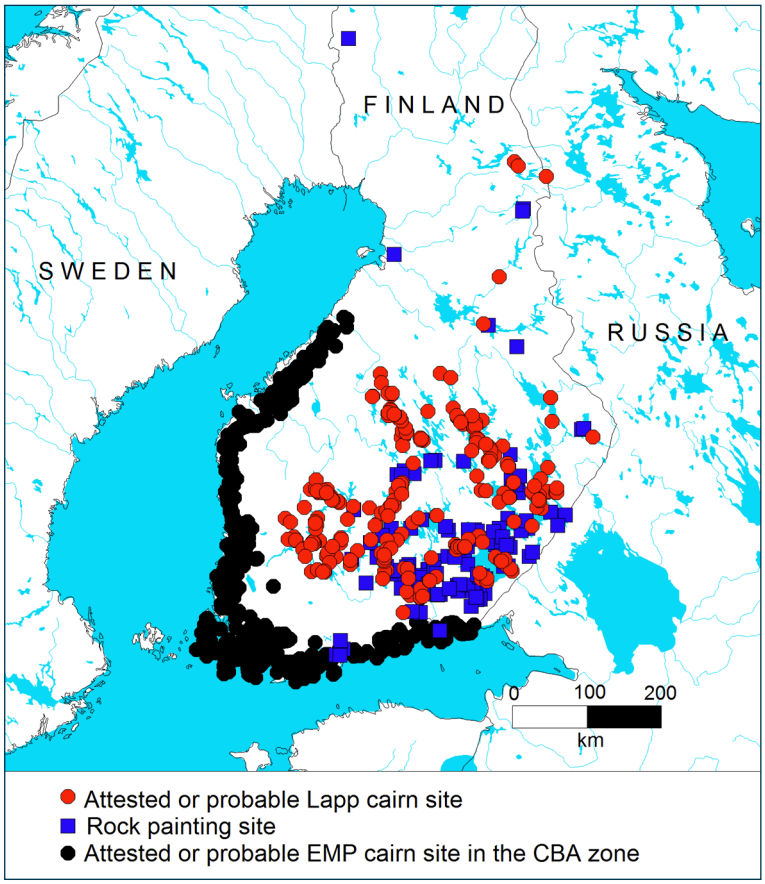


Figure 1. Distribution of Stone Age rock art and cairns connected with the Early Metal Period cairn-building traditions of the Coastal Bronze Age Culture and the Lake District in the area of Finland.

scale societies landscape is typically both a "mundane" and "ritual" entity in terms of modern western conceptualisation. It functions as a history book and a ritual map, where geographic locations mark past actions and initiate ritual action (Tilley 1994: 67). In the landscape, the present and the mythical past exist simultaneously (e.g. Tilley 1994; Bradley 1998). To describe and study this phenomenon, it is necessary to provide specific definitions for the terms "ritual" and "ritualisation". Following Roy Rappaport (1999: 24), "ritual" is defined here as 'the performance of more or less invariant sequences of formal acts and utterances not entirely encoded by the performers'. As pointed out by Catherine Bell (1992), ritual is not a passive reflection of some premeditated symbolic meaning, but an interaction between physical action and symbolic thinking. Participants in a ritual actively create meaning for their acts through their mutual physical and sensual experiences (Bell 1992: 90). In this article, the term "ritualisation" is used as a reference for this process, through which certain acts obtain their position as rituals and certain sites as ritual sites.

In relation to landscape, ritualisation is a two-way process. While the meanings of rituals often become inseparable from their specific spatial contexts, ritual activities at specific sites also have considerable impact on the ways these sites are anchored in experienced reality. Through this process of ritualisation, ostensibly invisible meanings become intrinsic parts of landscape features, and the landscape as an experienced entity. These meanings are, however, not immutable or outside personal interpretation, since the mythical past is constantly recreated and re-interpreted in ritual action (Bell 1992: 123–24, 183–86). In interpreting the archaeological record, the temporal variation and negotiability of rituals can be a strength as well as a challenge (Berggren & Nilsson Stutz 2010). Chronological patterns and the variation within them provide clues about what the core elements of ritual meanings were for certain sites, and how they may relate to other activities of the communities using the sites. Tracing such elements, in turn, helps us to grasp the role of local ritual landscape in the integration and re-interpretation of both old and new ritual practises.

This article examines the placing of ritual sites in the landscape of the Finnish Lake District during the Early Metal Period (c. 1900 BC–AD 300/400), e.g. the Bronze Age (1900/1600–500 BC) and the Early Iron Age (500 BC–AD 400). The area provides a good case study of the integration of Bronze Age influences in a local ritual landscape. In studies of Bronze Age northern Europe, such localisation processes are currently easily hidden under the grand narrative of pan-European networks and al-

leged travelling chiefs (e.g. Kristiansen & Larsson 2005; Harding 2013; Kristiansen 2013; Vandkilde *et al*. 2015). The focus of this study is on the Early Metal Period burial/sacrificial cairns, but the possible Early Metal Period ritualisation of Stone Age rock art sites is also touched upon. Cairns are examined as both elements within the landscape and as points from whence the landscape is experienced. The factors under scrutiny are the forms and sizes of cairns and their spatial relations to lakes, bedrock exposures, natural boulder fields, and rock art sites. Due to the volume and geographical distribution of the material, most of the data is not based on personal on-site observations, but on archaeological fieldwork reports and open access GIS-material provided by the National Board of Antiquities and the National Land Survey of Finland. Calibrations of radiocarbon datings are made by the OxCal 4.2 programme with the IntCal13 calibration curve (Bronk Ramsey 2009; Reimer *et a*l. 2013). The precision of the calibrations is 95.4% if not stated otherwise.

EARLY METAL PERIOD LAKE DISTRICT: GENERAL SETTING

The Finnish Lake District is a geographically distinct zone that covers most of the inland areas of southern and central Finland (Fig. 1). Numerous lakes, large and small, presently comprise about a quarter of all the surface area within the zone. The prominence of the lakes, created by post-glacial isostatic land uplift, is characteristic of the archaeological record of the area from the beginning of the Finnish Late Mesolithic (c. 6500 BC) onwards. Fishing was consistently the backbone of subsistence, until the gradual spread of permanent field cultivation from the Middle Iron Age (c. AD 400–800) onwards. For the prehistoric fisher-hunter-gatherers of the area, lakes were not only the main source of subsistence, but they apparently also had strong ritual and cosmological dimensions. In the archaeological record, this phenomenon is most clearly embodied by Stone Age rock art panels and Early Metal Period burial/sacrificial cairns. These two site categories differ in many ways, but they share a close spatial relation to lakes. This relation is still visible after the inevitable destruction of most of the physical remains of the actual use of these sites, over the time since their initial creation.

Bronze Age Finland is traditionally divided into two main zones: the heavily Scandinavian-influenced Coastal Bronze Age culture (CBA) and inland Finland, whose material culture features North-Russian and even Siberian influences more strongly than Scandinavian. In this dualistic division, the Lake District is defined as part of the inland zone. In the CBA zone, subsistence and settlement patterns centred on marine resources and gradually increasing cultivation and animal husbandry (Salo 1981; 1984; Lavento 2015: 131–34, 139–41). In the Lake District, the Early Metal Period societies were foragers relying heavily on lake fishing, although some small-scale swidden cultivation was also practised (e.g. Lavento 2001). Based on the typically small size of the dwelling sites, the thinness of the cultural layers, and the general, though not total, lack of house pits, the settlement pattern appears to have been mobile rather than sedentary or semi-sedentary (Lavento 2001; but see Mökkönen 2011: 63–4). Such a pattern clearly differs from the Neolithic dwelling site material containing indications of semi-sedentary, and at some places perhaps even fully sedentary, settlement pattern (e.g. Karjalainen 1999; Pesonen 2002; Mökkönen 2011).

A severe depopulation of the Lake District during the Late Neolithic has been argued by several scholars, on grounds of a substantial weakening in the archaeological signal, accompanied by the gradual cooling of the climate and supported by studies of modern Finnish DNA, indicating a genetic bottleneck around 1900 BC (Lavento 2001; Tallavaara *et al*. 2010; 2012; Sundell 2014). Mika Lavento (2001) even suggests that the Lake District became nearly desolate at the end of the Neolithic, and the population vacuum was refilled during the Early Metal Period by a new population from the east, connected with the appearance of Textile Ware (c. 1900–500 BC) and indications of increasing residential mobility. Therefore, it is probable that for the Early Metal Period societies of the Lake District, the landscape as an embodiment of the mythical past was more central to their ritual life than any particular settlement site. Such a scenario is sup-

MUNICIPALITY	SITE	OTHER CAIRNS	DATING	FINDS
Mikkeli	Haukkavuori	-	Hela-2517: 3113 ±31BP, 1443–1287 cal. BC (m)	Some burnt mammal (human?) bone
Mikkeli	Hietaniemi	1	Hela-3815: 3138 ±30BP, 1500–1300 cal. BC; Hela-3816: 3050±28 BP, 1400–1225 cal. BC (h)	Burnt human and animal bone 115 g, quartz flakes
Iitti	Hiidensalmi	-	Hela-2519: 3160 ±31BP, 1501–1323 cal. BC (h)	Burnt human bone 64 g, quartz flakes, bowl-like stone
Kuopio	Honkasaari	4 (n)	-	-
Savonlinna	Häyrynjärvi a, cairn 5	8 (n)	-	Flint and quartz flakes
Savonlinna	Häyrynjärvi a, cairn 2	8 (n)	Hela-2518: 2311 ±30BP, 411–235 cal. BC (h); artefacts in accordance	Burnt human bone 79 g, ceramics, quartz flakes
Jyväskylä	Iso-Poro	-	-	-
Nokia	Kirkkosaari	-	Roman Iron Age artefacts	Bronze bracelet, iron axe
Mikkeli	Kitulansuo B	1	Hela-3733: 3079 ±27BP, 1415–1265 cal. BC (h and m)	Burnt human and animal bone 4 g, quartz flakes
Mikkeli	Kitulansuo C	1	Hela 3635: 3044 ±25BP, 1395–1220 calBC (h); Hela 2636: 2914±26 BP, 1210–1015 cal. BC (h)	Burnt human and animal bone 196 g, quartz flakes
Kuopio	Kuusikkolahdenniemi	3	Late Bronze Age artefacts	Bronze button and razor, some burnt human bone, ceramics
Iitti	Lapinsaari	-	-	Flint and quartz flakes
Hankasalmi	Luojinniemi	-	-	Bronze sheet
Viitasaari	Luotolansaari	-	-	Burnt bone <1 g
Mänttä-Vilppula	Nuijanniemi	-	GrA-19108: 1680 ±45BP, cal. AD 242(91.7%)430 (undet.); artefacts in accordance	2 bronze ornaments, iron arrow-head(?), burnt bone, ceramics
Jyväskylä	Oravasaari	-	-	-
Virrat	Pöykkysaari b	2	-	-
Äänekoski	Pyhänsalo 1	-	GrA-18299: 2460 ±50BP, 763–414 cal. BC (h)	Burnt human bone 610 g
Jyväskylä	Pyhäsaari	2	GrA-18301: 3010 ±30BP, 1386–1128 cal. BC (h)	Burnt human bone 44 g
Viitasaari	Pyykkisaari 1	1 (h)	GrA-18302: 3570 ±60 BP, 2045(91.9%)1746 cal. BC (s)	Burnt seal and pike bone 15 g
Viitasaari	Rantala B	2 (b)	Hela-3119: 3041 ±29 BP, 1396–1217 cal. BC (h); Roman Iron Age artefacts	3 bronze ornaments, glass bead, iron axe, burnt human bone 23 g, quartz flakes
Tampere	Reuharinniemi	1	Hel-4440: 1240 ±80BP, cal. AD 654–968 (c); artefacts in accordance.	Ceramics
Siilinjärvi	Saunalahti	1	Bronze Age artefact	Flint arrowhead
Jyväskylä	Taikinaisniemi	-	-	Burnt human bone 370 g
Nokia	Urhatunsaari	2	Roman Iron Age artefacts	Bronze bracelet, burnt bone
Pihtipudas	Vaaksianniemi	1**	-	Bronze sheet found outside two tampered cairns

Table 1. The attested Lapp cairns in the Lake District. * Dimensions based on J.R. Aspelin's (1886) and Julius Paasonen's (1888) somewhat contradictory reports of cairns' measurements before excavation and subsequent reassembling. **Either of the two cairns at the site could have contained the bronze sheet. (b) – bone, (c) – charcoal, (h) – human bone, (m) – mammal bone, (n) – some natural, (s) – seal bone.

STRUCTURES	SIZE (m)	DIST. TO LAKE	BUILT ON	REFERENCES
-	7.5 x 9 x 0.6(?)*	30 m	Bedrock	Aspelin 1886; Paasonen 1888; Mannermaa 2010b; Saipio 2011
-	7,5 x 7 x 0.5	170 m	Bedrock	Saipio 2015b; Vuorenmaa 2016
Wall-like structure in S side	16 x 7 x 0.3–0.4 (double cairn)	20 m	Bedrock	Miettinen 1995; Mannermaa 2010a; Saipio 2011
Kerb in N side	9 x 5 x 0.5	70 m	Bedrock	Pohjakallio 1974; 1978a
Kerb in W and S sides, natural bedrock crevice under cairn	4.5 x 2.5 x 0.4	20 m	Bedrock	Lehtinen 1994
-	3.5 x 2 x ?	20 m	Bedrock	NM 28930; Mannermaa 2010c; Saipio 2011
Partial kerb	7.2 x 7 x 0.6	>200 m(?)	Bedrock	Ailio 1912
-	14 x 8 x shallowish	20–30 m	Natural stone field	Kivikoski 1935
Transversal stone row in S part	10 x 5–6,5 x 0.3	130 m	Bedrock	Saipio 2015b; Vuorenmaa 2015
Partial stone cist with W and N sides	9 x 6 x 0.4-0.5	150 m	Bedrock	Saipio 2014; Vuorenmaa 2014
-	7 x 7 x 0.7	<10 m	Natural stone field	Pohjakallio 1974; 1976
Kerb in SE and S sides	8 x 8 x 1	15 m	Bedrock	Miettinen 1992
-	10 x 10 x 0.4-0.5	40 m	Bedrock	Vilkuna 1983
-	9 x 9 x 0.5	70 m	Bedrock	Taavitsainen 1993a
-	6 x 6 x ?	30 m	Bedrock	Taavitsainen 2003b; Adel 1999b
Partial cist-like stone setting in N side	7 x 5 x 0.4	30 m	Bedrock	Sarasmo 1955; Miettinen & Miettinen 1964; Seppä 2005
Kerb, natural bedrock crevice under cairn	10 x 10 x 0.6	70 m	Bedrock	Salo 1954
Outer wall around N, NW, E and SE sides	7 x 7 x 0.7	15 m	Bedrock	Taavitsainen & Vilkuna 1981; Taavitsainen 2003a.
Wall-like stone setting "in the lakeside"	14 x 4.5–6 x 0.7	40 m	Bedrock	Taavitsainen 1992; Taavitsainen 2003a.
-	16 x 7 x 0.5	30 m	Stony moraine	Taavitsainen 1993b; 2003a; Ukkonen1993
-	6 x 6 x ?	<10 m	Bedrock	Europaeus 1927a; 1927b; Mannermaa 2012c.
Cist-like stone structures	8 x 8 x 0.5	30 m	Bedrock	Adel 1999a
Cup marks under cairn	6.5 x 6.5x 0.6	140 m	Bedrock	Pohjakallio 1977; 1978b
Natural bedrock crevice under cairn	?	20 m	Bedrock	Miettinen 1965
-	5 x 5 x 0.5	30 m	Bedrock and stony gravel	Sarasmo 1971
-	5 x 5 x 0.3 and 2.5–3 x 4 x 0.2	30 m	Bedrock	Miettinen 2002

Table 1. The attested Lapp cairns in the Lake District. * Dimensions based on J.R. Aspelin's (1886) and Julius Paasonen's (1888) somewhat contradictory reports of cairns' measurements before excavation and subsequent reassembling. **Either of the two cairns at the site could have contained the bronze sheet. (b) – bone, (c) – charcoal, (h) – human bone, (m) – mammal bone,(n) – some natural, (s) – seal bone.

ported by the fact that while Neolithic pit burials have typically been found within a settlement area or adjacent to such (Lappalainen 2007), most of the alleged and confirmed Early Metal Period cairns in the Lake District have been found more than 1 km away from any prehistoric settlement, while those within a few hundred metres of an Early Metal Period dwelling site are usually separated from it by water.

EARLY METAL PERIOD CAIRNS IN THE LAKE DISTRICT

Judging from the current assemblage of AMS datings, cairn-building was adopted in the Lake District at the turn of the Neolithic and the Early Metal Period (Table 1). Early Metal Period burial/ritual cairns are also typical for the coastal areas of Finland. As a matter fact, coastal Early Metal Period cairns appear to number in the thousands, while only a few hundred possible or attestable Early Metal Period cairns have been located in the Lake District. The coastal cairns are, however, geographically mostly separated from the Lake District cairns by lake-poor zones containing no attested Early Metal Period cairns (Fig. 1). In terms of archaeological cultures, this border zone generally coincides with the traditional division of Bronze Age Finland into the Scandinavian-influenced CBA zone and inland Finland. In terms of finds, and morphology and spatial relation to water, the Lake District cairns and the cairns within the CBA zone have much in common, but there are also some interesting differences. The most obvious differences are related to the facts that Lake District cairns consistently lack monumental size, and have no spatial connection with agricultural activities. These differences and their possible implications are examined later in this article.

The Lake District cairns presumed or confirmed to be of Early Metal Period origin are called "Lapp cairns" (*lapinrauniot)* in Finnish archaeological research. The term derives from an old common name given to these enigmatic cairns by the historical period inhabitants of the Lake District. To be precise, a literal English translation would be "Lapland's cairn". "Lapland" (*Lappi)* is a recurring toponym for (former) wilderness areas in southern and central Finland. In the past, archaeologists have sometimes referred to all Lake District cairns outwardly resembling Early Metal Period coastal cairns as "Lapp cairns", but nowadays the term implies a suggestion that the cairns were built by the prehistoric fisher-hunter-gatherers of the Lake District, for burials or other ritual purposes. Some coastal cairns are also occasionally called Lapp cairns, based upon the assumption that these particular cairns have been built by people originating in the inland zone (e.g. Perttola 2005: 14). The interpretative use of the term "Lapp cairn", followed also in this article, means that a cairn originally classified as a Lapp cairn may lose this classification by turning out to be an Iron Age hearth, a historical period border marker, the base of a decayed cottage, etc. Since only a fraction of the Lake District cairns classified as Lapp cairns have been excavated, in most cases the classification is more or less uncertain. Sometimes the nature of the cairn remains uncertain even after excavation, since unburned organic material normally does not survive more than about a thousand years in the acidic soil of Finland. The number of Lake District cairns confirmed as Lapp cairns by finds or structural type currently number less than 30 (Table 1). Therefore, defining a "typical Lapp cairn" is a tricky procedure. However, the confirmed Lapp cairns have some notable similarities that appear to be generally common among lakeshore cairns that give no indication of an origin in the Late Iron Age historical period.

As far as we know, Lapp cairns are invariably located on lakeshores, typically on a bedrock exposure with a good view to the lake (Table 1). Occurrence of Lapp cairns farther away from lakeshores is sometimes suggested, but remains unattested (e.g. Lehtosalo-Hilander 1988: 146, 148; Perttola 2009: 63). The significance of the relation between Lapp cairns and lakes is emphasized by the fact that more than half of the confirmed Lapp cairns have been built on a lake island (which is sometimes nowadays a cape due to shore displacement or modern water regulation).

Some confirmed Lapp cairns have been built on natural boulder fields, but location on soil ap-

pears to be an indication that the cairn is not a Lapp cairn. The now destroyed "Lapp cairn" of Multapakanniemi 1 in Saarijärvi, excavated by Hjalmar Appelgren-Kivalo in 1914, was built on podzol soil and contained some burnt bone among charcoal. Osteological analyses by Kristiina Mannermaa (2012b) and AMS dating (Hela-3120: 736 ±24 BP) revealed that the cairn was a proto-historic hearth, probably related to long-distance hunting and fishing activities in the wilderness areas (*eränkäynti)*. There are also a number of other cairns located on soil that have been excavated as possible Lapp cairns, but have turned out to be something else (e.g. Lehtinen 1988; Taavitsainen 1992a; Sepänmaa 1996).

Approximately 85% of attested Lapp cairns are located within 50 m of the nearest Early Metal Period lake shoreline; however, it seems that the distance can sometimes be more than 200 m, if the cairn is located on a high cliff from where the view to the lake is topographically unobstructed. The height of a Lapp cairn from the water level thus varies greatly, from a few metres to 30–40 m.

Unlike later Iron Age burial cairns situated near farms and fields, Lapp cairns typically contain no earth-fill, apart from a thin sand or silt layer at the bottom of the cairn. Lake District cairns are usually round or roundish, 2.5–10 m in diameter and only 0.25–0.7 m in height (although some reach the height of 1 m). Notable exceptions to the generally roundish morphology are some long-cairns, whose length is 10–18 m and width less than half of the length. These long-cairns are quite possibly originally round cairns that have been later extended, considering that the two ends of these cairns are typically of clearly different width (Taavitsainen 1992b; Taavitsainen 1993b; Miettinen 1995). There are usually only one or two Lapp cairns at one site, although groups of some half a dozen Lapp cairns are also known (Table 1). Approximately half of the excavated Lapp cairns have revealed some clear structures. Detected structures are mostly kerbs and wall-like stone settings; cist-like inner structures have been documented in a few cases. Interestingly, kerbs, linear settings, and cists are all typically partial, at least at the time of excavation.

Lapp cairns are notoriously poor in finds. Excavations usually yield only burnt bone and perhaps quartz flakes, if any finds at all. The bone fragments are typically deposited in the sand layer at the bottom of the cairn, without pyre debris. In a few cases, small ceramic sherds have been found in the sand layer (Table 1). Quartz and flint flakes found in Lapp cairns appear to be spatially detached from bone depositions, sometimes occurring mostly within the stone packing rather than below it (Saipio 2014; 2015a; 2015b). In a couple of cases, knapped flint and/or quartz constitute the only find material of a Lapp cairn (Miettinen 1992; Lehtinen 1994). As for the bone finds, in most cases *Homo sapiens* is the only identified species, although non-human bone undetermined at the species level has been encountered in several recent osteological analyses (Vuorenmaa 2014; 2015; 2016). An interesting exception is the earliest dated Lapp cairn, Pyykkisaari 1 in Viitasaari, containing only seal and pike bone, deposited in the sand layer in a similar way that human bone usually is (Taavitsainen 2003a). The amount of bone in properly excavated Lapp cairns varies between a few fragments and some 600 g, indicating that typically only part of the bone material of the deceased had been deposited in the Lapp cairn (Taavitsainen 2003a; Asplund 2008: 79; Perttola 2009: 64; Saipio 2011). In excavated coastal cairns the amount of bone is generally within the same range, apart from some cases where multiple events of bone deposition are implied by osteological analyses or the spatial distribution of bone material (Salo & Lehtiperä 1970; Vormisto 1985; Tuovinen 2002: 173). The presence of more than one human individual has been osteologically determined in only one Lapp cairn so far, Kitulansuo C in Mikkeli (Vuorenmaa 2014). This probably has more to do with the limited nature of many of the analyses of Lapp cairn bone finds than the actual frequency of multiple bone depositions in Lapp cairns.

Some Lapp cairns have yielded metal or stone artefacts besides or instead of burnt bone material. Most of the typologically dateable metal artefacts are from the Roman Iron Age (AD 0–400), at the very end of the Early Metal Period. According to the current AMS datings, the earliest bone deposi-

tions in Lapp cairns appear not to have been accompanied by metal or stone artefacts. Interestingly, a recent AMS date from the Rantala B Lapp cairn in Viitasaari indicates that the dated bone deposition was more than a thousand years old when the cairn received an exceptionally rich Roman Iron Age prestige good deposition (see Table 1). Since the cairn was subject to two episodes of treasure hunting before the excavation, it is unfortunately not possible to say whether the Roman Iron Age artefact deposition was accompanied by a new bone deposition or not (Europaeus 1927a; 1927b). Metal artefact finds in two other Lake District cairns indicate that offerings related to old cairns may have been common during the Roman Iron Age. The Kirkkosaari Lapp cairn in Nokia appears to be only a slightly modified natural stone formation, but an iron axe and a bronze bracelet of Roman Iron Age date have nonetheless been found in it, and it is possible that it has never contained any bone material (Kivikoski 1935). At the site Taikinaisniemi in Jyväskylä, an iron spearhead and iron knife of Roman Iron Age date appear to have been deposited outside a Lapp cairn containing burnt human bone (Miettinen 1965). AMS dating of a human bone fragment from the cairn (Hela-3118: 2148 BP) is unfortunately not reliable due to incomplete combustion of collagen in the bone.

The often meagre amount of human bone material in Lapp cairns suggests that the bone depositions were not related to funerary rituals dealing with the death of the particular individual, but to ancestral rituals made for the benefit of the living (Bolin 1999; Taavitsainen 2003a; Asplund 2008: 79, 82). Considering this, it is of interest that some Lapp cairns have contained no indication of human bone depositions (Table 1). The presence of burnt non-human material in the Saunalahti and Pyykkisaari 1 Lapp cairns suggests that the choice of inhumation over cremation is not a categorically applicable explanation for such cases. Excavation of the Saunalahti cairn by Lauri Pohjakallio (1977) yielded a burnt straight-based flint arrowhead, broadly dateable in the range of 1900–600 cal. BC. In the bedrock surface below the cairn, there were small depressions interpreted as cups for offerings (so called cup marks) by Pohjakallio (1978b), but later suggested to be natural formations by Jussi-Pekka Taavitsainen (Perttola 2005: 11). Unusually for a Lapp cairn, the bedrock surface under the cairn also manifested clear traces of burning. Since flint does not occur in the Finnish bedrock, the arrowhead was probably considered a special artefact. Interestingly, in Middle and Late Neolithic Sweden flint artefacts were often ritually burnt in a way that made them resemble cremated human bone (Larsson 2011). Equally interesting is the fact that the Pyykkisaari 1 cairn containing burnt seal bone is located in an island in Lake Keitele, where no relic seal population has ever been attested, unlike in Lake Saimaa and Lake Ladoga (Ukkonen 2002). It is quite plausible that the power of human bone was in some circumstances substituted by other powerful material in Lapp cairns. When combined with the evidence of stone knapping and sacrificial artefact depositions at Lapp cairn sites, such negotiability would suggest that the location of a cairn within a landscape may have been more essential to its ritual significance than any specific episode of ritual activity.

STANDING OUT OR MERGING INTO?

While the fact that Lapp cairns are spatially related to bedrock exposures and lakeshores is well-established, the nature of the relation is open to many questions. There is a general tendency to presume that the appearance of cairn-building in the Lake District at the beginning of the Early Metal Period was related to territoriality and stratification (e.g. Salo 1981: 421; Vilkuna 1993: 51; 1999: 60; Maaranen 1995: 174). According to this line of thinking, a Lapp cairn situated on a bedrock promontory of a lakeshore manifested ownership of land and fishing water, as well as the might of the person whose bones were deposited in the cairn, sending a message to outsiders approaching the cairns from the lake or from inland. Such a practise is assumed to have been adopted from the CBA zone (e.g. Salo 1984: 181–82; Maaranen 1995: 174; Lavento 2015: 168). An important influence behind this chain of thought is Colin Refrew's (1973: 132–42) classical processualist interpretation of the earliest Neolithic megaliths of the Orkney Islands as ter-

◄ Figure 2. The Kitulansuo C Lapp cairn from the west before the excavation in 2014, covered by a thick layer of vegetation. Photo: Jarkko Saipio.

▼ Figure 3. The Kitulansuo C Lapp cairn from the south-west during the excavation in 2014. The vegetation layer has been removed but all the stones are still in place. Photo: Jarkko Saipio.

ritorial markers of segmentary societies. However, as a whole, the functionalist-diffusionist interpretation of Lapp cairns rests more on loose intuitive argumentation than any theoretical framework (see Vilkuna 1993: 51; Salo 1984: 181; Lavento 2015: 168). Therefore, the assumption of intensified territoriality behind the adoption of cairn-building in the Lake District has not been examined against the post-processualist critique of Renfrew's model. The contextual archaeological strand of such critique emphasises that archaeological remains of mortuary activities are always related to a particular historical situation whose archaeological study requires hermeneutic dialogue between data and theory (e.g. Hodder 1992: 30–42; Parker Pearson 1999: 132–141; Hodder & Hutson 2003: 29–30).

In case of Lapp cairns, the need to take into account the particularities of the phenomenon is quite pressing. There are a number of problems with the idea that the Lapp cairns were meant to stand out from the surrounding landscape as signs of land ownership. One of these is the general archaeological context of Lapp cairns. Textile Ware settlements in the Lake District give no implication of stratification, growing complexity, regular long-distance exchange, or increasing territoriality (Lavento 2001). On the contrary, the changes in settlement pattern and the suggested population decline at the turn of Early Metal Period strongly point to disintegration of possible Late Neolithic territoriality and stratification.

Furthermore, the idea of Lapp cairns as imitations of coastal cairns, and the ideological values related to them, was born before AMS dating of burnt bone became possible at the turn of the millennium. The notable lack of Bronze Age artefact finds from Lapp cairns and possible Lapp cairns led archaeologists to believe that the Lapp cairn tradition was much younger than the coastal cairn-building tradition, since such finds are relatively common in coastal cairns (e.g. Salo 1984: 140; Salo *et al.* 1992). The number of AMS datings from Lapp cairns is still meagre, but the existing dates have changed the picture radically. Early Bronze Age dates are currently

Figure 4. Unexcavated probable Lapp cairn Piikinperse A on a bedrock promontory covered by vegetation, on the shore of Lake Louhivesi in Mikkeli municipality. Photo: Niko Anttiroiko.

proportionally more common in AMS dated Lapp cairns than in AMS dated coastal cairns, while the calibrated mean of the date of Pyykkisaari 1 is some three hundred years earlier than that of the earliest AMS dated coastal cairns so far (Asplund 2011).

The idea of Lapp cairns as territorial markers is also challenged by the fact that they are remarkably flat in shape and thus not very visible (Figs. 2–4). According to the cairn studies of Tapani Tuovinen (2002: 248) in the Turunmaa archipelago, the visibility of coastal Bronze Age cairns from the sea is generally grossly overestimated in Finnish Bronze Age studies. The visibility of Lapp cairns has not been studied systematically, but there is little doubt that most of the Lapp cairns are quite hard to notice from a distance due to their shallowness (see references in Table 1). Tampering with Lapp cairns in the course of their existence has, no doubt, often had some impact on their shape. However, Bronze Age coastal cairns appear to be generally much more conical in shape than Lapp cairns, despite the fact that they have been frequently subject to tampering as well (Salo *et al.* 1992; Vuorinen 2000: 182; Asplund 2008: 80). Furthermore, coastal cairns on Iron Age shorelines are also generally more flat in profile than Bronze Age coastal cairns (Salo *et al.* 1992; Vuorinen 2000: 182; Tuovinen 2002).

What makes the shallowness of Lapp cairns noteworthy is that if builders of Lapp cairns had wanted them to stand out from the landscape they could in many cases have made them significantly more visible with little additional labour input. Many of the excavated Lapp cairns are surrounded by great amount of stones that appear never to have been integrated into the cairn. The Kuusikkolahdenniemi Lapp cairn is built on a natural stone field containing three other possible Lapp cairns, all surrounded by stones apparently left *in situ* (Pohjakallio 1974; 1976). The excavated cairn at the site Rantala B is situated next to a lakeshore boulder field that appears to contain two natural stone formations resembling Lapp cairns (Europaeus 1927a; 1927b). Of the excavated Lapp cairns, the examples at the site Häyrynjärvi A and the example at Honkasaari are situated near cairns that were originally classified as Lapp cairns, but turned out to be natural on closer examination (Pohjakallio 1975; Bilund 1995).

In short, Lapp cairns piled on or adjacent to natural lakeshore stone formations tend to resemble such natural formations rather than stand out from them. The resemblances between Lapp cairns and natural lakeshore stone formations are not limited to cases where such phenomena are spatially connected to each other. According to Timo Miettinen (1995), the solitary Hiidensalmi Lapp cairn excavated by him had been taken to be a natural lakeshore stone formation by the local inhabitants before he classified it as a Lapp cairn during an archaeological survey in the area.

The smooth assimilation of Lapp cairns in their natural environment is all the more interesting when their spatial and visual patterns are compared with coastal cairns. Although most coastal cairns are no bigger than typical Lapp cairns, there is a significant minority of very large cairns among them. The largest of the round coastal cairns are more than 30 m in diameter and up to 4 m in height, while the largest

long cairns in the CBA zone well exceed the length of 40 m (Salo 1981: 131–143; Salo et al 1992; Vuorinen 2000; Asplund 2008: 80). Furthermore, the largest cairn groups in the CBA zone contain dozens of cairns. Importantly, the largest cairn groups and the most monumental cairns in the CBA zone appear to be connected with farmsteads (Salo 1981: 143–150; 1984: 134–137; Raike 2012; Lavento 167–168). Such a pattern in the CBA zone emphasises the lack of apparent association with domestication in the ritualisation process between Lapp cairns and their environment.

THE LAKESCAPE FROM THE LAPP CAIRNS

An important question is why Lapp cairns were so consistently built on elevated spots on lakeshores, if it was not to maximise their visibility. A closer scrutiny of the attested Lapp cairns suggests that the location of Lapp cairns on lakeshores has more to do with the view *to* the lake than with the view *from* the lake. A good view to the lake in the current time is almost invariably demonstrated in the excavation reports, by photographic documentation and spatial information, and in many cases also explicitly mentioned (Table 2). The situation at the time the cairns were built and used is indicated by the estimated original heights and distances of the cairns from the lake presented in Table 2. These estimations are only approximate, since the suggested Early Metal Period shore displacement chronologies of the lakes in question are mostly based on locations of dateable dwelling sites in relation to ancient shore banks. Short-term fluctuations in the water level may have been an important factor in choosing a location for a dwelling site at any given time. A further difficulty is posed by the fact that many of the confirmed Lapp cairns lack dating apart from the presumed Early Metal Period origin. However, there is no doubt that the Early Metal Period lake view from the cairns has invariably been either as good as or better than the current lake view. In the cases of Hietaniemi, Kitulansuo B–C, and Saunalahti, the water line has receded from the immediate surroundings of the cairn after the Early Metal Period, turning the original lake view into a view over a former lake bottom (Pohjakallio 1978b; Lavento 1994; Sepänmaa 1995). In the other cases, the view to the lake appears to have been roughly similar or somewhat better than presently.

Importantly, in most cases the topographic context of the cairn appears to have guaranteed a wide view to the lake even in densely forested landscape. The Lapp cairns situated near the lakeshore are typically located on an elevated bedrock exposure that continued right into the water during the Early Metal Period. The exposures may have become overgrown by moss, grasses, and shrubs if not cleared or subjected to eroding activities regularly, but their possible tree cover must have typically remained faint (see Fig. 4). It is probably notable that the Kilpisaari 2 "Lapp cairn", which is situated on a bedrock promontory from whence the view to the lake is almost completely blocked by dense forest, recently turned out to be a hearth structure (Saipio 2015c). The importance of a more or less unobstructed lake view is perhaps suggested even more strongly by the one attested Lapp cairn that appears to have been located more than 100 m away from the Early Metal Period lakeshore, Iso-Poro in Jyväskylä. The exact location of the cairn is in fact not known, since the excavation report of the now destroyed cairn is quite vague by modern standards (Ailio 1912). However, the photos in the excavation report clearly demonstrate that the very high elevation of the cairn must have provided an excellent lake view under any circumstances (Ailio 1912). Iso-Poro is not the only Lake District cairn classified as a Lapp cairn that is situated some distance from the Early Metal Period lakeshore but has an excellent view to the lake. The other such cases, however, remain as "probable" Lapp cairns due to lack of excavation. The cruciality of a lake view for a ritual cairn site in the Early Metal Period Lake District is further suggested by the fact that some of the attested Lapp cairns are located on spots where the longest line of sight over open water is more than 1 km (Table 2). This is notable, considering that the lakes in the Lake District are typically dotted by islands separated from the mainland and each other by narrow straits. The potential significance of a long view over water for Lapp cairn sites is further emphasised by the fact that Neolithic rock art panels are very

SITE	EMP LAKESCAPE CONTEXT	EMP HEIGHT AND DISTANCE FROM THE LAKE (m)	TOPOGRAPHIC CONTEXT	DIRECTIONS OF LAKE VIEWS
Haukkavuori	Mainland, <100 m wide cape	Height ~7, distance 20	Bedrock promontory	W
Hietaniemi	~5 ha island(?)	Height ~5, distance 15	Bedrock promotnory	SW+W+S
Hiidensalmi	>100 ha island	Height ~5, distance 15	Bedrock promontory	S+E
Honkasaari	15–20 ha island	Height 5–9, distance 20–70	Bedrock promontory	NW+N
Häyrynjärvi a	>100 ha island	Height ~5, distance 10	Bedrock promontory	S+SE+SW
Iso-Poro	60–70 ha island	Height 30–40, distance > 200(?)	Highest part of a bedrock island	W(?)
Kirkkosaari	<2 ha island	<5, distance 20–30	Shoreline stonefield	E+N+S
Kitulansuo B	5–10 ha island(?)	Height ~8, distance 20	Bedrock promontory	W+E
Kitulansuo C	5–10 ha island(?)	Height ~7, distance 20	Bedrock promontory	W+E
Kuusikkolahdenniemi	Mainland, <100 m wide cape	Height <5, distance <10	Stony moraine hill	W+NW+SW
Lapinsaari	2–3 ha island	Height ~5, distance 15	Bedrock promontory	N+E+W
Luojinniemi	>100 ha island	Height <5, distance 30–35 (?)	Bedrock promontory	N+E+NW
Luotolansaari	>100 ha island	Height ~14, distance 70	Bedrock promontory	S+W
Nuijanniemi	Mainland, 100 m wide cape	Height <6, distance 30	Bedrock promontory	N+W+E
Oravasaari	>100 ha island	Height <5, distance 30 m	Bedrock exposure	N+E
Pöykkysaari b	<2 ha island	Height ~19 , distance 70	Highest part of a bedrock island	SW+NE
Pyhänsalo 1	>100 ha island	Height <5, distance 15	Bedrock promontory	N+E+NW
Pyhäsaari	20–25 ha island(?)	Height ~5, distance 40	Bedrock promontory	W
Pyykkisaari 1	<2 ha island	Height 5–6, distance 30	Stony moraine hill	E+N
Rantala B	Mainland, shoreline	Height <5, distance <10	Shoreline stone formation	W+N
Reuharinniemi	Mainland, <100 m wide cape	Height ~5, distance 30	Bedrock promontory	N+E+S
Saunalahti	Mainland, shoreline	Height <5, distance 20–30	Elevated bedrock exposure	S+W
Taikinaisniemi	Mainland, 100 m wide cape	Height <5, distance <10	Bedrock promontory	NW
Urhatunsaari	<2 ha island	Height ~6, distance 30	Highest part of a bedrock island	E+W+S
Vaaksianniemi	Mainland, 100 m wide cape	Height ~5, distance 30	Bedrock promontory	S+W

Table 2. The attested Lapp cairns in the Early Metal Period (EMP) and the current lakescape.

often located on cliffs from whence the lake view is limited to a few hundred metres wide strait (Miettinen 2005: 108; see also Fig. 5). Attested Lapp cairns are also sometimes situated by a narrow strait but, in contrast to rock art panels, they are in such cases invariably located on a spot that also provides a long line of sight over open water (Fig. 5–6).

Most of the attested Lapp cairn sites have a lake view to more than one direction. That appears to reflect the fact that they are typically not merely accompanied by a lake but surrounded by it. Almost two thirds of all attested Lapp cairns were built on a lake island, while those located on the mainland typically lay in a narrow cape. Interestingly, the islands containing attested Lapp cairns fall into two main groups in terms of size (Table 2). Some of them are major islands, where circumstances for human habitation may have resembled those on the mainland shores of the same lake. Others, in contrast, are (or were during the Ear-

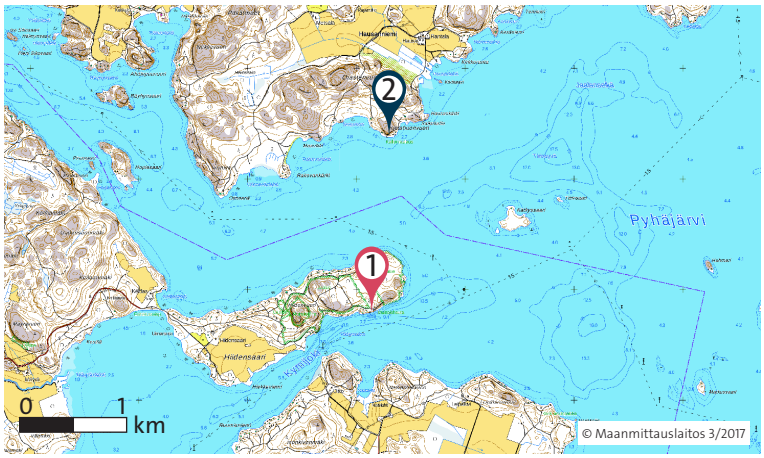
GEN. DIR. OF LAKE FROM THE SHORE AROUND	LONGEST LAKE VIEW IN THE EMP	QUALITY OF LAKE VIEW DURING EXCAVATION	LAKE VIEW IF DENSE FOREST AROUND
W	2000 m in W	Good	Good
SW	1600 m in SW	Good (to the former bay)	Good
S	3600 m in E	"Magnificent" (Miettinen 1995)	Good
N	2200 m in W	Partially obstructed by trees	Possibly partially obstructed
SW	800 m in SE	Good	Good
W?	800-1000 m in W (?)	Good	Good
NE	4500 m in NE	Good	Good
W	300 m in W	Good (to the former bay)	Good
W	300 m in W	Good (to the former bay)	Good
W	2200 m in NW	Slightly obstructed by trees	Possibly partially obstructed
N	2500 m in NNE	"Magnificent" (Miettinen 1992)	Good
NE	1600 m in N	"Beautiful" (Vilkuna 1983)	Possibly partially obstructed
SW	1200 m in S	"Magnificent" (Taavitsainen 1993a)	Possibly partially obstructed
N	2600 m in N	"Wide" (Adel 1999b)	Possibly partially obstructed
NE	2000 m in E	Partially obstructed by trees	Possibly mostly obstructed
SW	1000 m in NE	"Wide" (Salo 1954)	Possibly mostly obstructed
N	3700 m in NE	Good	Good
W	700 m in W	"Good" (Taavitsainen 1992b)	Possibly partially obstructedd
NE	700 m in ESE	Slightly obstructed by trees	Possibly partially obstructed
NW	3300 in WNW	Good	Good
N	>5000 m in N	"Good to all directions" (Adel 1999a)	Possibly partially obstructed
W	300 m in W	Mostly obstructed by trees	Possibly partially obstructed
NW	>5000 m in W	Slightly obstructed by trees	Good
E	>5000 m in S	"Wide" (Sarasmo 1955)	Possibly partially obstructed
SW	1300 m in S	Partially obstructed by trees	Possibly partially obstructed

Table 2. The attested Lapp cairns in the Early Metal Period (EMP) and the current lakescape.

ly Metal Period) small islands consisting mostly of bedrock covered by only a thin layer of soil. Only one of the islands containing an attested Lapp cairn site also features a detected Early Metal Period dwelling site, or any prehistoric dwelling site. This exception is a former lake island by the Kitulansuo bog, containing cairn sites Kitulansuo A–C and the dwelling site Kitulansuo D, which appears to have been used throughout the Early Metal Period (Lavento 1998: 50; 2001: 238).

Another interesting indication of the importance of the lakescape for a Lapp cairn site is provided by the partial encircling or inner stone structures detected in some excavated Lapp cairns. Such structures appear to be generally directed towards the lake. Although the number of excavated Lapp cairns containing a kerb or an inner stone setting is small, the pattern of partial structures covering only the sides towards the lake is notable. In seven out of the nine excavated Lapp cairns where a stone wall, a

◄ Figure 5. The Lapp cairn site Lapinsaari (1) and the rock art sites Karhusaari (2), Kelloniemi Haukkavuori (3,) and Rautakannanvuori (4) on Lake Konnivesi, Iitti municipality.



▼ Figure 6. The Lapp cairn site Hiidensalmi (1) and the rock art site Kintahuonvuori (2) on Lake Pyhäjärvi, Iitti municipality.

kerb, or a stone cist is discernible only on some particular side or sides, the primary lakeside is present in the structure (Table 3). Admittedly, the majority of the excavated Lapp cairns have clearly been tampered with to some extent before excavation (e.g. Taavitsainen 2003a). However, the wall-like multi-layered stone setting of Hiidensalmi Lapp cairn on the lakeside of the cairn is unlikely to have originally surrounded the whole double cairn (Miettinen 1995). Similarly, the well-preserved encircling stone ring of the Pyhänsalo 1 cairn, consisting of 3–4 layers of dry-walled stones, covers all the sides facing the lake but is totally absent in the one quarter of the cairn where it would have faced only land (Taavitsainen & Vilkuna 1981). The partiality of the stone cist in the Kitulansuo C cairn is also notable. The osteological minimum number of individuals among the human bone material of the cairn is two (Vuorenmaa 2014), while the vertical and horizontal distribution of the bone material within the cist suggests that the actual number of bone depositions is higher (Saipio 2014). The existing long side of the cist was aligned with the nearest lakeshore during the Early Metal Period. The absence of the eastern long side of the cist may thus be related to a practice of approaching the cairn face towards the lake while conducting bone depositions inside the cist. In the Oravasaari Lapp cairn, which contained no finds, the alleged stone cist also appears to lack the side facing inland (Sarasmo 1955).

LAPP CAIRNS AND CARDINAL DIRECTIONS

Some scholars have suggested that Lapp cairns are often located in capes aligned towards the north, on the basis of their personal experiences in archaeological field surveys (Vilkuna 1993: 50; Miettinen 1993: 88). Such impressions are neither based on systematic studies nor shared by all archaeologists (Perttola 2009: 66). As for the attested Lapp

LAPP CAIRN	LONGITUDINAL AXIS OF THE CAIRN	ALIGNMENT OF THE PROMONTORY	ALIGNMENT OF THE NEAREST LAKESHORE
Hiidensalmi	SW–NE	SW–NE	WSW–ENE
Honkasaari	E–W	SE–NW	SE–NW
Kitulansuo B	SSE–NNW	SSE–NNW	SSE–NNW
Kitulansuo C	SSE–NNW	SSE–NNW	SSE–NNW
Pyhäsaari 1	SE–NW	S–N	S–N
Pyykkisaari 1	SE–NW	SSE–NNW	S–N

Table 3. The longitudinal axes of elongated attested Lapp cairns in relation to their topographic settings.

cairns, the general orientation of the capes or shorelines around them, in terms of the eight cardinal and intercardinal directions, are presented in Table 2. The results are interesting but rather ambiguous. Orientations related to the west and north figure much more prominently than those related to the east and south. There is not a single case where the shore around an attested Lapp cairn would clearly face south-east. However, the situation becomes much more complicated if the direction of the longest lake view from each Lapp cairn site is taken into account. The Hiidensalmi Lapp cairn, for example, is located on the southern shore of a lake island, on a spot where the longest lake view opens towards the east (Fig. 7). It is also notable that, of the six Lapp cairns sites where the shoreline faces south-west, four have the longest lake view towards the south-east or south. The definition of the lake orientation of a Lapp cairn site in terms of cardinal directions is thus often open to interpretation. The orientation of the shoreline and the direction of the longest line of sight over water appear to be most consistent at the Lapp cairn sites located on shores opening straight to the west. However, as noted above, some of the attested Lapp cairns are clearly not oriented towards the west by any definition. More research is apparently needed before any firm conclusion can be made - apart from that there is clearly no pattern without exceptions.

There is of course also the possibility that Lapp cairns have some cardinal orientations not dictated by the location of the lakeshore. The longitudinal axis of the clearly elongated cases among Lapp cairns could potentially offer a possibility to detect such orientations. The topographical settings of such Lapp cairns, however, suggest that the cardinal direction of the longitudinal axis is not significant independently of the lakeshore. Among the attested Lapp cairns there are three clear long-cairns (Hiidensalmi, Pyhäsaari 1 and Pyykkisaari 1) and three less pronouncedly elongated cairns (Honkasaari, Kitulansuo B and Kitulansuo C). In all these

Figure 7. Human figures on the Juusjärvi rock painting panel, in Kirkkonummi municipality. Photo. Jarkko Saipio.

six cases, the longitudinal axis of the cairn more or less follows the lakeside edge of the promontory that the cairn is located on (Table 3). Tapani Tuovinen (2002: 161) published similar results with coastal cairns in Turunmaa archipelago.

ROCK ART PANELS IN THE LAKE DISTRICT

As implied above, Stone Age rock art sites are of interest in contextualising Lapp cairns in the ritual landscape of the Early Metal Period Lake District. Most importantly, the art must have been generally visible to the Early Metal Period communities building the cairns. In the area of Finland, the detected prehistoric rock art consists of paintings made of red ochre. Of the approximately 140 rock surfaces where obvious or possible prehistoric rock paintings have been found in Finland, more than 90% are situated in the Lake District (Fig.1). The rock art panels of the area consist almost exclusively of vertical surfaces of steep lakeshore cliffs (e.g. Lahelma 2008: 20). The number of discernible figures in a rock art site varies from one to more than fifty. The most common subjects are schematic humans (Fig. 7), elks, and boats with crews drawn with schematic lines (Lahelma 2008: 23–6). Geometric patterns and hand prints also feature prominently, while snakes, birds, fish, bear, and some other non-cervid animal figures appear occasionally (Lahelma 2008: 26–8).

According to current shore displacement datings of rock paintings on the shores of the major lakes Päijänne and Saimaa (and lakes formerly connected to them), the rock art tradition seems to have been established around 5000 BC and come to an end around the turn of the Neolithic and the Early Metal Period (Jussila 1999; Poutiainen & Lahelma 2004; Seitsonen 2008). However, there is sparse but convincing evidence that the Stone Age rock paintings continued to be venerated during the Early Metal Period. The few prehistoric artefact or bone finds plausibly related to rock art panels are mostly of Early Metal Period origin, according to both radiocarbon datings and artefact typology (Table 4). The most notable of these finds is a hearth on a narrow ledge below the Taipalsaari Valkeisaari rock art panel, containing sherds of a Textile Ware vessel that appears to have contained an anthropomorphic pebble (Lahelma 2006). The find assemblage of the hearth also contains simple quartz artefacts and the charred remains of plants, including some edible plants, such as raspberry and fat hen (Lahelma 2006).

The general lack of Neolithic finds related to rock art panels suggests that the Early Metal Period activities around these sites may not represent a direct ritual continuation from the Neolithic, but rather a later re-interpretation of the sites (Lahelma 2008: 41). The substantial population change suggested by Lavento (2001) provides a possible explanation for such a shift in the use of the rock art sites.

SITE (municipality and name)	DATEABLE FINDS	DATINGS
Taipalsaari Valkeisaari	Textile Ware sherds from land (NM 17049; NM 35202)	(Hela-1127) 3100 ±50BP, 1494–1227 cal. BC
Iitti Kotojärvi (Haukkavuori)	Unburned woodcock bones from water (NM 18428), unburned elk bones from water (NM 18428)	(Hela-434) 3275 ±35BP, 1631–1455 cal. BC (Su-775) 3300 ±100BP, 1879–1329 cal. BC
Laukaa Saraakallio	2 straight-based quartz/stone arrowheads from land (NM 21774; NM 39143)	Early Metal Period
Mikkeli (Ristiina) Astuvansalmi	Straight-based quartz arrowhead from land (NM 17636) slate arrowhead from land (NM 17636) 4 anthropomorphic and zoomorphic amber objects from water (NM 25771; NM 26331; NM 27146)	Early Metal Peiod Neolithic Neolithic

Table 4. Dateable prehistoric finds associated with rock art panels.
NM= Finnish National Museum collections.

Figure 8. The bedrock promontory of the rock art site Ruusin Turasalo in Taipalsaari would have provided an excellent location for a Lapp cairn, but the nearest probable Lapp cairn site is located some 1500 m from the site. Photo: Antti Lahelma.

LAPP CAIRNS AND ROCK ART: SPATIAL CONSIDERATIONS

Continued veneration of at least some rock art sites during the Early Metal Period indicate that cairns did not replaces rock paintings as sites of ritual activities, but rather co-existed with them in the ritualised landscape. The spatial relations between Lapp cairns and rock art sites are of obvious interest in this context. Many of the rock art sites are located on promontories that would have been ideal Lapp cairn sites, at least in the light of the common denominators of the attested Lapp cairn sites studied so far (Fig. 8, see also Lahelma 2008: Appendix 3). No Lapp cairns, however, have been located on bedrock promontories containing rock paintings. The number of attested Lapp cairns is of course too meagre to form a basis for firm conclusions about the subject. However, the situation changes if "probable Lapp cairns" are also taken into account. Basing a spatial study of Lapp cairn contexts on uncertain Lapp cairns is of course risky, given the fact that many "typical Lapp cairns" have turned out to be other types of cairns upon excavation. Any emerging pattern unsupported by the attested specimens could easily be a result of the significant presence of some other cairn type in the material. Simple use of sites officially classified as "Lapp cairns" in the Registry of Ancient Monuments as "probable Lapp cairns" would be especially risky, since the classification of cairns in the registry is greatly influenced by inter-observer variation and ambiguities in the classification system itself. Therefore, I have thus far limited the scope of this article to attested Lapp cairns. However, the absence of certain kinds of sites in certain kinds of places is possible to point out even by material containing a great number of uncertain cases.

In the Registry of Ancient Monuments, at the beginning of the year 2015 there were altogether 215 sites classified as Lapp cairn sites. A few of them are located in coastal areas, due to variable uses of the term in archaeological studies. Besides, some of those located in the Lake District should have been updated as other kinds of sites, while some of the attested Lapp cairns have not been tagged as "Lapp cairns" in the rather confusing classification system of the registry. Therefore, the locations of those 215 sites can only be used for preliminary conclusions. Nevertheless, they provide a research data set that has not been modified by the present author in any way.

Rock painting sites considered to represent the Stone Age painting tradition in the Registry of Ancient Monuments numbered 134 at the beginning of the year 2015. To examine the distances between "Lapp cairn sites" and "rock painting sites" in the Registry of Ancient Monuments, I ran a simple distance calculation in MapInfo 11.5 GIS-programme between these two types of sites, according to the ETRS-TM35FIN-coordinates of the sites in the registry. The coordinates are mostly based on hand-GPS measurements, and may thus contain measurement errors of several metres (besides some generally

DISTANCE GROUP	NO. OF LAPP CAIRN SITES WITHIN THE DISTANCE GROUP
1–1000 m	1
1001–2000 m	3
2001–3000 m	4
3001–4000 m	6
40001–5000 m	6
5001–6000 m	6
6001–7000 m	4
7001–8000 m	9
8001–9000 m	4
9001–10 000 m	5
>10000 m	164

Table 5. Distances of sites classified as "Lapp cairns" in the Registry of Ancient Monuments from the nearest rock art site in the registry.

smaller distortions related to the map projection). For the purpose at hand, however, such distortions are of insignificant magnitude.

The distance calculations reveal that only 1 of the 215 sites classified as Lapp cairn sites in the registry is situated within 1 km of a rock painting site. The exception is the cairn site Riihonniemi in Puumala, located within 70 m of the Maksasaarenselkä rock painting panel and containing two cairns 2–3 m in diameter on a bedrock exposure. However, the site description in the registry (site code 623010024) states that, according to geologists Matti Hakulinen and Matti Saarnisto, the cairns are obviously clearance cairns since there are numerous other small cairns in a forest within 100 m of these two, and the whole cairn group is situated near a deserted farm yard.

The Riihonniemi case is an excellent illustration of the importance of defining uniform criteria for what comprises a "Lapp cairn site" in any study where the Lapp cairn material mostly consists of unattested Lapp cairns. I have formulated such criteria on the grounds of the above-mentioned uniform features of the attested Lapp cairns, also taking into account some recurring features of the Lake District cairns that have turned out *not* to be Lapp cairns upon excavation. These criteria are presented in Table 6. Not all of them are free of subjective interpretation, but they still provide more appropriate research material than the mechanical use of the existing site classifications of the Registry of Ancient Monuments. Scrutiny of the site descriptions and archaeological research reports of the cairn sites in the Registry of Ancient Monuments left me with 266 Lake District cairn sites which I classified as "probable Lapp cairns" (including the attested ones). Some of the sites have subsequently been removed from the registry due to a new policy of not including totally destroyed sites.

Distances from the 266 probable Lapp cairn sites to the nearest rock painting sites were calculated in a similar way as with the sites classified as Lapp cairn sites in the Registry of Ancient Monuments. The basic results can be seen in Table 7. They strongly suggest that Lapp cairns and rock painting were intentionally kept separated from each other. Only 4 of the probable Lapp cairn sites are situated within 2 km of the nearest detected rock painting site. More important than the distances them-

LANDSCAPE SETTING	MORPHOLOGY	ARCHAEOLOGICAL SETTING
Less than 250 m from the Early Metal Period lakeshore.	Made of natural stones, no earth-fill in the uppermost stone layer.	Not part of a group of small cairns containing specimens less than 2 m in width.
On a bedrock exposure or a natural stone field.	Round, roundish or elongated; not perfectly angular, wall-like or ring-like.	No strong alternative explanation related to known activities around the site or local geology.
On elevated site in relation to the nearest lakeshore.	Width at least 2 m, height no more than 1/5 of the width.	No strong alternative explanation suggested by results of archaeological excavations at the site.

Table 6. Criteria for a "probable Lapp cairn".

DISTANCE GROUP	PROBABLE LAPP CAIRN SITES WITHIN THE DISTANCE GROUP
1–1000 m	1
1001–2000 m	3
2001–3000 m	5
3001–4000 m	8
40001–5000 m	9
5001–6000 m	6
6001–7000 m	6
7001–8000 m	11
8001–9000 m	4
9001–10 000 m	7
>10 0000 m	206

Table 7. Distances of probable Lapp cairn sites from the nearest rock painting sites.

LAPP CAIRN SITE (municipality and name)	ROCK ART SITE (name)	DISTANCE (m)
Iitti Lapinsaari	Karhusaari	781
Taipalsaari Kirjamoinniemi	Ruusin Turasalo	1518
Iitti Hiidensalmi	Kintahuonvuori	1561
Ruokolahti Vanhakanniemi	Kolmiköytisienvuori	1787

Table 8. Lapp cairns sites and rock art sites situated within 2 km of each other.

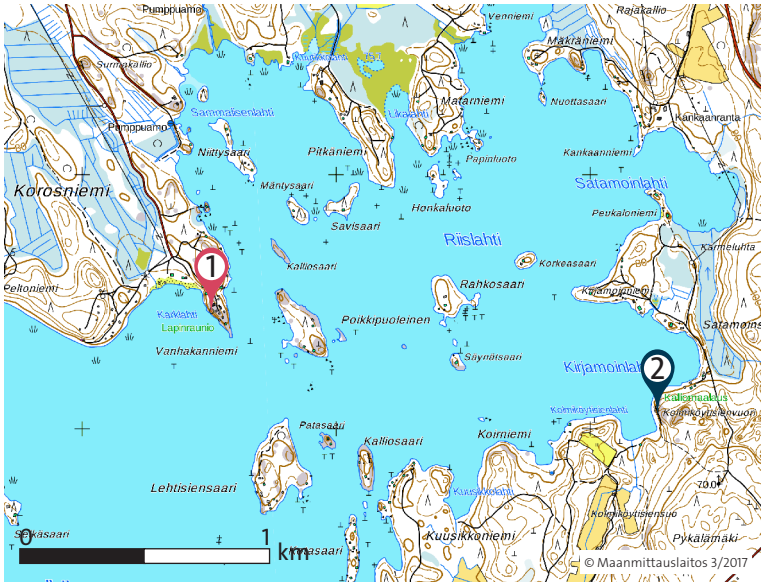
selves are the topographic settings of those Lapp cairn sites and rock art sites that are situated relatively near each other. The rock art sites and probable Lapp cairns situated within 2000 m of each other are presented in Table 8. Two of the Lapp cairn sites are in fact among the attested Lapp cairns. A closer look at the landscape settings of the probable or attested Lapp cairn sites situated within 2 km of a rock painting site reveals that a certain mutual exclusiveness between rock art sites and Lapp cairn sites appears to have been maintained in the lakescape, even in cases where the sites were located within the same bay. While there is less than 800 m between the Lapinsaari Lapp cairn and the Karhusaari rock painting as the crow flies, they are located on different islands and face different straits in Lake Konnivesi (Fig 6.) Perhaps even more importantly, there is a whole cluster of rock art sites on Lake Konnivesi, but the Lapinsaari Lapp cairn is situated outside of it, not sharing a strait with any of the rock art panels. A similar pattern can be seen with the other three Lapp cairn sites in Table 8; the lake views from them do not open in the direction of the nearest rock art site (Fig. 5–6; 9–10).

DISCUSSION AND CONCLUSIONS

To sum up the evidence scrutinised in this article, location in a specific landscape setting appears to be the most consistent common denominator of Early Metal Period cairns in the Finnish Lake District. The most obvious landscape feature related to them is a body of water that is not a mere pond but a proper lake. Visibility of a major part of a lake appears to have been an important factor in choosing a site for a ritual cairn in the Early Metal Period Lake District. Attested Lapp cairns are in most cases situated on spots where more than 1 km of open water can be seen, despite the high frequency of narrow straits in lakes of the Lake District. It is also typical that the view to the lake is not limited to one cardinal direction. Eye contact to the lake can often be maintained while turning 90° or even 180° from the direction of the optimal lake view. A clear majority of the attested Lapp cairn sites are located on islands, and most of the rest are located at narrow capes. Many of the lake islands (or former lake islands) containing Lapp cairns are very small, often less than 2 hectares in size (Table 2). All in all, it seems that visibility to a lake and the general physical significance of the lake in the surrounding landscape were both essential in the ritualisation process related to cairn-building and activities around cairns. Even the construction of a kerb or a stone cist in a Lapp cairn may have been guided by the lake as something to be approached and looked at.

Besides the overarching presence of a lake, another important factor in choosing a site for a Lapp cairn appears to have been rock. Vast majority of attested Lapp cairns are located on bedrock promontories, while most of the rest are modified natural stone formations (Table 2). A partial exception appears to be the generally unusual Pyykkisaari 1 cairn, which is located on a stony moraine promontory rather than a bedrock exposure. However, it is clear that Lapp cairns are essentially stone struc-

◄ Figure 9. The probable Lapp cairn site Kirjamoinnimi (1) and the rock art site Ruusin Turasalo (2), on Lake Pien-Saimaa, Taipalsaari municipality.



▼ Figure 10. The probable Lapp cairn site Vanhakanniemi (1) and the rock art site Kolmiköytisienvuori (2), on Lake Saimaa, Ruokolahti municipality.

tures built on stone. In this context, it is notable that they seem not to have been made to stand out from their stony surroundings as impressive landscape nodes. Due to their shallowness, their visibility from the lake is usually questionable, and from the land they are typically very hard to notice from a distance in the forested landscape. Furthermore, as shallow stone cairns they often resemble natural lakeshore stone fields, and in some cases they are even built as parts of such features. Although most attested Lapp cairns are easy to recognise as human-made cairns by a seasoned field archaeologist, their structure does not emphasise their artificiality. Some attested Lapp cairns are in fact surrounded by cairns that are, on closer inspection, obviously natural but could easily be mistaken as human-made.

The consistency in spatial and visual relation to lakes and natural stone features is especially interesting when compared to the variation in the physical remains of ritual activities found in Lapp cairns. While the majority of the attested Lapp cairns have yielded some amount of burnt human bone, burnt seal bone and a burnt flint arrowhead found without human bone from the Pyykkisaari 1 and Saunalahti cairns suggest that human bone was not the only burnt material that could give ritual significance to a lakeshore cairn in the Early Metal Period Lake District. Furthermore, a significant number of attested Lapp cairns contain no burnt material at all. Finds from such cairns vary from metal artefacts to quartz or flint flakes or nothing at all, while most of them have no cist-like inner structures (Table 1). In other words, forms of ritual action conducted at Lapp cairn sites may have been more negotiable than places considered appropriate for such actions. It is quite possible that all the actions that have left Early Metal Period remains at Lapp cairns sites would have lost their ritual meaning, or acquired a totally different ritual meaning, if conducted outside these specific sites (Bell 1992:

99). Cairns not only ritualised certain spots in the landscape, but were also ritualised by the landscape around them (see Berggren & Nilsson Stutz 2010).

Considering this, it is of interest that a close spatial connection with lakes, and specifically bedrock promontories on lakeshores, is shared by the other major group of prehistoric ritual sites in the Lake District, Stone Age rock paintings. This is all the more interesting, considering that no Lapp cairns have been found on bedrock promontories containing rock paintings, despite evidence of Early Metal Period sacrificial activities at some rock painting sites. It seems that Lapp cairns are absent even on islands containing rock paintings. Such a pattern suggests that rock paintings and Lapp cairns were signified not only by the same natural landscape, but also by other criteria in the world of the Early Metal societies in the Lake District. As features of a ritualised landscape, they probably shared the same ritual time where the past and the present existed simultaneously (Tilley 1994: 67; Bradley 1998). This idea is supported by the fact that natural stone fields were apparently sometimes treated like Lapp cairns, and Lapp cairns were re-used long after their original builders must have been forgotten. It seems likely that the Early Metal Period communities of the Lake District saw rock paintings, natural stone formations, and ancient human-made cairns as parts of the same mythical past. The communities that built Lapp cairns probably considered their intimate knowledge of the local landscape as a special asset, not possessed by communities that lacked their history of interaction with the local landscape features. As modest structures, Lapp cairns could not have invoked awe in secular terms, but they may have had an aspect of territoriality in cultic terms. Borders are often fluid in a landscape of small mobile communities, but the crossing of borders typically requires the proper veneration of local powers (e.g. Tilley 1994: 39). Lapp cairn sites could have provided visitors the possibility to profess such veneration. Evidence of sacrificial activities and stone knapping at several excavated sites imply that they were visited repeatedly. Considering the very challenging taphonomic circumstances at Lapp cairns sites, we are in all probability aware of only a small fraction of all of the activities that took place at the sites during the Early Metal Period. The spatial separation of Lapp cairns and rock painting panels suggests that their roles in the ritualised landscape where differentiated. In this context, it may be of relevance that Lapp cairns had an obvious connection with mortuary rituals, while such a connection cannot be established for rock painting sites. Perhaps the powers connected with rock art sites were considered to be beyond the control of the community in a way dead members of the community were not. It is quite possible that the veneration of certain rock art sites was shared by many communities, while Lapp cairns were more closely connected with some specific community or a smaller number of communities.

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Six Estate Landscapes

Traces of Medieval Feudalisation in Finland?

ABSTRACT: In Sweden, human geographers and medieval archaeologists have recently showed how the property boundaries around settlements and their holdings have become permanent already during the early Middle Ages. This is particularly true when speaking of large domains owned by the aristocracy. It was the time when villages and hamlets were established and the still existing base of the land ownership system was made. Most of these property boundaries are still visible today. This seems to be the case also in SW Finland, especially concerning the land owned by the medieval nobility. Combining the data from historical maps, archival sources, and archaeological record with ancient and still existing boundaries, it is possible to reconstruct a manorial landscape that was based on the of the medieval landownership.

The half a dozen cases from different provinces (Askainen in Lemu, Viurila in Halikko, Prästkulla in Tenhola, Hertognäs in Helsinki, Jutikkala in Sääksmäki and Anola in Ulvila), which are discussed in this article, represent this group of approximately hundred large, medieval manorial estates, which were established in the early 15th century at the latest.

KEY WORDS: Middle Ages, feudalisation, noble estate, manor, tenant farm.

INTRODUCTION

Finland lies in the northern part of Europe, in a northern margin of the Western world, far from the continent's medieval centres of power, religion, culture, trade, and economy. Much of the history of Finland has been interpreted in a context of European periphery, a periphery settled by free peasants, a periphery, where medieval feudalism typical for Western Europe never existed. As an independent nation, Finland is young, celebrating its 100th anniversary of independence in 2017. In the Middle Ages, as well as during the early modern era, Finland was an integral part of the Swedish realm.

In the early 16th century, before the Reformation, the nobility owned only 3.1% of the farms in Finland, while 2.6% of the land was in the hands of Church. The Crown had about 300 tenant farms and half a dozen of royal castles (the castles of Häme, Kastelholm, Olavinlinna, Raseborg, Turku and Vyborg), and a couple of manors. In the 1530s, i.e. in the beginning of the early modern era, all the rest, that is, 93% of the c. 32000 farms, were in the hands of free peasants (Orrman 1984).

According to the prevailing historical understandings, medieval Sweden, and especially Finland, were lands of free peasants (cf. Jutikkala 1983). In Finland, this understanding has served as the basis

for a larger narrative, in which the peasantry overcame poverty, an unforgiving topography, and a harsh climate. According to this narrative, the free peasants made the economic and political base of the modern Finland in the 19th and early 20th centuries. This study will challenge the foundation of this national narrative by examining the landownership of the nobility in Finland from the 13th to the 15th centuries. Was the role of nobility as minimal as it has been stated? Was the development of landownership in Finland so different from the rest of Western Europe?

A NEW PERCEPTION OF THE MEDIEVAL NOBILITY'S ROLE IN SWEDEN

In Sweden, archaeologists and human geographers have recently discovered that the medieval nobility's role as land owners was much more important than previously thought. Older research concentrated on the noble landowners in the end of the Middle Ages or the beginning of the early modern era. In the early 16th century, the majority of land owned by the nobility consisted of scattered properties. Coherent large contiguous estates were rare (cf. Lönnroth 1940).

However, this mosaic of fragmented landownership was a result of at least two or three hundred years of development. In the 13th and early 14th centuries, the situation seems to have been rather different. Both the aristocracy and the regional lower nobility had previously owned numerous large estates. Based on a thorough analysis in 1996, Sigurd Rahmqvist demonstrated this structure of the early landownership in Uppland. He also showed how most of the early estates had scattered during the late Middle Ages (Rahmqvist 1996). Since then, similar development has been noticed in several other Swedish provinces. The old paradigm was constructed by historians, who relied almost entirely on written sources. Historical record from the Middle Ages is fragmentary, and trying to get a large overview the historians have usually been forced to settle for the systematic series of records produced by King Gustav Vasa's bailiffs and officers in the middle of the 16th century. Completed with other sources, such as historical maps, existing property borders and ancient monuments, the written sources can reveal a lot of new information of medieval estates.

Rahmqvist (1996) analysed medieval noble estates, their structure and location in the northern parts of the province of Uppland, one of the core areas of medieval Sweden. Similarly to Finland in the early Middle Ages, large-scale colonisation took place in northern Uppland. Colonisation was not the only parallel between this area and southwestern Finland. In both areas, the freeholders became the majority of the landowners. However, in some parishes a great part of the land was taken over by the nobility. Rahmqvist (1996) shows that originally the nobility had large estates consisting of a manor and a number of tenant farms and crofts. Many of these noble landowners were aristocrats but some were members of local gentry.

During the Late Middle Ages, most of the large estates dissolved. As a result, it is a challenging task for scholars to reconstruct these early estates today. Rahmqvist's (1996) results have inspired other human geographers and medieval archaeologists in analysing the medieval landownership in other parts of Sweden. When researching the medieval nobility in the province of Småland, Martin Hansson (2001) got results similar to those of Rahmqvist. Both Johan Berg (2003) and Alf Ericsson (2012) demonstrated that this was also the case in Östergötland. There the aristocracy and the relatives to the royal family of Bjälbo played a significant role among the owners of the early noble estates. Ing-Marie Pettersson proved that in the parish of Norberg in Bergslagen the aristocracy and nobility also had some larger estates, even if most of the land in this district was owned by mining peasants called *bergsman* (Pettersson Jensen 2013).

INTERPRETING BORDER LINES

Until lately, the research of noble landownership has been mainly based on surviving archival sources, such as medieval charters and early modern cadastral or tithes records. Only in extremely rare cases private ledgers made by medieval noblemen have

been available. Recent results by Swedish authors would have hardly been possible if they had only relied on the traditional historical sources. The modern methods in the research of the medieval landownership are based on a thorough analysis of the written sources combined with other source materials, such as the archaeological record, the existing property boundaries, and analyses of both historical and modern landscapes.

A significant attribute for noble estates is a contiguous land property. This kind of large scale landownership has resulted in wide estate landscapes. In 1999, when analysing medieval landownership in Småland, Clas Tollin (1999) showed how the property boundaries around occupations and their holdings became permanent already during the early Middle Ages. He also verified Rahmqvist's observations of the relevance of the property boundaries when reconstructing early noble estates. On the base of these results, other human geographers and medieval archaeologists in Sweden have made similar observations (Berg 2003; Ericson 2012). This was especially the case when speaking of large domains owned by the aristocracy. Early Middle Ages was the time when villages and hamlets were established and the base of the land ownership was founded. Most of these property boundaries still exist today. This also seems to be the case in southwestern Finland.

In August 1324, the border between the peasants in Skäggböle in the parish of Raisio, and their neighbours Nicolaus Haertoga and Petrus Maekona were affirmed by the court. The inhabitants of Skäggböle, who had sued their neighbours, were peasants and probably their neighbours were also not noblemen but peasants. This is the oldest surviving document affirming of the borders between villages or other settlements in Finland. However, this was no new border line. Quite to the contrary, in this case the border between these small hamlets was already affirmed some twenty years earlier by *praefectus Finlandiae* Harald Elgh. Probably the border was even older than that. The document analysed here has survived because Skäggböle was incorporated to the property of Turku cathedral in 1355 and the document was archived there (REA 37; Suvanto 1976: 30–3).

Beginning from this case from 1324, disputes of borders between property owners, peasant villages, as well as some institutions, like monasteries or noble landowners, were common cases in courts. Obviously, the borders between settlements based originally on agreements between the neighbouring property owners. This seems to be an old existing practice. Only when some disagreement rose, the landowners went to court. Almost always these disagreements concerned minor details. Most typical were quarrels about a single boundary marker or some strip of woodland. This practice continued until the middle of the 18th century, when the Great Parcelling of the villages and hamlets began in Sweden (and Finland). An exception was made by some noblemen, who already in the 14th century began to acquire confirmation of the borders of their estates. The affirmations strengthened their landownership and helped when buying and selling properties. However, these noblemen were an exception, the peasants did not need such affirmations nor were they willing to pay for them.

Obviously, when the Land Law issued by King Magnus Eriksson was legislated in the early 1350s, most of the borders between old settlements were already existing and confirmed between the neighbours themselves. Based on this state of the organisation of the landownership, it is possible to reconstruct early estates in southwestern Finland. By combining archaeological, historical, geographical and genealogical research, it should also be possible to analyse medieval landownership and the role of the nobility in Finland. Preliminary research focused on the manors in the northern parts of Finland Proper already showed that there was a kind of a necklace of early noble estates along the coast (Haggrén 2004). Another study, which concentrated on the noble landownership in western Nyland, has given similar results, but here the analysis showed that the nobility were initiators when founding parish churches (Haggrén 2006).

By using multidisciplinary methods and combining written sources, genealogy, historical maps, existing property boundaries, and place name studies, this article will focus on a half a dozen cases in different provinces in southwestern Finland in

the Middle Ages. Is it possible to trace a wider pattern, or were the nobility's early estates a phenomenon restricted only to some medieval colonisation areas?

Six cases have been chosen for this analysis (Fig. 1). The first is from the chapel of Askainen in the northern part of Finland Proper, followed by another case from the parish of Halikko in the southern part of the province. Askainen was a colonisation area, but Halikko had permanent settlement already during the Viking Age. The third and fourth cases are from western and eastern Nyland; Prästkulla in the parish of Tenhola in the west, and Hertognäs in the parish of Helsinki in the east. Both Western and Eastern Nyland were provinces with large-scale medieval colonisation. The fifth case is from the medieval Ulvila parish in Satakunta, close to the core areas of the Viking Age settlement along the river Kokemäenjoki. The last case is from the parish of Sääksmäki in the inland province of Häme (Tavastland in Swedish). Sääksmäki was one of the core areas of the Viking Age settlement in Häme. In most cases, there was a noble estate on the site before the late Middle Ages, i.e. the 15th and early 16th centuries.

Figure 1. The location of the manors. 1 – Askainen in Lemu, 2 – Viurila in Halikko, 3 – Prästkulla in Tenhola, 4 – Hertognäs in Helsinki, 5 – Anola in Ulvila, 6 – Jutikkala in Sääksmäki. Map: Maija Holappa.

Figure 2. The manor of Louhisaari. All photoes: Georg Haggén.

Few archaeological excavations have taken place on the sites of medieval manors. In addition to this, medieval stray finds are also rare. Of the cases analysed here, only in Jutikkala in Sääksmäki there have been excavations on the site, or in the vicinity of, the medieval manor. Usually, in the best cases, the site has been surveyed by an archaeologist.

SIX NOBLE ESTATES

Askainen in Lemu (Northern Finland Proper)

The small parish of Askainen is known for the large 17th-century estate of Louhisaari (*Villnäs* in Swedish) and its famous stone mansion (Fig. 2), built in the 1650s by Admiral Baron Herman Fleming. Based on observations of the structure of the building, a part of the main building or one of the two wings in front of it, is originally from an older mansion from the 16th century (Uotila 1985: 79–80). In any case, there was a manor on the site already

in the middle of the 15th century, when Admiral Fleming's great-great-grandfather's father Magnus Claesson Fleming settled there after marrying a local noble lady Elin. Geological surveys made in the late 1990s show that the site was an island on the sea shore when the manor was founded (Glückert & Pitkäranta 1999). It seems that it was established as a fortified manor surrounded by water, but later it was connected to the mainland by large scale fillings, which are visualized in the maps made based on archaeological surveys (Haggrén 2005:15–18; Lahtinen 2007).

After Magnus Fleming, the estate was divided between his two sons. Herman Magnusson inherited the manor of Villnäs, while his brother Hans gained three small tenant hamlets from the northern part of the estate. In one of them, Sorais, he founded a new manor under which the tenant hamlets of Karavais and Tävälä lied (Haggrén 2005: 15).

Louhisaari and Sorais were not the only medieval manors in Askainen. In the vicinity of the chapel of Askainen there are still today two other manors, Ahtis and Autis. The oldest survived source mentioning Ahtis is from 1473, when a lady called Kristina lived there. Later on in the 16th century, a noble family was called after the manor of Ahtis. The most famous of the family members was Måns Nilsson till Ahtis, who was the castellan of Viborg until 1555 when he fell into King Gustav Vasa's disfavour (FMU 3657; Anthoni 1957). The lords of Ahtis owned also two tenant farms called Ilois and Värräis (Haggrén 2005: 16).

Autis is known from 1485, when the lady of the manor, Kristina Jakobsdotter, who was born in the famous family of Garp, was on her deathbed (FMU 4050; Anthoni 1965a: 150). Already five years earlier, in 1480, the manor was held by her son-in-law Peder Lille, the oldest known member of the family of Wildeman (FMU 3821). A tenant farm called Nepoila belonged to the estate of Autis (Haggrén 2005: 16).

In addition to these three estates, there was a fourth late medieval property complex in the area. Originally, it consisted of the hamlet of Askais and three single farms, Hukais, Irois and Santalax. Already in 1435 or when he died, the castellan of Turku castle, Claus Lydekesson (Diekn) donated

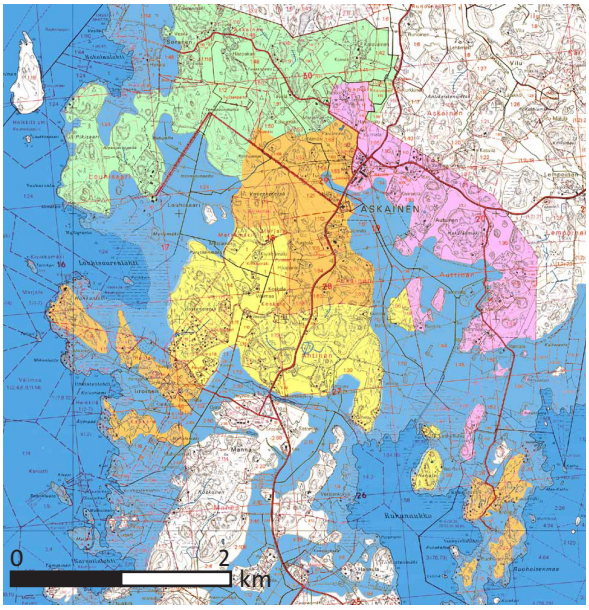

Figure 3. A reconstruction of the ancient estate of Askais. Green = lands of Louhisaari, yellow = lands of Ahtis, pink = lands of Autis and orange = lands belonging to Nynäs (Peruskartta 1984/Mikko Kääriäinen & Georg Haggrén).

Hukais to the Altar of St. Mary in Turku Cathedral. One of the three tenant farms in Askais was donated to the Bridgettine monastery of Naantali (*Nådendal* in Swedish) in 1480 by Anna Jacobsdotter Kurck, whose grandfather was the same Claus Lydekesson. Anna followed her uncle's, Arvid Clausson Diekn's example. In 1459, Arvid had donated the single farm in Irois to the monastery. Another farm in Askais was donated to the monastery by Anna Ljungosdotter, the widow of Magnus Nilsson (Ollongren), who was a grandson of Birgitta Claesdotter, a daughter of Claus Lydekesson (Diekn). The first known owner of Santalax was the bishop of Turku Kort Bitz, who also was a grandson of Claus Lydekesson (Haggrén 2005: 16; Leinberg 1890: 346–7, 361; FMU 3092, 3806, 5908; REA 453). All these farms were owned by Claus Lydekesson (Diekn), who was the lord of the manor of Nynäs in Lemu. (Fig. 3.)

No marriages are known between the families living in Nynäs or these three manors in Askainen before 1570s. This fact probably means that these families had common ancestors, who lived a few generations earlier. It seems that the families living in these manors were still so closely related to each

Figure 4. The chapel of Askainen.

other that marriages between them were prohibited (Haggrén 2005: 17).

Together the estates of Ahtis, Autis and Villnäs and the property complex originally owned by Claus Lydekesson form a coherent complex of properties, separated by distinct direct border lines from their neighbours. All the tenants belonging to these estates paid their tithes according to the so-called Finnish Law, which means that these settlements are probably founded before the 13th century (cf. Orrman 1983). The original centre and manor of this property complex was likely located in the hamlet of Askais. Today, the plot of Askais is deserted, which means that there are great chances to find remains and structures of not only the tenant farms but an early manor, too.

The chapel of Askainen (*Askais* in Swedish) lay in the hamlet with the same name (Fig. 4). The chapel is mentioned in the late 16th century but it was probably founded already in the Middle Ages (Haggrén 2005, 16; Knapas 2005, 148). It is typical for the chapels without landed property that they appear in the written sources for the first time in the 17th century, even if they were much older than that.

We do not know who the owners of the original estate in Askais were. As the castellan of Turku Castle Claus Lydekesson was the most powerful nobleman in Finland in the early 15th century but he was a German immigrant without family properties in Finland. His wife Kristina Jönsdotter belonged to the famous family of Garp, whose main estate was Hartikkala in the parish of Letala. Kristina's father, Jöns Andersson Garp belonged to the aristocracy and the Swedish Privy Council (Suvanto 2004). Keeping in mind that Kristina's brother's, Jakob Jönsson´s (Garp) daughter was the first known lady of Autis, we can assume that it was the family of Garp or Kristina's and Jakob's mother's unknown family, who resided the manor of Askais in the late 14th century. The open agrarian landscape typical for the parish of Askais today carries a legacy of a vast noble estate, which was already in the medieval times divided in four equal parts.

Viurila in Halikko (Southern Finland Proper)

In the parish of Halikko there were almost a dozen of noble manors in the late Middle Ages. One of them was Viurila (Fig. 5), another was Salontaka and probably there was one in Vuorentaka (Fig. 6), too. In the 1540s, Viurila was held by Erik Håkansson (Slang), while the holder of Salontaka was the Mayor of Turku, Erik Fleming (Anthoni 1970: 313–5). The complex of noble properties, consisting of these three manors and a couple of tenant farms in Magnula and Pamsila close to them, had very distinct common borders. This fact indicates that they have a common origin. In addition to this, we can find these five settlements following each other in the earliest survived tithe registers (see for example KA 638: 13v; KA 773: 20v). They paid most of their tithes in cereals, indicating settlements founded before the 13th century (Orrman 1983). Between Pamsila and the seashore there is a Viking Age cemetery called Kaunelan palsta, and it is probable that at least in Viurila itself there is still a hitherto unknown settlement site and cemetery from the Viking Age.

The first known owner of Viurila was a nobleman, Magnus Johansson, who is only mentioned as the father of his three daughters, Elseby, Karin and Anna. The scholars are unanimous that he lived in the early 15th century. Elseby was married to Henrik Claesson (Fleming). He was actually a brother of Magnus Claesson (Fleming), the owner of the manor of Louhisaari mentioned above. Based on the fact that Elseby Magnusdotter died in 1518, she was probably Henrik's second wife and much younger than her husband. Karin Magnusdotter, on the other hand, was married to Arvid Andersson till Stensböle. According to old genealogies, Anna Magnusdotter was married to Peder Östensson till Rikala in Halikko parish. We have to doubt this information written down by 17th-century genealogists because Peder Östensson was in military service in 1537, or a century later than his "brother-in-law" Henrik Claesson. Maybe Anna was married to Peder's father or grandfather (Anthoni 1970: 313–5; Ramsay 1909–1916: 409–10).

Elseby Magnusdotter's daughter Walborg was married to Håkan Tidemansson (Slang). They lived in the mansion, and in 1545, one-third of Viurila was owned by their two sons, Erik and Bertil Håkansson (Slang). At the same time, one fourth of Viurila was owned by Lasse Lifländer, or rather his wife Anna Hansdotter till Rikala (BFH 3: 238).

In the 16th century, Viurila had common woodlands with two other noble manors (Salontaka and Vuorentaka) and two tiny hamlets or single farms (Magnula and Pamsila) settled by tenants. One of the hamlets, Pamsila, was donated to the Bridgettine monastery in Naantali by Krister Frille till Haapaniemi († before 1/8 1472) and his wife Elin Magnusdotter, when one of their daughters became a nun (Ramsay 1909–1916: 134). The widow of the son of another of their daughters, Kristina Kristersdotter, reduced a farm in Pamsila back to the family in the late 1520s (Ramsay 1909–1916: 181; FMU 6560). Another farm in Pamsila was given to the Altar of Själagård in Turku Cathedral by Peder Jacobsson (REA 716) during the Late Middle Ages. This part of Pamsila was reduced by Peder Östensson till Rikala in the late 1520s as well (FMU 6560). Later in the 1550s, the lord of Viurila, Erik Håkansson (Slang) had a tenant in Magnula (An-

▲ Figure 5. The manor of Viurila.

◄ Figure 6. The manor of Vuorentaka.

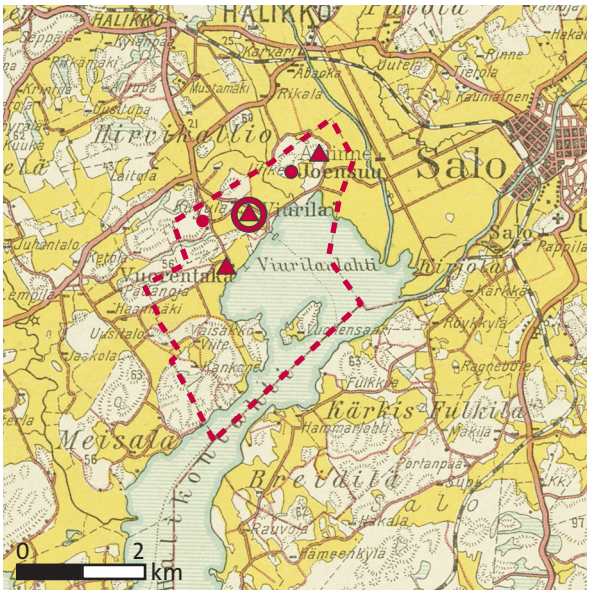

Figure 7. The estates of Viurila. (Suomen taloudellinen kartta II:4 Salo 1929.)

thoni 1970: 313). This farm or small hamlet was possibly founded by and named after Magnus Johansson (Fig. 7).

In 1532, the inheritors of late Lady Margareta Tuvedotter till Isnäs were distributing her estates. Among them was the small mansion called Salontaka, which was situated close to the manor of Åminne (BFH III 18). Between the two mansions were the River Halikonjoki – and the medieval property border. A settlement site from the Viking Age and a landing place from the Middle Ages were discovered in Åminne in the early 2000s (Uotila 2009). In the Late Middle Ages and early modern era, Åminne was the largest among the noble estates in Halikko but it did not have an origin common to Viurila or the estate analysed here.

Vuorentaka was a manor where a stone mansion was built in the late 16th century. In the middle of the century, the owner of Vuorentaka was Gertrud Gudmundsdotter till Hyvikkälä. It is hard to find the link between her ancestors and the owners of Viurila. Lying inside the same borders and close to each other, even if separated by a high hill, these properties owned by noblemen certainly have originally had common owners (Anthoni 1929: 305). Vuorentaka, meaning "behind the hill" has been named in relation to Viurila, the original centre of the estate.

Prästkulla in Tenhola (Western Nyland)

In 1351, four noblemen, Sigvald in Henelax, Benedikt in Gretarby, Ärland in Svartå, and Henrik in Pojo, gained noble privileges to their properties (REA 141). This is the first time, when Heinlax or Prästkulla (Fig. 8) is mentioned in the preserved written sources. In the early 15th century, a nobleman called Sune bought some properties in Heinlax (FMU 1553). Today, Heinlax is known only as the name of a bay, while the manor on the eastern side of this waterway is called Prästkulla, as it was already in the early 15th century, when it was owned

Figure 8. The manor of Prästkulla.

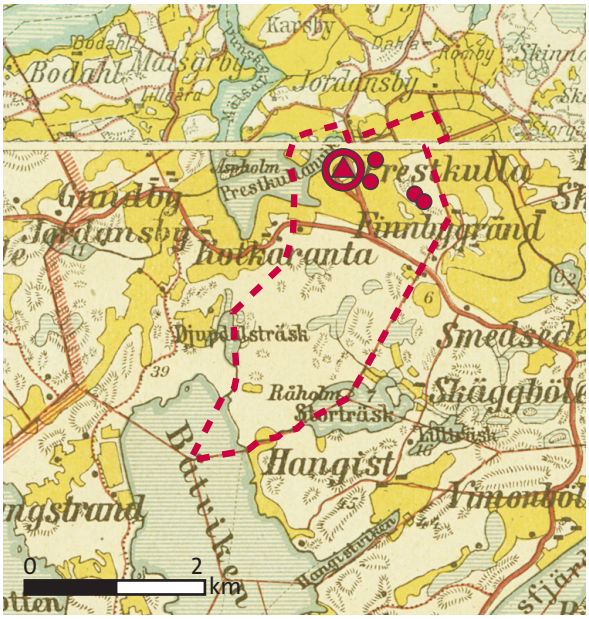

Figure 9. The estates of Prästkulla. (Suomen taloudellinen kartta I:4 Hanko 1920, II:4 Salo 1929.)

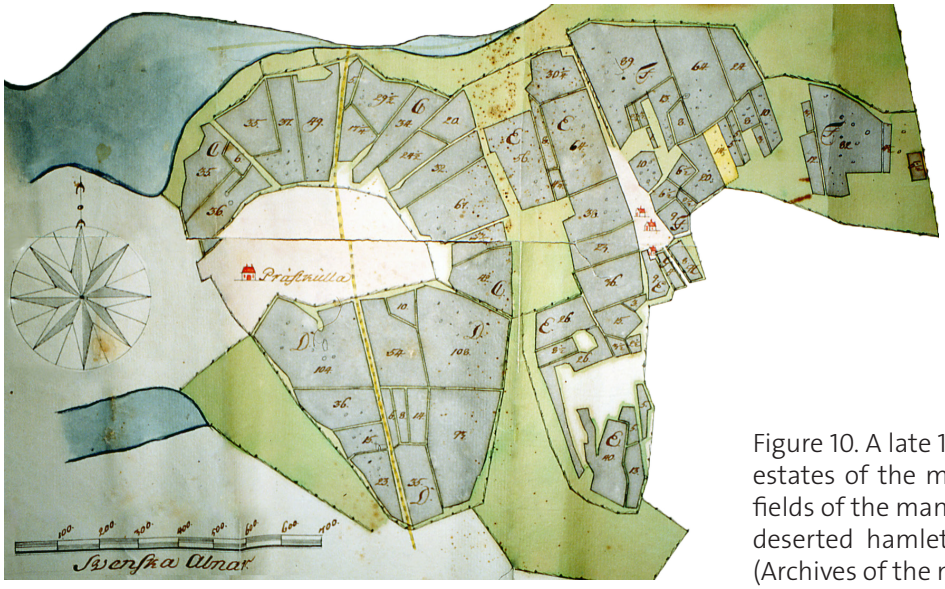

Figure 10. A late 18th century map of the estates of the manor of Prästkulla. The fields of the manor in west, those of the deserted hamlet of Degergård in east (Archives of the manor of Prästkulla).

by three sons of Sune. One of them was Sune Sunesson (Ille), who was among the most powerful men in Finland in the early 15th century. Already in 1402, he was a district court judge (*häradshövding* in Swedish) in Taivassalo and Vehmaa parishes. In 1435, he became a member of the Swedish Privy Council. His daughter Walborg inherited Prästkulla in 1463, when a distribution of properties was made (Anthoni 1965; FMU 3196). A similar charter made two generations later, or between Walborgs daughter's descendants in 1511, reveals that also a neighbouring hamlet called Degergård belonged to this estate (FMU 5503, 5507).

Beginning from the 1560s, we have more detailed data about the tenant farms in the parish of Tenhola (Tenala in Swedish). At that time, in addition to the manor itself, there were two tenants in Prästkulla and two in Degergård. However, in the early 17th century at the latest, all these tenant farms had vanished, while their fields and meadows began to be cultivated directly under the manor itself. Today Degergård has totally disappeared, but from a map made in the 18th century we can still find the fields of a deserted medieval village called Degergård (Figs. 9 and 10). When identified from the map, the site of the plot of this hamlet was surveyed in 2007, but it seems that structures of the medieval hamlet were destroyed in the 20th century at the latest. There are large modern buildings on the site (Haggrén *et al.* 2007).

Situated on a hill, the mansion of Prästkulla dominates the open field landscape around it. In the Middle Ages, the manor also controlled a coastal waterway connecting Lindöviken and Gennarbyviken. Still today it is easy to imagine how the power of the medieval owners of the estate, such as the noble Ille family, influenced the life in those long ago deserted tenant farms around it.

Hertognäs in Helsinki (Eastern Nyland)

In the parish of Helsinki (*Helsinge* in Swedish), a concentration of properties in noble hands had taken place by the middle of the 16th century. A record dating to 1555–1556 shows that in Hertognäs (*Herttoniemi* in Finnish), a wealthy village on the seashore, there were three small manors in the hands of members of a family, which was later called Jägerhorn (af Hertognäs), or their close relatives (Salminen 2013: 284–94; Teitti 1894: 80, 82, 168, 170). The high number of the manors indicates a division of a medieval estate (Fig.11).

Members of the family owned also a small hamlet called Tullholma, as well as a single farm in Brakvik, both in the immediate neighbourhood of Hertognäs. Tullholma lies on an island called Degerö, separated by a narrow sound from Hertognäs. Brakvik is located about two kilometres to the northwest from Hertognäs. The settlement site in Brakvik was deserted after 1559, when the hamlet was incorpo-

Figure 11. The manor of Hertognäs.

rated to the royal demesne of Vik. In the close vicinity of the manors in Hertognäs was a third small settlement called Båtsvik (Fig. 12). Like in the case of most of the tenant farms in noble hands, the oldest survived written data of Båtsvik are in the tithes records from the late 1550s. In the case of Båtsvik they are from 1556 (Salminen 2013: 284–94).

Westwards from Hertognäs, on the other side of a narrow sound is the island of Brändö (*Kulosaari* in Finnish). In the 1550s, there were also noble properties but they were owned by a peasant called Erich Philpusson. Principally, this was against the law, and soon afterwards the noble privileges of the properties on Brändö were reduced (Salminen 2013: 284–94).

Medieval written sources concerning the families living in Hertognäs are scarce. In 1405, a royal court took place in Borgå and people from the parish of Helsinki were also present there. Among the local lay members of the court was a nobleman called Laurens Hertoghe. Åke Granlund suggested already in 1956 that he probably belonged to the family who owned Hertognäs (FMU 1207; Granlund 1956; Salminen 2013: 297). However, it is hard to prove this assumption on the basis of the surviving sources.

The written sources from the middle of the 16th century make fragmentary mention of a large estate called Hertognäs. Tapio Salminen has recently called them "Hertognäs and its satellites" (Salminen 2013: 289). The colonisation of the coast of the Province of Nyland ended in the middle of the 14th century at the latest. Hertognäs with its large fields lies on a strategic location in the crossing of the coastal sea route and the estuary of the Vantaa River. The estate must have been founded there in the early 14th century or even some decades earlier. Some of the tenant farms possibly derive from this period as well, while others might be of a later date. Salminen suggests that the founder was possibly Valdemar Magnusson, the Duke (*Hertig* in Swedish) of Finland between 1310 and 1318, and possibly even earlier, but it is impossible to prove this suggestion (Salminen 2013: 296–98).

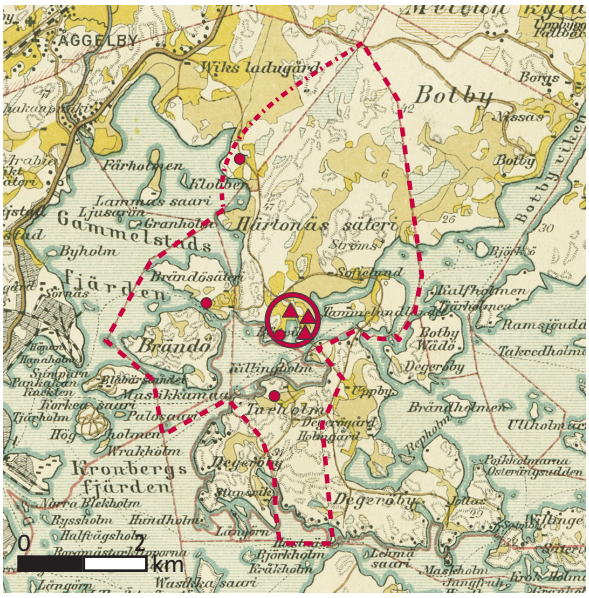

Figure 12. The estates of Hertognäs (Suomen taloudellinen kartta I:6 Helsinki, c. 1920).

Anola in Ulvila (Satakunta)

Anola is a medieval hamlet (Fig 13), probably a manor situated a couple of kilometres upwards Kokemäenjoki River from Ulvila (*Ulfsby* in Swedish), the northernmost town in medieval Finland. The place name appears for the first time in 1412, when the lawspeaker´s court regulated parishioners' fishing between the falls of Lammaistenkoski and the river mouth. The court forbade fishing in the narrow channel between the island of Kirkkosaari and the shore of Anola. The first known owner of Anola was Olof Olofsson (Svärd), whose widow, Alissa Henriksdotter (Horn) sold part of the estate in 1488. In addition to the manor, there were three or four tenants in the village of Anola, mentioned in the 1540s and 1550s (Suvanto 2001: 1607–9; REA 333; FMU 4160). In the 1540s, Anola was owned by a lower nobleman, "*knape*" Jöns Säck, whose grandmother was a daughter of Jöran Svärd. In 1550, Jöns Säck sold the estate to lawspeaker Jöns Kurck (Suvanto 2001: 1564–1565). In the late 16th century, Anola was well known as the manor of Axel (Jönsson) Kurck, one of the most powerful noblemen in Finland. Earlier, in the 1540s, it had only been a minor manor resided by Jöns Säck and before that, in the late 15th and early 16th century, it possibly was only occupied by a tenant. However, in the 14th and early 15th centuries there was probably an early manor in Anola. This was before the era of the family Svärd, whose members settled down in Ulvila in the middle of the 15th century. They soon became the leading noble family in the parish where they had two large manors, Sunnäs near the estuary of the river and Storgården situated in the town of Ulvila (Anthoni 1965b).

Anola had common woodlands with the village of Viikkala, and two single farms called Kirkkosaari and Lautila. This explains why fishing between Anola and Kirkkosaari was illegal for peasants living elsewhere in the parish of Ulvila and reserved only for residents of Anola and Kirkkosaari. The border with the neighbors along the river upstream, Kokemätärjnäs, was mentioned already in 1354, which indicates that at least Anola and Viikkala were inhabited before that (Salminen 2007: 51–2; REA 333).

▲ Figure 13. The manor of Anola.

► Figure 14. A part of an open estate landscape. The site of the deserted village of Lautela.

Lautila was situated between Anola and Viikkala (Fig. 14). The first time that Lautila is mentioned in the extant sources is in 1533, when a dispute concerning the right of inheritance and the ownership of the hamlet took place. This case shows that the tenant farm of Lautila had previously been owned by the Svärd family. The vicar of Ulvila parish, Peter Andersson (Garp) had previously inherited Lautila from his mother Karin, who was a daughter of Olof Pedersson Svärd. In 1440, Olof Svärd was mentioned as the district court judge of Ostrobothnia, and his estate was the manor of Sunnäs in Ulvila (Anthoni 1955; 1965b; Suvanto 2001: 1606). On the basis of this we can conclude that he was also owner of Anola like his son Olof Olofsson.

In Viikkala in the middle of the 16th century, there were four freeholders and a former noble manor, which had been converted to two tenant farms. It seems that in 1470, when Peter Rännare stated that he had sold *Wikkala gods* to the late district court judge Peder Svärd, there was a modest noble manor in the village but later on the former manor was cultivated by two tenants (Suvanto 2001: 1602–6; FMU 3413).

Kirkkosaari had a strategic location as an island in the middle of river Kokemäenjoki. On the shore of the island there was a profitable fishery. In the Middle Ages, Kirkkosaari and its sole tenant farm were owned by the bishop of Turku. After the reduction of church lands to the Crown in the early 16th century, Kirkkosaari was annexed to Anola. On the other side of river Kokemäenjoki the bishop had two additional hamlets, Möllarby and Nakkila (Läntinen 1978: 152–3). However, the fact that they had no common woodlands with Kirkkosaari and Anola indicates that these two hamlets have a history and origin different from those of Kirkkosaari (Fig. 15).

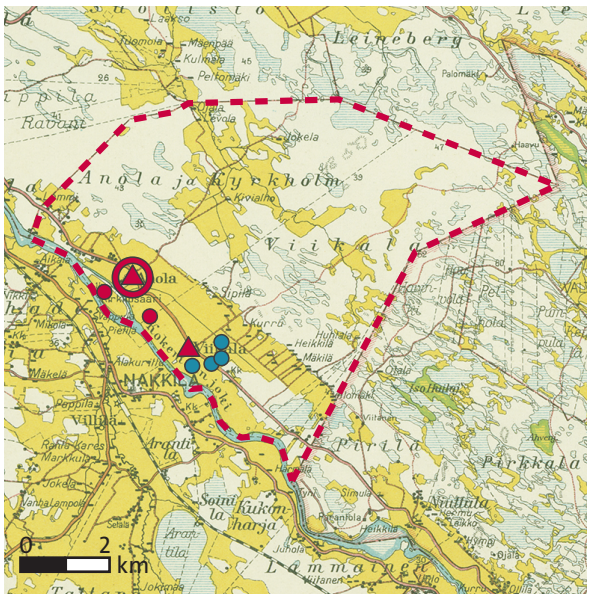

Figure 15. The estates of Anola. (Suomen taloudellinen kartta IV:3 Pori 1923.)

Anola and Lautela formed in the early 15th century a large noble estate. It was owned by members of the Svärd family, who had their main manor in Sunnäs situated on the other side of the town of Ulvila and some ten kilometers from Anola. This explains, why Anola was settled only by tenants in the Late Middle Ages. Most probably there was an early manor in Anola in the late 14th century or before the Svärd family settled in Sunnäs, a manor mentioned already in the 1320s or 1330s. We can assume that in the early 15th century part of Viikkala also belonged to the same property complex as Anola. Based on the right to fishery and woodlands, it is probable that also Kirkkosaari had originally been part of the same estate but on the basis of the preserved sources it is hard to prove this.

No archaeological research has taken place in Anola, Lautila and Kirkkosaari. The three farms in Viikkala were deserted in the 1860s, when they were merged to the manor of Anola. Today, the plots of these settlements are in the middle of open fields (Jutikkala & Nikander 1939: 557; Taivainen 2001; Hertell 2009; KA MHA Nakkila A71:1/1-15).

Jutikkala in Sääksmäki (Häme)

In the early 16th century, there were two noble manors in the parish of Sääksmäki. These manors, Jutikkala (Fig. 16) and Lahis (*Lahinen* in Finnish), were situated near to each other. Close to them were some tenant farms owned by the nobility. For example, the manor of Jutikkala lay between Lahis and a small tenant hamlet or landed estate called Solberga belonging to the owners of Lahis. Already in the 1460s it was mentioned that Solberga was a tenant

Figure 16. The manor of Jutikkala.

settlement under Lahis: "*Til Layhis gaard ligger Solberga*…" (FMU 3001; Suvanto 1995: 71–6). Later on, in the 1540s, Lahis and Solberga holded by a Swedish aristocrat called Nils Pedersson Bielke. His tenant register from 1549 reveals that in Lahis there were two tenant farms besides the manor. Close to Lahis was a small tenant farm called Pyhäjoki, and in Solberga there were two tenant farms. In addition to these, Nils Pedersson had about a dozen of other tenant farms elsewhere in Häme but they are not relevant when analysing the noble estates in Sääksmäki, where he had a manor and five tenant farms (RA Bielkesamling E1987:6: Nils Pederssons landbobok 1549).

Jutikkala is mentioned in 1340, when it was settled by a certain Melico de Iudicala, who was a peasant and not a nobleman. In 1420, Jutikkala was already a noble manor with some additional properties, such as a large wilderness area or *erämark* in Keuruu. The borders of this Keuru Eremarck were stated in 1420 and written down in a tenant register or property record of Jutikkala manor (UUB B76; Vähäkangas 2011: 10–1). The manor itself must be older than that. Tapio Vähäkangas has proven that in the early 1420s the manor of Jutikkala was occupied by the district court judge Håkan Knutsson. Already in 1405 he had won a dispute concerning the ownership of a tenant farm in the same hamlet of Solberga, which 45 years later was under the manor of Lahis (FMU 1204). This is not the only property dispute helping us to reconstruct the history of the ownership of the manors of Jutikkala and Lahis. In 1448 Kadrin, the widow of late Håkon Knutsson, lost a property dispute between Jutikkala and the peasants in the village of Kelkkala in Kalvola parish. Later in the early modern age, the properties of Jutikkala and Kelkkala did not border each other. Between them there were woodlands belonging to the manor of Lahis. This seemingly contradictory situation is easy to explain because Vähäkangas demonstrated that Jutikkala and Lahis were in the same hands in the early 15th century. The border between the manors was drawn after 1448 but in 1467 at the latest (FMU 3001; Vähäkangas 2011). In the early 15th century, the manors had belonged to the same estate. Is it possible to shed light to the history of this noble manor before the early 15th century?

While Håkan Knutsson, the lord of Jutikkala in 1405, won the property dispute, the royal judges confirmed his rights to farms in Solberga and Liettula in Sääksmäki. The case reveals that Håkan's

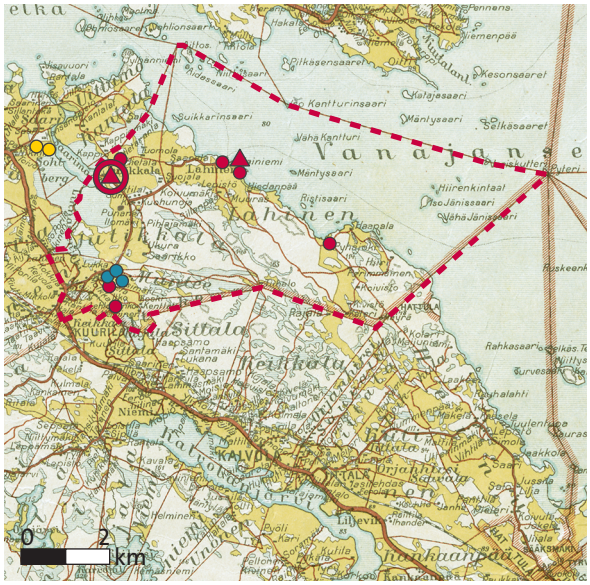

Figure 17. The estates of Jutikkala (Suomen taloudellinen kartta IV:5 Tampere 1922).

father-in-law Laurens Vitikasson Tolck received Solberga by a property exchange (FMU 1204). Most probably Laurens Vitikasson already lived in Jutikkala and found it profitable to purchase Solberga, which lay comfortably on the southern shore of the small Lake Saarioisjärvi, while Jutikkala was located on the northeastern shore of the lake.

Early modern written sources reveal that in the middle of the 16th century there were three tenant farms or hamlets under Jutikkala. One of them, called Hietaby, lay northwards from the manor, while Onnela and Itko or Itkonsaari were located in the hamlet of Vierumuntee or Muntee, where there also were three peasant farms. Itko was separated from Muntee in 1558, soon after a son-in-law of the owners of Jutikkala founded a short-lived manor there (Suvanto, microfiches 1995).

Combining the scarce source material from the Late Middle Ages, we can see that in the early 15th century, when Håkon Knutsson and Kadrin Laurensdotter were alive, Jutikkala and Lahis formed a large noble estate. After lady Kadrin's death in the middle of the 15th century, the estate was dissolved. Because Håkan and Kadrin did not have any children, the properties were inherited by their families. The large estate was divided in the 1450s and 1460s between two noble families, the descendants of Nils Tavast and the children of Waldemar Diekn and his wife Ingeborg Rötgersdotter (Vähäkangas 2011). Half of the estate with the manor of Lahis survived as whole until the end of the 16th century, while the other half in the vicinity of Jutikkala was divided into smaller properties during the 16th century (Fig. 17) (Jutikkala 1934: 556–66, 574–6).

In 1999–2002 excavations took place on the site of Jutikkala manor, where some medieval finds were revealed. Among them were pieces of glass from tall Bohemian prunted beakers and a beaker decorated by applied threads. Both of these types are exclusive vessels used by the nobility or wealthy townspeople (Haggrén 2015). These finds dating to the late 14th or early 15th century indicate a noble household or manor on the site.

The archaeological surveys and excavations in Jutikkala have revealed that in the Viking Age there were three peasant farms, each with a cemetery (Kirsikkamäki, Kokkomäki and Muuntajanmäki) of its own (Haggrén et al. 2002). Jutikkala was first mentioned in 1340 in a papal charter, where Melico de Iudicala or Mielikko from Jutikkala and 24 other parishioners in Sääksmäki were forced to pay their tithes in the ordinary way (REA 99). Melico was a peasant or freeholder but only some decades later Jutikkala received a noble owner.

Combining all this information we can reconstruct a large noble estate around the manor of Jutikkala in the eastern corner of the church parish of Sääksmäki. In the late 14th century, it consisted of about ten tenant farms and crofts. Some of the tenants settled the hamlet of Lahis, while the others were placed on single farms in Hietaby, Itko, Onnela and Pyhäjoki, a croft lying close to Lahis. Besides Itko and Onnela, there were a couple of free holders in the hamlet of Vierumuntee. The borders of this estate, as well as the judgement from 1405, show that the hamlet of Solberga was a secondary annexation to this manorial estate. The estate situated along the southern shore of Lake Vanajavesi, one of the most important waterways in the province of Häme. Martti Kerkkonen has demonstrated that in the upper parts of the same water system and closer to the Häme castle there were some other large medieval noble manors, such as Lepaa, Suontaka and Vesunta (Kerkkonen 1961).

In the early 15th century, Jutikkala was the manor of Håkon Knutsson, but the founder of the manor was his father-in-law Laurens Vitikasson, or maybe already Laurens' father-in-law Mathias Kogg (Vähäkangas 2011: 13, 21). Kogg became the lawspeaker, *legifer*, of Finland in 1356, and he had both resources and capability to take over a large estate on a strategic point in the middle of the province of Häme (REA 163).

CONCLUSIONS

By using multidisciplinary methods and combining different kinds of source material it is possible to reconstruct early estates consisting a central manor occupied by a noble family and surrounded by some tenant farms. In Finland Proper these estates were often established in a zone consisting of former sea bottom and areas recently risen from the sea. In other areas with sparse populations dating from the Iron Age, such as in Nyland, there were large uninhabited inland areas open to colonisation, mostly from Sweden. Even if the medieval noble landownership in Finland concentrated on areas sparsely populated during the Viking Age, in some provinces, such as Häme, several noble estates were founded in already previously occupied areas.

This study challenges the current tendency to understand land ownership in quantitative rather than qualitative terms. Free peasants owned more than 90% of the farms in Finland in the Late Middle Ages, but the early noble estates were located on the most fertile regions and strategically important points. We find large estates, consisting of a manor and a group of tenant farms, from the estuaries along the southwestern coast and several straits in the inner archipelago, as well as in the inland of Häme and Satakunta. The social landscape in southwestern Finland was not at all so unlike the rest of the western Europe. In all of the six cases analysed here, the estate landscape, established in the 14th and early 15th centuries, is still visible. In all these manors, a mansion still dominates the landscape, a landscape of power. In several cases, such as in Anola, the manor is surrounded by vast open agricultural landscape, a typical European estate landscape. On the other hand, in Askainen the original manor has been deserted but this change is only ostensive. Instead, inside the borders of the original estate there are a couple of newer, although already medieval, plots of manors. Among them is Louhisaari, one of the most impressive 17th-century mansions in Finland, a mansion symbolising the power of its aristocrat owners belonging to the family of Fleming.

New questions based on recent international research results, multidisciplinary methods, and a thorough analysis of land ownership and the landscape, make it is possible to place Finland in a context of the medieval Europeanisation, underlined, for example by Robert Bartlett in the 1990s (Bartlett 1993). Beginning from the 12th and 13th centuries, a large-scale colonization, together with the modernisation of agriculture, took place in Finland as well as in the whole of northwestern Europe. This Europeanisation process was closely connected to Christianisation. The nobility seems to have had an important role in building churches as well as in establishing early parishes.

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Changing Coastal Landscapes

Shore displacement and the strategies for defence and subsistence at the medieval castle of Raseborg

ABSTRACT: Recent archaeological research around the medieval Castle of Raseborg has shown that in the Middle Ages the most prominent changes in the surroundings of the castle, both natural and man-made, are related to the littoral landscape of the site. Archaeological data offers new information on post-glacial shore displacement in the region, and suggests that during the first half of the 16th century the shore level around the castle was considerably lower than expected. Shore displacement also affected the castle's strategies for defence and subsistence.

KEY WORDS: Middle ages, Raseborg castle, landscape, post-glacial shore displacement, defence, warfare, subsistence, coastal resources.

INTRODUCTION

The ruins of Raseborg Castle are situated in Snappertuna, western Uusimaa (*Nyland* in Swedish), some 12 kilometres southwest from the town of Karjaa (*Karis* in Swedish) (Fig. 1). Today the castle site lies about 3 kilometres from the coastline, by the river called Raseborgså or Kungså.

The castle has a long history of archaeological and historical study, starting from the 1890s. In 2008 the research project *Raseborg Through the Ages* initiated a new period of systematic archaeological research on the castle site. The central goal of the project was to broaden the research scope from the main castle to its surroundings. The project included archival research, archaeological surveying and excavations at several sites in the vicinity of the castle, and produced a novel body of material for future research (Haggrén, Jansson, Holappa & Knuutinen 2009; Haggrén & Jansson 2012; Haggren 2013). The archaeological field work in Raseborg continued in 2014 with new excavations in and around the castle (Haggrén 2014b; Knuutinen 2014).

The focus of this article is on regional post-glacial shore displacement and its impact on the medieval landscape as well as the way it was organised. First, the complexity of shore displacement at the site is discussed in order to better understand its role in the formation of the landscape. The second part of the article focuses on the two central functions of the castle, defence and subsistence, which are landscape bound and were affected by the changes caused by shore displacement.

Figure 1. The Raseborg Castle site is located on the southern coast of Finland. The map also presents the location of Hanko, Älgö in Tammisaari and Orslandet in Inkoo. 1 – Turku, 2 – Raseborg, 3 – Helsinki, 4 – Vyborg. Map: Maija Holappa.

Raseborg castle

The historical sources concerning the castle are sparse before the reign of King Gustav Vasa. The present understanding is that Raseborg was founded in the latter part of the 1370s by Bo Jonsson (Grip), the Lord High Steward of the Swedish realm (Drake 1991: 91). The first mention of Raseborg is in a charter signed at Raseborg by Tord Bonde on 8 September 1378 (Nationel Arkiv Databas, SDHK 11301/ RA 0101).

The castle acted as the administrative centre of the Castle Province of Raseborg (today's western Uusimaa) until the mid-16th century. It was enfeoffed to many of the most prominent men of the Swedish realm, perhaps the most important being King Karl Knutson (Bonde), who held the castle as his personal fief during the mid-15th century (e.g. Haggrén 2013). Besides administrative and residential functions, Raseborg undoubtedly had military importance as well. However, the only strong evidence for the castle in a military conflict is a battle between Swedes and Danes, presumably in 1523, in which the castle was destroyed (Hartman 1986: 71; Rask 1991: 71; Haggrén 2014a: 22; Terävä 2015: 110). The castle was also an important agricultural centre. The historical sources indicate that there was a landed estate under the control of the castle at least since the beginning of the 16th century, but it is probable that the large agricultural estates of the castle were organised under a manor or landed estate even earlier.

The importance of the castle was at its highest during the 15th century and the beginning of the 16th century, but after the 1530s the castle rapidly lost both its political and military relevance. In 1550, a new administrative centre was founded in Helsinki, and Raseborg accordingly lost its administrative role. As recent studies by Georg Haggrén have shown, Raseborg was not abandoned immediately, but the castle continued to be used in some capacity until 1558 when part of the castle collapsed, after which it fell into disuse (Haggrén 2014a: 24–5, Fig. 2).

Antiquarian interest towards the castle ruins grew during the first half of the 19th century, and since the 1890s the castle site has been a subject of archaeological and historical research. Most of the research has concentrated on the castle itself, but excavations have also been done in the surrounding

areas. Unfortunately, the main body of the studies remain unpublished, excluding several publications by Knut Drake, mainly concerning the construction history of the castle (e.g. Drake 1983; 1988; 1991).

A landscape approach to the history of Raseborg

Raseborg represents a fruitful opportunity for landscape archaeology for many reasons, not least because it is the only still-standing medieval royal castle in mainland Finland that is not surrounded by modern urban settlement. Historical sources tell very little of the early phases of the castle and they are not very informative about the development of infrastructure supporting everyday life in and around the castle. The castle accounts offer rich information about life in Raseborg from 1540 onwards, but little information is available about the surroundings of the castle and how they were organised. However, the ruins of the castle and its surroundings have been depicted in several maps dating from the 17th and 18th century.

The unbuilt rural landscape in Raseborg offers a multitude of opportunities for landscape studies (e.g. Knuutinen 2012; Haggrén 2013). On the other hand, the seemingly unchanged landscape might induce the researcher to assume that the topographical features and other phenomena of the modern landscape somehow represent the "original" or "medieval" landscape. This can lead to misinterpretations when reconstructing and interpreting medieval land use and the spatial organisation of the castle's surroundings (on the subject, see Uotila 1998: 127–8; Knuutinen 2010; 2012). Therefore, some aspects of the history of the landscape should be stressed.

Raseborg is situated in a low-lying coastal region where the single most important factor in the natural landscape has been shore displacement caused by post-glacial land uplift (Fig. 2). The topographical setting of the landscape has also been affected by intentional construction and landscaping, both in the Middle Ages and in modern times. Because of lacking or insufficient documentation on the modern landscaping, the dating of specific features at Raseborg is very difficult. There are uncertainties concerning, for example, the authenticity of the moats around the castle. On the other hand, recent excavations in the vicinity of the castle have shown that even large-scale constructions carried out during the Middle Ages have completely dissolved into the modern landscape and thus are invisible to the researcher (e.g. Haggrén & Jansson 2012; Knuutinen 2012; 2014).

Excavations also show that even in the Middle Ages the most prominent changes in the surroundings of the castle, both natural and man-made, are related to the littoral landscape of the site. Changes in the natural landscape have promoted processes wherein the environs of the castle were reorganised. Therefore, knowledge of the history of the region's littoral environment is essential.

SHORE DISPLACEMENT IN THE RASEBORG REGION

According to the isobase curves of Fennoscandia presented by Ekman (1996), the mean rate of relative land uplift in the Raseborg region is 3.0 mm per year.[1] Similar curves for present relative land uplift have also been presented by Eronen et al. (2001), Påsse & Andersson (2005: 261) and Vestøl (2006). Using the mean value of *current* land uplift for modelling shore levels over a period of hundreds or thousands of years can be problematic, since the models are based on an assumption that the rate has been linear through the ages. In line with the majority of the geologically orientated research on the Baltic shore displacement, Ekman's research (1996: 163–4) implies a linear land uplift since 5000 BC throughout the entire Fennoscandia region. However, this linearity has been repeatedly challenged, mostly by archaeologists, in Finland and Sweden (e.g. Åse 1969; 1970; Ambrosiani 1981; Ödman 1987: 45–74; Hiekkanen 1988: 60–4; Wahlberg 1994; Uotila 1998: 84–6, 111,128,133; 2000).

[1] Relative land uplift refers to the land uplift relative to the mean sea level. In the curves presented by Ekman a sea level rise of 1.2 mm/year has been taken into account (Ekman 1996: 163. See also Påsse & Andersson 2005: 261).

Figure 2. The Castle of Raseborg from the southwest. The western part of the castle rests on a high rocky outcrop. The grass field at the foot of the outcrop lies approximately 1.0 to 1.5 meters above the present-day sea level. Photo: Tarja Knuutinen.

Considering the location and date of the Raseborg Castle site, a regionally and temporally more precise perspective on land uplift is presented in a study by Miettinen (2011), where the rate of shore displacement is based on the isolation time of selected lake basins in five areas in western Uusimaa. Two of these, Älgö in Tammisaari (Ekenäs in Swedish) and Orslandet in Inkoo (Ingå in Swedish) are particularly interesting since the castle site is situated between the two locations. According to Miettinen (2011: 81), the shore level at Orslandet, some 15 kilometres southeast from the castle site, has been 2 m a.s.l. in AD 1000 and 1 m a.s.l in AD 1500. In the Älgö area, circa 20 kilometres southwest from the castle site, the shore levels have been 3 m a.s.l. in AD 1000 and 1.5 m a.s.l. in AD 1500.2 The results from Älgö fit perfectly in the frame of 3.0 mm yearly land uplift, but as the results from Orslandet show, the rate has been significantly different only some 30 kilometres to the east.

Small fluctuation in the land uplift rate is less problematic when modelling prehistoric shores, since the longer time span and growing distance from the modern seashore gives more flexibility in the interpretation of the models. When modelling shore displacement on a relatively recent site located in today's coastal region, the uncertainty and possible inaccuracy of the models becomes more problematic. Because of the short time span, the intervals between the modelled periods become shorter and the differences between the shore levels grow smaller across the studied period.

Another issue affecting the reliability of the shore level models in a low-lying landscape is the normal annual fluctuation in sea level. As the series of sea level height data from Finnish south coast tide gauges from 1887 to the present show, the annual fluctuation can be considerable. At the tide gauge stations closest to Raseborg, the maximum fluctuation during the measuring period has been +133 cm (Hanko) and +151 cm (Helsinki), the minimum respectively –79 cm and –93 cm (Finnish Meteorological Institute, http://ilmatieteenlaitos.fi/vedenkorkeusennatykset-suomen-rannikolla).

The fluctuation data from the last 120 years cannot be applied straightforward to medieval times, but it gives an idea of the magnitude of the phenomenon. Even if the normal annual fluctuations were smaller than the extremes presented above, the shore level models based on the relative land uplift rate can present only the average height of the shore line; in a low-lying landscape a vast area above this average height would have been affected by temporary rises in sea level (see also Wahlberg 1994).

[2] According to Miettinen (2011: 84) the margin of error in isolation studies is approximately 0.5 m.

The problems discussed above are pertinent to Raseborg, where the lowest parts of the castle site are located only 0.5 m a.s.l., and even small changes in water level can cause considerable changes in the landscape. On the other hand, seemingly small changes in the topographical conditions can alter the models of the withdrawing shoreline. For example, to create a romantic setting for the castle ruins, the topographical conditions in the castle area were purposely altered during the period of early restorations, from the 1890s to the 1950s. During that time, the easily flooding riverbank on the southern and western side of the castle as well as parts of the castle's low-lying surroundings were filled. The river bank was raised altogether some 0.6 to 1.0 m, thus the impact on the local topography has been significant (Knuutinen 2010, Fig. 3).

Shore displacement model of the Raseborg region

The shore displacement model of the Raseborg region presented in this article is based on the digital elevation model of the Finnish National Survey (2 metres grid, N2000-system). The shore levels presented are based on the linear rate of shore displacement at 3.0 mm/year, respectively 2.1 m a.s.l. in the 14th century, and 1.5 m a.s.l. in the 16th century (Fig. 4). Furthermore, shore levels based on new archaeological data are suggested for the 14th and 16th centuries. For the area closest to the castle, a shore line reconstruction for the time prior to the heavy medieval landscaping of the shore zone is presented, based on the archaeological data from the site (Fig. 5).

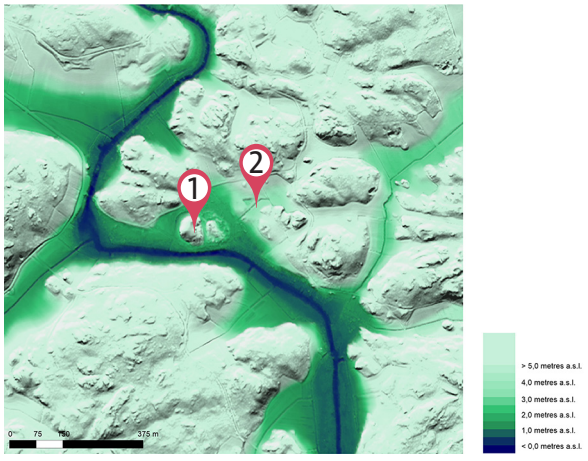

Figure 3. The present-day topography of the castle site has been altered by medieval and modern landscaping. The lowest parts of the castle site are still just above the present sea level. 1 – Raseborg castle, 2 – Slottsmalmen. Map: Tarja Knuutinen.

The new shore displacement models show the change that took place in the regional sea level height during the period from the 14th to the 16th century, and thus differ from the previous, more static models published by Alopaeus (1984: 86) and Drake (1991: 90, 92). The model given by Alopaeus presents a shore level reconstruction only for the 1550s, and covers only the closest surroundings of the castle. The presented shore level is based on the shore displacement rate of 3.6 mm per year adopted from calculations by Erkki Kääriäinen (1963; see also Uotila 1998: 127). Exact height information has not been given but the suggested shore level seems to follow the 2.0 m a.s.l. contour line. The relatively rough model published by Drake covers a considerably larger area, including the whole lower course of the Raseborgså River together with the inlet stretching northwards on the western side of the river. Drake's model presents the shore level only for the 14th century, with no reference to the height of the shore level. However, in the same publication, Henry Rask refers to a shore level height of 2.5 m a.s.l. in the end of the 12th century (Rask 1991: 35).

Kari Uotila (1998: 127–8) has criticised the previous models for not considering the landscaping and filling made in the vicinity of the castle during medieval and modern times. The poor documentation of the early excavations and restorations has made the evolution of the landscape difficult to trace. Nevertheless, some observations can be presented, based on excavations done during 2008–2009 and in 2014 (Fig. 5).

The excavations conducted in 2008–2009 and 2014 at the so-called Slottsmalmen, located 200 metres east from the main castle (Fig. 5), have revealed layers and structures that shed light on the environmental conditions and medieval usage of the area.

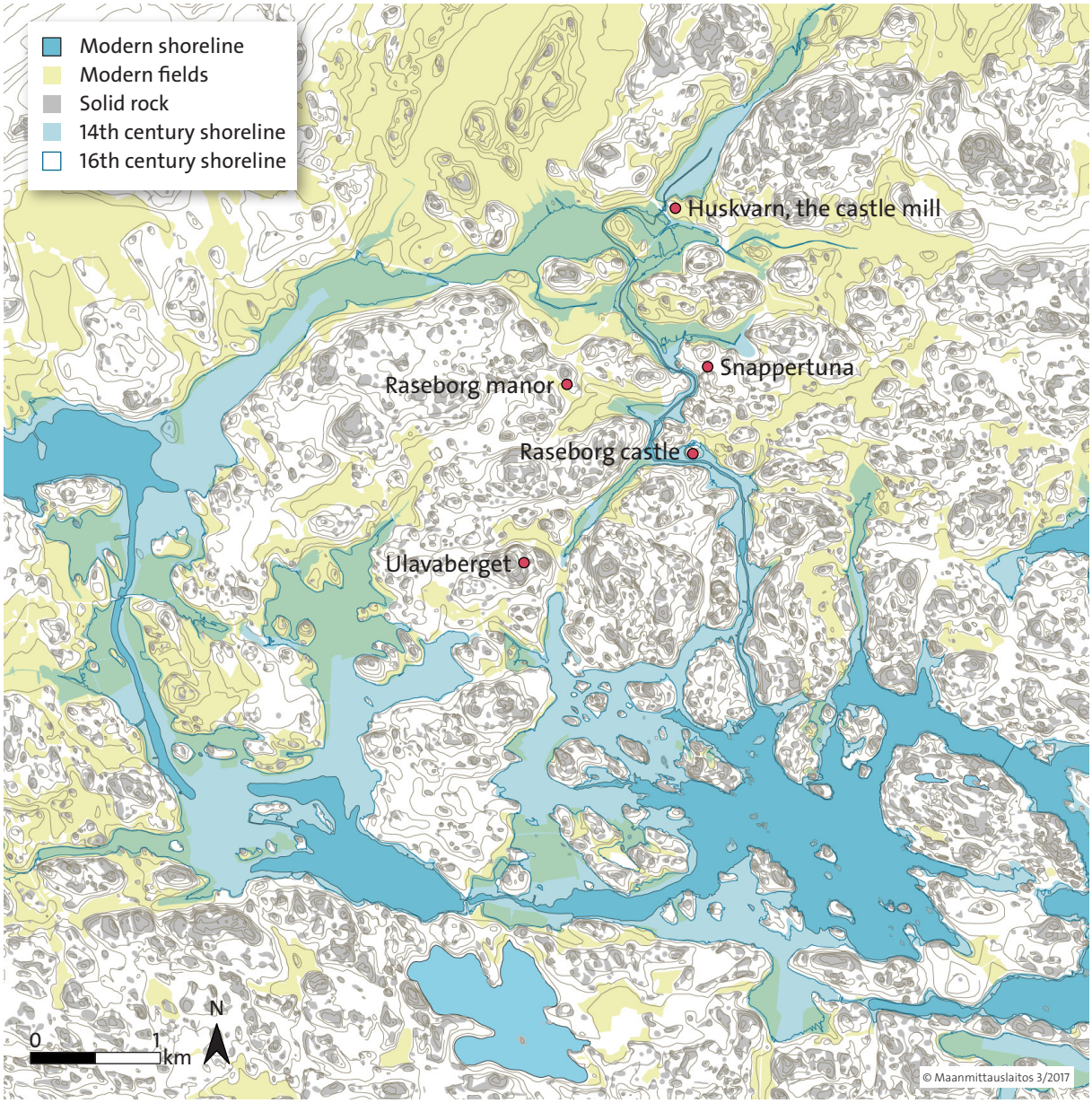

Figure 4. The shore level reconstructions of the Raseborg region for the 14th and 16th centuries. Map: Tarja Knuutinen and Maija Holappa.

During the excavations in 2008 and 2009 a large earthen embankment was found in the area, and underneath it a thick layer of decaying woodwork refuse. A similar phenomenon was observed also during excavations in the western part of Slottsmalmen area in 2014 (Knuutinen et al. 2008; 2009; Knuutinen 2014).

The embankment, approximately 60 m long and at its highest point 1.2 m high, stretches over the whole Slottsmalmen area in an east-west direction. The embankment was built in several phases. The original, approximately 12-metres-wide core was constructed out of clay and sand. At some point the core was supported and heightened by dumping waste on its shore side, after which the total width of the embankment was approximately 26 metres.

The artefacts found from the layers of the embankment date the structure to the late 14th–mid-15th century, and the preliminary results of the 14C datings from the embankment suggest that

construction was initiated even earlier, in the mid-14th century.[3] The good preservation of the organic layer underneath the embankment suggests that it originally stratified in shallow water, representing the last phase of shoreline before the construction of the embankment, located on a level of 1.8 to 2.4 m a.s.l. (Knuutinen & al. 2008; 2009). These results place the highest point of the 14th-century shore on a level of 2.4 to 2.5 m a.s.l.

The remains of a building excavated at the western part of Slottsmalmen in 2014 offer more information for controlling the model. The excavated part of the building consisted of the stone footing of one wall, a badly destroyed oven structure made out of stones and bricks, and part of the tight clay packing of a possible floor surface. The artefacts found date the building to the mid-16th century. The excavated section of the building lies directly on a surface of muddy clay, which is the prevailing natural subsoil in the area. The bottom of the excavated floor layer was situated on a level of 1.5 to 1.6 m a.s.l.[4] (Knuutinen et al. 2014). It seems unlikely that the building would have been situated in an area where periodically rising sea levels would have been a constant risk. The location suggests that the shore level during the 16th century was considerably lower than the calculated 1.5 m a.s.l., and closer to, or even lower, than the 1.0 m a.s.l. reported by Miettinen at Orslandet (2011: 81). In this case the results from Raseborg, together with Miettinen's results from Orslandet, differ considerably from observations made at medieval sites on the southwestern coast of Finland after the 1980s.

Archaeological observations from the medieval towns of Turku (Uotila 2006: 24–5) and Naantali (Hiekkanen 1988; Uotila 2003: 35–7) as well as the castle of Kuusisto (Paatonen 1994; Wahlberg 1994; Uotila 1998: 107–11; 2000: 299–300) indicate that at the beginning of the 16th century, shore displacement has stagnated and even reversed on the southwest coast of Finland. A similar phenomenon has also been reported at medieval sites on the eastern coast of Sweden (especially Ödman 1987; 1998: 21–2). The common consensus among researchers is that the phenomenon was caused by sea level transgression in the Baltic Sea, related to a rapid climatic change at the turn of the 15th and 16th century (more discussion on the subject e.g. in Uotila 1998: 79–82, 149–50). However, as Miettinen has pointed out, local anomalies in the isostatic land uplift may also cause variation in shore displacement on a local scale (Miettinen 2011: 82–4 and referred literature).

There are also other possible explanations for anomalous shore levels in the vicinity of the Raseborg Castle. As the archaeological data from excavations in 2008–2009 and 2014 have shown, large-scale construction works were carried out in the surroundings of the castle during the Middle Ages. The embankment in the Slottsmalmen area was perhaps only part of a larger set of works with which the watery landscape was controlled. Even though there is no archaeological evidence of damming or other structures built to control the water level around the castle, their existence cannot be overruled. For example, a wooden palisade around the castle, identified as a sailing blockade (Alopaeus 1984), could slow down the natural water flow and increase sedimentation around the castle island as shown in the castle of Kuusisto (Alopaeus 1994: 103). In the case of Raseborg, the effect on shore level would have been local, affecting perhaps only a very small area around the castle.

The implications of the model

Despite the fact that there still are many uncertainties concerning the shore displacement process in the Raseborg area, the model presented here can be used as a tool to examine the effect of the phenomenon on a number of activities related to the communications, land use and organisation of the surroundings of the castle. The model shows that at least until the beginning of the 15th century there

[3] Results from the 14C datings (HELA 3866–3869) will be published in more detail after the analysis of the material are complete.

[4] The heights are given here in the N2000 height system and therefore differ approximately +0.25 m from the ones given in the Finnish N60 system in the excavation report.

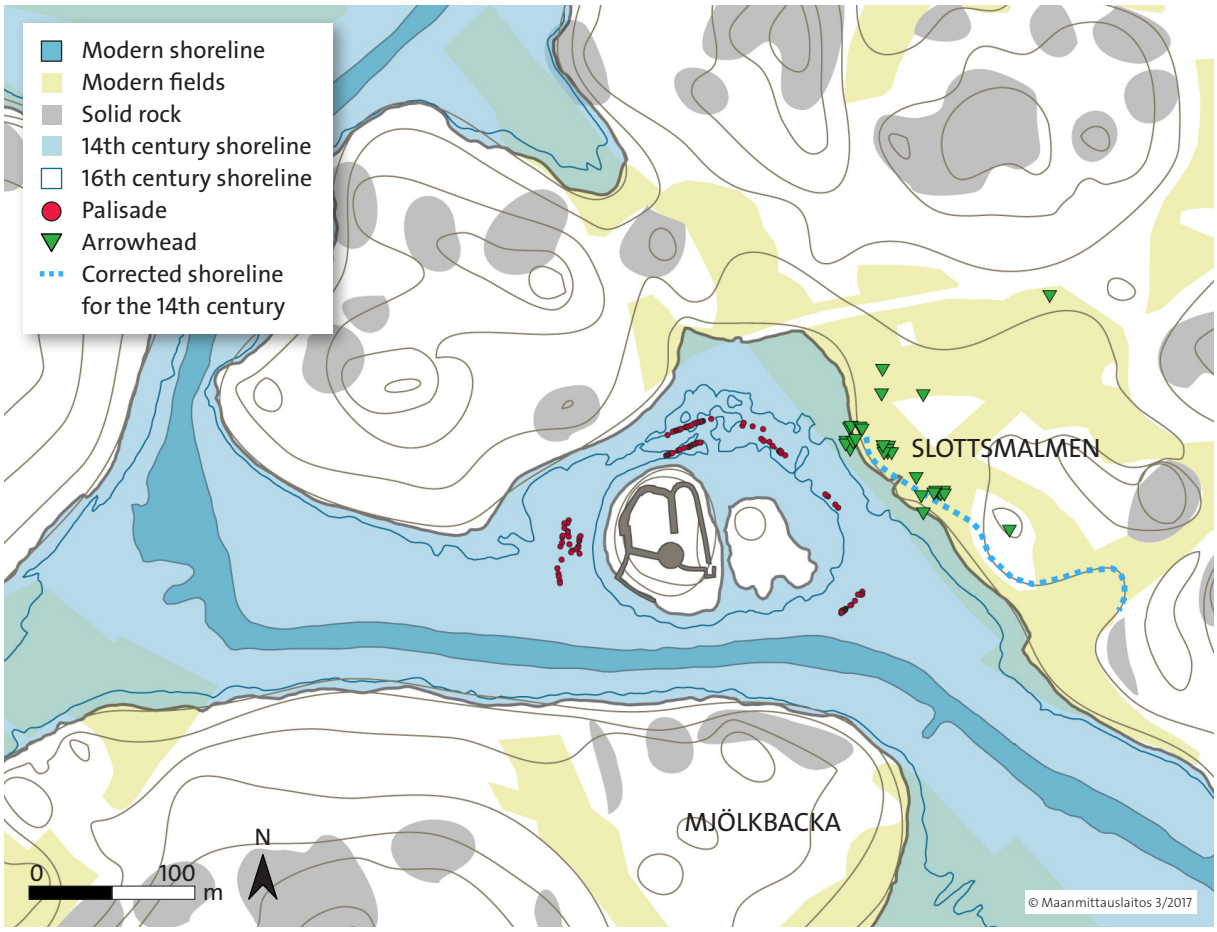

Figure 5. The shore level reconstruction from the 14th to the 16th century, together with the palisade, arrowheads and suggested corrections of the shore displacement model, based on the recent archaeological observations. Map: Tarja Knuutinen and Maija Holappa.

were two possible sailing routes to the castle: the southern route, which followed the lower reaches of the modern Raseborgså River, and the north-western route, which approached the castle from the north. Unlike the previous models by Drake and Alopaeus, the new model shows a narrowing of both routes from the 14th to the 16th century (Fig. 4). It seems that already during the 16th century the connection to the sea through the north-western route vanished, and the channel of the Raseborgså River took its present-day form. This development is of importance as regards understanding the changes in the castle's landscape setting and connections to the sea.

Historical sources support the deterioration of the sailing routes presented in the model. In his letter to Nils Grabbe in 1525, King Gustav Vasa orders the old Raseborg Castle to be replaced by a new one, built in Ekenäs, where it is easier to arrive by ship (FMU 6225). The same justification for building a new castle is also mentioned in a letter from the King in 1527 (FMU 6376). In the first map depicting the Raseborg area in 1682 (KA B1a 106–108; Fig. 7), the river channel seems to be fully formed and the inlet that formed the northern connection to the sea has narrowed into a small stream.

An interesting question for future research regarding the sailing connections at Raseborg will be how navigable the two routes were. Whereas the north-western route was wider and therefore possibly easier to navigate, as the model shows, its northern end was considerably shallower and therefore more vulnerable to changes in water level than the southern route. On the other hand, the lower reach-

es of the Raseborgså River underwent heavy dredging work in the 20th century, which has altered the form and depth of the channel. Therefore, it is difficult to decipher whether the route was accessible to larger vessels even in the 14th century. More detailed information on topography and archaeological remains on both routes will be needed.

Sailing connections were not the only thing affected by the shore displacement. The receding shoreline had its effect also on land use around the castle, changing defensive features, suitability of land for cultivation and husbandry, even possibilities for fishing and fowling. These questions are further discussed in the following chapters based on the shore displacement models as the foundation of the study.

TOPOGRAPHY AND MILITARY MANOEUVRES

Defending the castle

Even though the historical records related to the military activity at Raseborg are sparse, they show that there were constant efforts to maintain and improve the defences of the castle. The topographical and landscape setting of the castle, together with the evolution of warfare, including the adoption of firearms, strongly influenced the measures taken to update the castle's defences. In similar vein, possible attacks and sieges depended on the opportunities and barriers afforded by the landscape.

A high, rocky island surrounded by water is a typical place for a medieval castle, recommended in instructions considering castle building given in the Swedish *Konungastyrelsen*, the art of ruling, in the 1340s. This kind of location was considered perfect for preventing possible attackers from getting too close to the walls, where breaching was possible with several methods (see e. g. Contamine 1984: 102–6). On the other hand, the high rocky hills surrounding the Raseborg castle island made the location perhaps less favourable from a defensive point of view (Lovén 1996: 34, see also Uotila 1998: 155).

According to the current understanding, the first defensive structure on the island was the main castle, with its towers. The eastern outer bailey, presumably designed to defend the main gate, was constructed in the 15th century at latest. The southeastern and southern baileys were probably built during the last section of the same century (e. g. Drake 1991: 116–7, 133–5; Gardberg 1993: 85–9; Uotila 1998: 125–7). The defences also included an underwater wooden palisade circling the main castle and the island of Stallholmen (Fig. 5). The palisade has been dendrochronologically dated to the winter of 1426–1427 by Pentti Zetterberg, but the results represent only a small part of the structure (Lovén 1996: 159; Uotila 1998: 127). Similar structures have been found around other Finnish coastal castles, including the castles of Turku and Kastelholm as well as the bishop's castle in Kuusisto (Uotila 1998: 146–7).

The existence of an artificial moat surrounding the castle has been discussed by several scholars (e.g. Hartman 1896: 111; Alopaeus 1984: 85–6; Drake 1991: 120–1). At least during the 14th and the 15th century water created a natural hindrance around the castle island, and an artificial moat would not have been needed. However, following shore displacement, this natural moat gradually dried-up and became easier to traverse. It seems that by the beginning of the 16th century a narrow land connection existed between the castle island and the mainland on the northern side of the castle. At this point, an effort to improve the castle's defences by creating an artificial moat could have been made. The most probable place for such a work would have been on the northern side of the castle island, together with the narrow gap between the castle island and Stallholmen (Fig. 5.)

Firearms were adopted as part of the defences of Raseborg already in the 1430s (FMU III, no. 2102; FMU 2285) but it seems that there were few cannons initially, and most likely no permanent structures for artillery. The most typical places for cannons in medieval castles were the castle gates because of their vulnerability, but also the terraces of the towers were used (Contamine 1984: 202). In Raseborg, cannons located near the main gate or in the southeastern tower would have partly solved the problem of defending the castle against enemies approaching from the east or south, where the to-

pography of the castle island was less defensible. Evidence referring to the possible locations of cannons and shooters in the castle are scarce. Because of the heavy-handed restorations it is hard to say which embrasures in the walls are original, and consequently, the possible range of fire is difficult to decipher. Furthermore, possible structures located in Stallholmen would have affected the range of fire to the east.

Cannon balls, a large number of arrowheads and other military finds have been found within the castle walls. Many of these finds, especially the projectiles, are likely the remains of the castle armoury. Because of the lack of information on exact find contexts, it is difficult to interpret whether any were actually shot at the castle. A caltrop found in the castle (KM 5214: 2) could indicate the defenders of the castle preparing for a cavalry attack (Terävä 2015).

Attacking the castle

As pointed out earlier, there is not much information in the historical record about sieges and fights related to Raseborg. According to folklore, the stone walls of Raseborg were fired upon from the hill of Uvalaberget during a battle between the Swedes and Danes (Hartman 1896: 104; Wefvar 1879: 24). This could relate to the destruction of the castle in 1523 (Haggrén 2014a: 22). Uvalaberget is located about 1.5 kilometres away from the castle, and even though historical records imply that firearms with stronger loading could reach this distance already in the 14th century (Hedberg 1975: 58), the distance would have been too great to cause any harm (Fig. 4). Georg Haggrén (2014a: 22) assumes that the besieging force could have passed Uvalaberget and situated themselves upon Mjölkbacka, a rocky hill south of the castle, near enough to be a possible shooting place (Fig. 5).

Even if firearms proved to be a deciding factor on some occasions during the medieval period, there are also mentions in historical sources referring to their ineffectiveness on fortifications (Contamine 1984: 201; Jones 1999: 179–82). Any attempt to destroy massive stone walls was hard work, and required heavy bombards and close proximity to the castle (Paulaharju 1992: 168; Uotila 2000: 297–8). Getting close enough to the fortification probably required a well-planned attack, assisted with soldiers equipped with other weapons, and perhaps even digging and building protective structures for the cannons (Contamine 1984: 201). Such operations would have modified the landscape around the castle, but so far no such remains have not been found at Raseborg.

According to folklore, large bombards would have been used to bring down the walls of the castle of Viipuri (Viborg in Swedish) in 1495 (Paulaharju 1992: 24). Otherwise historical sources do not refer to attacks on Finnish castles made with firearms before the 16th century. In the case of Finnish castles, Kari Uotila suggests that medieval cannons would not have been considered as a very significant threat, and these new weapons were not the primary cause for new constructions like the outer baileys that appeared from the late 14th century onwards (Uotila 1998: 154-5; 2000: 297–8).

Figure 6. Crossbow bolts from the excavations of Slottsmalmen. Photo: Anna Lehtinen/ Konservointipalvelu Löytö.

Still, as Uotila points out (1998: fig. 99, p. 155), there are potential places to situate cannons within shooting range around Raseborg. Even though these places would have been useless for destroying the walls of the castle with cannons, the distance is short enough for using mortars as well as other missile weapons like trebuchets (Hedberg 1975: 10–13, 58; about missile weapons, see also Huldén 2004: 122–4; Paulaharju 1992: 7–10). Of course, the range of bows was also long enough from the 14th century onwards to send a hail of arrows the castle island (about ranges of medieval bows, see e. g. Lidén 1997: 190 and Kooi 1983: 196). On the other hand, one problem might have been that the attackers, situating themselves at these supposedly treeless hills surrounding the castle, were easily seen and thus fired upon before they could build any protective structures. Barring new defensive solutions, the retreating shoreline would also have increased the number of potential shooting places near the castle.

The transportation of missile weapons and larger cannons was a time- and energy-consuming ordeal unless sailable waterways were available (Jones 1999: 181). Because Raseborg was a coastal fort, it is easy to assume that the enemy arrived there by ship or boat, and the palisade around the castle suggests that preparations were made to prevent hostile vessels from getting too close to the main castle. Furthermore, the castle accounts from 1541 (KA 2921: 19, 21 and 22) and 1544 (KA 2937: 33, KA 2938: 54) suggest that some kind of archipelago ships were built beside the castle. These types of vessels are known to have been equipped with firearms on some occasions (Svensk Uppslagsbok 1955: 645) and perhaps could have been used against vessels attacking the castle. If the guarding of the itineraries in the Gulf of Finland was organized at Raseborg as it seems in some cases (e. g. KA 2934: 39), vessels capable of fighting at sea must have been at hand.

The navigability of the two possible sailing routes leading to Raseborg is still a question for future research, but it seems that at least by the 16th century the castle could no longer have been reached by larger vessels. The shallowing waterways would have forced ships to anchor further away from the castle, thus making it more cumbersome to attack the castle but also to launch vessels to sea from the castle. On the other hand, vessels equipped with light artillery could have been simply rowboats with sails. Larger cannons on ships become more common during the 16th century (Hedberg 1975: 127–8). The effectiveness of the earliest cannons used on ships is unknown, but using them to destroy the walls of a castle located on a high hill was probably impossible. Ships were most likely used to blockade the waterways and convey soldiers and weapons, or to prevent people escaping or defending the castle. Ships may have also been used in assailing the ships belonging to the castle and thus played an active role in besieging.

The aim of attacking a castle was not necessarily to destroy but to gain control of it. This could be more effectively obtained by blockading the area, threatening, or giving the defenders a chance to surrender without suffering (Contamine 1984: 102; Lidén 1997: 189). At Raseborg the tactic of clemency seems to have worked at least in 1487 (FMU 4156; Hartman 1896: 54–6; Rask 1991: 67–8). Weaponry could also be used to threat and harass, for example by shooting at the castle without any real purpose of causing major damage.

The effectivity of medieval firearms was not based on the real destruction power of these weapons – instead it was long based on mystical assumptions about their power, and the fear of these weapons was boosted by their loud noise and smoke (Paulaharju 1992: 168). Thus the firearms could very well have be used mainly terrorize the people inside the castle. After all, the adopting of firearms had very little effect on siege tactics in the Middle Ages (Jones 1999: 183). In Raseborg the local topography and deteriorating sailing connections probably affected the tactics of attackers more than the adopting of firearms. If the castle became more difficult to access for larger vessels, the attackers might have preferred infantry and cavalry to ships when approaching the castle.

The latest archaeological excavations in Slottsmalmen revealed quite many military finds. Most were arrowheads (Fig. 6.) and small lead bullets from handguns, but there were also some other pieces of weapon and armour among the find material. An interesting question is whether these muni-

tions, broken weapons and pieces of armour are the remains of everyday life,[5] or do they relate to conflict that took place at the castle?

The possibility of a battlefield at Slottsmalmen is deserving of further investigation in the future, since east was the most likely direction for attacking the castle by land, especially if cavalry were used. During a siege blocking the access between the castle and the main land was the easiest on the eastern side of the castle. That is why Slottsmalmen could be a possible place for a culminating battle.

SUBSISTENCE AT THE COASTAL CASTLE

A considerable amount of animal bone was recovered during the excavations at Slottsmalmen in 2008 and 2009 (Table 1). The material consisted mostly of food, butchery and handicraft waste in a layer above the constructed embankment. This would imply that food waste in the form of bone material was seen as an important source of building and fill material for the castle. It is also an important source of information that can be used to trace how the castle inhabitants used the local landscape as a resource for obtaining animal produce for food.

Food resources could be locally and regionally provisioned or secured from more distant locations, for example via trade. The landed estate and the castle surroundings would have been part of the local food production, as would the peasant farmers close to the castle. Regionally provided meat products or domestic animals could be brought to the castle from a longer distance, likewise fish, birds and other wild animals. Some taxed foodstuffs would preserve for quite a long time and could be transported from more distant locations and used in trade.

The landed estate and the domestic animals

The landed estate and the occupants of the castle secured access to foodstuffs in various ways. The foodstuffs for the castle kitchen were partly provided by the castle estate and partly by taxed goods and foodstuffs traded and brought to the castle. The basis of food production in Raseborg was agriculture, husbandry and the meat provided by domesticated animals. Cattle, pigs, sheep, geese and chickens are mentioned in the castle accounts every year. Goats have been identified in the osteological material but they are not mentioned in the account books. Vegetable products included in the account books include cereals, hops, peas and beans. This part of the article will concentrate on the animal produce and how it reflects and is used in the castle landscape.

The domestic animals were kept in the landed estate and they would have been fed with resources grown in the castle fields. The receding wetlands would open up meadows for grazing animals, which were needed for their meat, but also for the milk they produced, which would be turned into better preserving butter and cheese. Among the foodstuffs consumed in the castle during the 16th century were meat from cattle, sheep and pig, cattle tongues, sausages and offal (e.g. KA 2921: 12–3, 22; KA 2979: 48-51; KA 2989: 68–70). Preserved meat could also be shipped to the castle from Stockholm, to be distributed wider to the realm (KA 2979: 33–5; KA 2989: 46–8).

The castle fields, seen in figure 9, would need to be ploughed in preparation for cereals and other crops. Horses could be used for the task but also oxen, which are mentioned in the account books (e.g. KA 2921: 21; KA 2925: 2). Evidence of draught oxen can also be seen in the osteological material in the arthritic lower limb bones (femur, tarsal and metatarsal bones) of cattle. The weight of the plough tends to accumulate to the lower limbs in the ploughing action which can cause wear on the joints causing arthritis (Bartosiewicz et al. 1993: 71). Thus, oxen were used as draught animals in ploughing the fields.

[5] For example, practicing by using weapons in games and competitions is a very well-known activity from medieval times (f. ex. Olaus Magnus 2002 [1539, 1555, 1567]: 92) and at Slottsmalmen there has been found one arrowhead (KM 2008063: 35) which could be a part of a training arrow (Terävä 2015: 118, fig. 11). Weapons have also been used in hunting and as a part of everyday dress, so normal life might relate to pieces of weapons ending up in places where people have spent their time.

Fish as a taxed, traded and locally caught resource

When looking at the 1682 map of the castle (KA MHA B1A 106-108; Fig. 7) and the shore level reconstructions (Fig. 4) presented in this article, the potential hunting and fishing grounds stand out. An effort to match these surroundings with animal species found in the osteological material at Slottsmalmen and the castle accounts can give new information on how the castle environment was utilised. The inlet leading to the castle was shallow and quite wide already during the Middle Ages. This would be an ideal environment for carp fish, pike, perch, zander, eel and burbot. These fish species would also thrive later on, when the water level declined.

Fish can be seen in the castle accounts in the form of processed foodstuffs, such as dried or salted fish. Carp fishes, such as ide, roach and common bream, were obtained from the castle fishery, together with herring (e.g. KA 2921:17–19; KA 2989:18–19). Carp fishes and herring have different living environments, which indicates either that there were at least two fisheries which were referred to as one, or that the fishery was a larger area including shallow and deeper waters. Herring and carp fishes also occur in the account books as taxed foodstuffs (e.g. KA 2918; KA 2989:30–1). In other words, they were caught by fishermen employed by the castle, and taken in as part of the peasant tax payment to the crown. The cyprinids seem mostly to be have been caught and consumed at the castle (KA 2979:34–6; KA 2989:48–9).

There are several fish species in the osteological material which are not mentioned in the account books. The fish species found in the osteological material were in general from three different environments: shallow waters, coasts and open sea. The shallow water species have already been discussed. In the coastal areas one could catch pike, perch, ruffe and burbot. Herring, salmon, eel, cod, common whitefish and sturgeon were caught in brackish water. The change in water levels in the coastal areas would probably push some fish species a bit further away from the vicinity of the castle, but it would not represent a significant change for the shallow water species. Sturgeon was identified by only a few fragments and could be thought of as import. The same applies for salmon, which was identified by bones from the vertebra.

TAXON	NISP
Cattle *Bos taurus*	3588
Sheep *Ovis aries*	164
Goat *Capra hircus*	14
Sheep/Goat *Ovis/Capra*	2434
Pig *Sus domesticus*	1028
Chicken *Gallus domesticus*	231
Geese Anser sp.	69
Pike *Esox lucius*	1210
Cod *Gadus morhua*	347
Burbot *Lota lota*	1
Perch *Perca fluviatilis*	3103
Zander *Sander lucioperca*	41
Ide *Leuciscus idus*	31
Roach *Rutilus rutilus*	61
Tench *Tinca tinca*	2
Carpfish *Cyprinidae*	3188
Eel *Anguilla anguilla*	1
Whitefish *Coregonus lavaretus*	10
Herring Clupea sp.	7
Sturgeon *Acipenser sturio*	2
Western capercallie *Tetrao urogallus*	8
Black grouse *Tetrao tetrix*	1
Hazel grouse *Bonasa bonasia*	33
Mallard *Anas platyrhynchos*	3
Common eider *Somateria mollissima*	18
Greater scaup *Aythya marila*	1
Long-tailed duck *Clangula hyemalis*	18
Gooseander *Mergus merganser*	5
Red fox *Vulpes vulpes*	4
Mountain hare *Lepus timidus*	197
Squirrel *Sciurus vulgaris*	26

Table 1. The number of identified specimens in bone material from Slottsmalmen

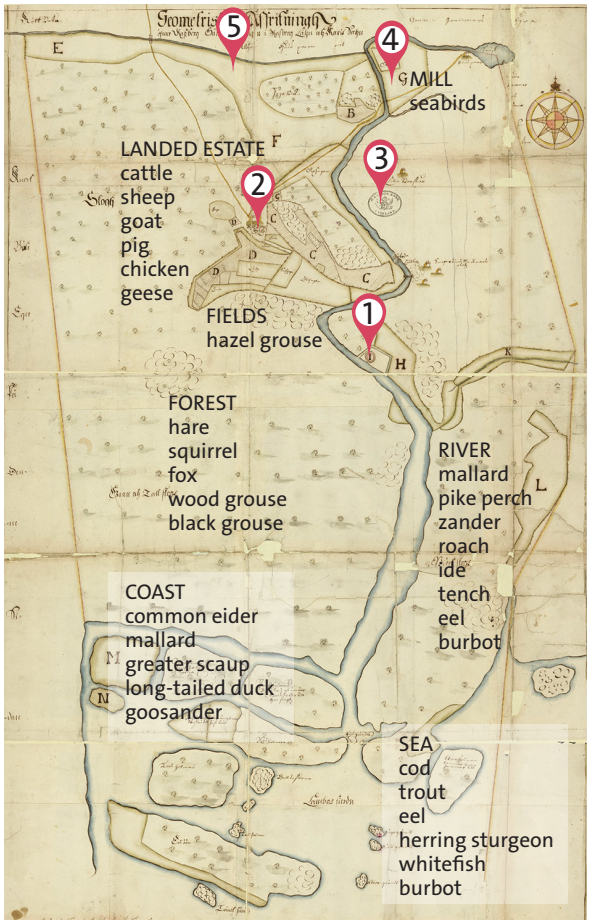

Figure 7. A map from 1682 by Lars Forsell with potential areas for different food recourses. 1 – Raseborg castle, 2 – Raseborg manor, 3 – Snappertuna, 4 – Huskvarn, the castle mill, 5 – Northwestern inlet.

The castle employed some fishermen and owned fishing nets for perch, carp fishes and herring. Nets for summer and winter use are included in the account books (e.g. KA 2918; KA 2924; KA 2929; KA 2933; KA 2944; KA 2946). If all these fishes were obtained from the castle fishery, this would mean that one of the castle fisheries could be located in the inlet surrounding the castle, and the other along the coast line and probably closer to the outer archipelago where herring, eel and common whitefish could be fished. During the winter fish could be obtained by nets set under the ice.

The peasants could also fish in the castle fisheries for a fee, which was typically paid as salted fish, for example herring, which could be salted with salt provided by the castle (e.g. KA 2979:9–10; KA 2989:18). Also tenant farmers and fishermen from Långö, Nothamn and Svartkam (see Figs. 4–6) in the archipelago could pay their taxes in fish and fish products (Haggrén 2013:54), likely caught in the outer archipelago and the Baltic Sea.

The anatomical distribution and cut marks on the cod bones suggest that the fish were brought to the castle salted and/or dried. The fish were probably taxed goods or related to trade, which is supported by the castle accounts where cod occurs only as a salted product. The size of the vertebra implies that the fish were caught in the Baltic Sea.

Local and regional resources

The inlet would also be a good place to catch birds. Seabirds are mentioned in the account books from 1540 and 1550 as part of the food inventory (KA 2918; KA 2979:35, 49). They were also described to be caught at the castle mill in the accounts from 1540 (KA 2918:59, see Figs. 4–6 and 8). Specific species of seabirds are not mentioned in the account books. The species found in the osteological analysis were common eider, greater scaup, goosander, long-tailed duck and mallard. Mallards and goosanders can still be seen in the castle area all year around. The other species prefer coastal environments, and at least the long-tailed ducks and grater scaups were probably caught during the migration period (Staav & Fransson 2007: 99–100, 109–10, 114, 122–3). This would also indicate that the birds were caught near the inlet or in the adjacent archipelago/islands.

In addition to seabirds, grouse were identified in the osteological material. These birds are absent from the historical sources. The receding shoreline exposed new fields and woodland meadows around the castle and would have afforded the hunting of hazel grouse and probably also black grouse (see Figs. 4–6 and 8). Wood grouse on the other hand prefer old, sparse pine forests (Staav & Fransson 2007: 174, 177–8). All these birds could be locally caught in the castle area, but also transported dried or salted from a longer distance. The same applies to seabirds.

Another animal which could be caught locally was elk, which was served at the bailiff's table in 1550 (KA 2979:34, 49). Elks are not conspicuously present in the account books and were probably a luxury food item even for the bailiffs. No elk bones have been identified in the osteological material. Other wild mammals found in the osteological material were fox, squirrel and hare. Fox and squirrel were typical animals caught for the fur trade. Hare could be used as food and for its fur, and can be found in almost any environment. Squirrels, foxes and elk prefer forests for their habitat and the presence of these bones in the assemblage may suggest that there were sufficient forest areas nearby to provide game.

CONCLUSIONS

According to the present understanding, Raseborg was originally established as a coastal castle in the latter half of the 1370s. However, during the following 200 years the castle's locale underwent a major environmental and landscape change due to shore displacement. The process of the shore displacement has been well recognised in the research of the site, but its effect on the activities at the castle has not been thoroughly studied. Moreover, previous models of the shore displacement at Raseborg have been on a very rough scale or based on very simplistic calculations. Therefore, detailed study of the subject is needed.

Recent archaeological excavations together with fresh results of shore displacement studies on the western Uusimaa region offer new data, enabling the creation of a more precise model of the medieval shoreline around the Castle of Raseborg. The results presented in this article suggest that the shore displacement in the Raseborg area followed neither the previously presumed linear shore displacement rate nor the fluctuations observed at several other medieval sites on the southwest coast of Finland and eastern coast of Sweden.

The archaeological data collected from the Slottsmalmen area together with the preliminary results of 14C datings from the earliest cultural layers on the eastern shoreline zone show that in the 14th century the water level of the small inlet was approximately 2.5 meters a.s.l. instead of the height of 2.1 m a.s.l. suggested by the calculations based on the linear shore displacement rate. Observations made during the excavations in 2014 suggest that in the 16th century the shore level in the nearest vicinity of the castle was closer to 1.0 m a.s.l than the expected 1.5 m a.s.l. This interpretation is supported by historical documents referring to the deteriorating sailing connections to the castle.

In Raseborg, the human impact on the local topographical conditions grew from the 14th century onwards. Since there is evidence of heavy construction work to control the littoral landscape of the castle area during the Middle Ages, the human impact on the anomalously low shore level in the 16th century may be considerable. However, similar observations of low shore levels in the 16th century have been made at Orslandet, located only 15 kilometres east from Raseborg. This indicates the possibility of a regional geological anomaly in the rate of shore displacement.

Besides accessibility, the defensive capabilities of the castle were also affected by the shore displacement. In the 15th century the castle island was still surrounded by water, which created a natural barrier. The palisade encircling the castle, interpreted as a sailing blockade, belongs to this phase. After the turn of the 16th century this natural defensive feature was gradually disappearing because of the receding shore line. The existence of an artificial moat around the castle has long been discussed, but clear archaeological or historical evidence is still lacking. However, the need for such a construction could have emerged during the latter part of the 15th or beginning of the 16th century.

The analysis of the surroundings of the castle can also be used to assess the possible ways of attacking the castle. The hilly terrain made it possible to fire upon the castle from higher grounds, but the topographical conditions would not have been particularly favourable for transporting heavy weapons by land. Bringing weapons near the castle in ships or boats would have been fairly effortless and the palisade can be seen as a response to this kind of threat. Of course as the landscape changed, attack by land might have become easier compared

to an assault made from the sea. The most probable way to approach the castle using infantry and cavalry would have been from the east, through the Slottsmalmen area. Considering the interplay between shore displacement and defensive or offensive solutions in and around the castle, the actual navigability of the water routes will be an essential theme for future research.

Another issue affecting the possible defensive solutions of the castle was the increasing use of firearms during the 15th century. It is known that there were cannons at Raseborg already in the 1430s. Firearms were used in military campaigns that took place at Raseborg during the 1520s, but the extent of their use is unknown. In order to cause any real damage, cannons needed to be either located very near the castle walls or be very powerful, and, as a consequence, physically larger. Using cannons in this way would have required quite massive operations, including protective structures built by besiegers. One interesting question is the actual need and will to invest in defensive or offensive works during the history of Raseborg. All in all, it seems that the castle was actually threatened only on a few occasions, and the military importance of the castle is not yet fully understood.

Understanding the local shore displacement and history of the water systems also contributes to the study of the castle's subsistence strategies. The littoral landscape offered a possibility for local fishing and fowling. The osteological analysis of the food waste found at the castle site together with close analysis of the castle accounts indicates that the local resources represented an important factor in food consumption at Raseborg. The accounts show that fowling took place at least in the vicinity of the castle mill but the osteological material suggests a wider area for obtaining birds.

In addition, the castle fishery and some of the species obtained from it are mentioned in the accounts, although the location of the fishery is still unknown. In fact, the species caught at the fishery prefer different living environments, which suggests that the castle accounts refer not only to one but to multiple fisheries belonging to the castle. Besides helping to locate potential places for castle fisheries, the shore displacement reconstruction allows the study of the development of environments suitable for husbandry and cultivation. The wetland revealed by the receding water would have first been an ideal ground for meadows used for husbandry and later, as the land dried out, for cultivation.

The research carried out at Raseborg since 2008 has resulted in the use of materials and methods neglected in the previous research. These include osteology and artefact studies together with environmental and landscape archaeologies. They have allowed have allowed an insight into the yet unexplored parts of the castle's history. The material collected during the three field seasons has altered the picture of medieval Raseborg in many aspects, as the image of a complex medieval community related to the castle has started to emerge. At the same time, our understanding of the spatial organisation of the surrounding areas has greatly increased, revealing new information on the interplay between the local environment and the medieval castle.

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The Rural Landscape of Mankby

From Medieval Peasant Settlement to Royal Demesne

ABSTRACT: The nature of rural settlement has always had a strong connection with the land use of the surrounding landscape. During the extensive excavations (2007–2013) of the well-preserved deserted medieval village Mankby in Espoo, Southern Finland, we have recorded several different stages of settlement development within the site. In this article, we are focusing on how the changes we see in our excavation results correlate with the dynamics of land use. By analysing the landscape during different times in the history of the village, beginning from the time of the colonisation of the area in the 13th century, and ending in the 16th century when the village was deserted and a royal demesne was founded on its lands, we hope to deepen our understanding of the settlement in Mankby. To accomplish this, we are analysing topographical and botanical data, and comparing it to the 18th-century historical maps and our knowledge of the historical land use in the area. The archaeological record that was documented and collected during the excavation of Mankby, is discussed in the context of landscape analyses and the historical development of the medieval rural settlement. This study aims to put the excavated site into a broader picture, to show that it is possible to connect archaeological studies to the large-scale changes in society.

KEY WORDS: Espoo, Mankby, landscape analysis, rural settlement, historical archaeology, cultivation.

INTRODUCTION

The extensive excavations (2007–2013) of the deserted medieval village of Mankby in Espoo (Fig. 1), Southern Finland, generated a rich and informative body of material, as well as new knowledge about the life of the medieval peasantry. The lives of ordinary people that are conspicuously underrepresented in written sources have in many ways come alive during the excavations. The nature of the rural settlement has always had a strong connection with the land use of the surrounding landscape. During the project, we recorded several different stages of settlement development within the site. Starting from the colonisation of the area in the 13th century and ending in the 16th century when the village was deserted and a royal demesne was founded on its lands, the settlement continued to exist in direct interaction with the landscape, both shaping it and adjusting to it.

In this study, landscape is viewed as a space in which people lived and both actively and unconsciously constructed and reproduced a setting that reflected and confirmed the daily activities and social system of the medieval and early modern rural community (Johnson 2007: 120). Thus, landscape studies can be used to examine the *structuration* of society and the social interactions between people

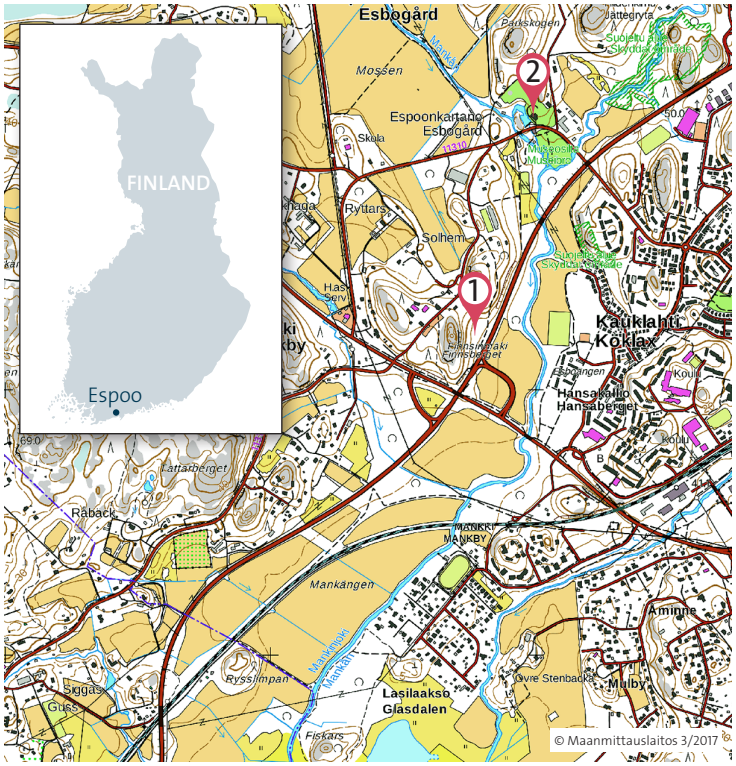

Figure 1. The location of 1 – Manbky and 2 – Esbogård in Espoo. Map: Maija Holappa.

in the sense in which Anthony Giddens (1984) uses this term.

Our aim is to focus on how the changes we see in our excavation results correlate with the dynamics of land use. By analysing the landscape during different times in the history of the village, we hope to deepen our understanding of the settlement at Mankby. We aim to find out whether land use was influenced by the different phases we see in the history of the site and how land use changed through the Middle Ages and during the early modern period. During its history, the site of Mankby went through at least three major phases: the colonisation and the emergence of the village in the 13th century, the development into a wealthy peasant settlement in the late Middle Ages, and finally the abandonment of the settlement in 1556 and the process whereby the lands became an economic resource for the royal demesne of Esbogård.

The material for this study was gathered during the Mankby project, conducted by a research team led by Georg Haggrén at the University of Helsinki in cooperation with the Espoo City Museum. The aim of the project was to excavate one of the best-preserved deserted medieval villages in Finland and to broaden our knowledge of rural settlement in this area.

THE EMERGENCE OF SETTLEMENT

The parish of Espoo and the region of Uusimaa have traditionally been regarded as not having been settled during the Late Iron Age before Swedish colonists arrived during the 11th and 12th centuries. The area was considered to have been used as hunting grounds and a zone of long-distance exploitation by the Häme Finns (Meinander 1983: 231–3; Orrman 1987: 170–2; Kokkonen 1990: 62–4). However, our view of the period from the Late Iron Age to the Early Middle Ages in Uusimaa is changing. Despite the scarcity of defined settlement sites, pollen analyses (Alenius 2011; 2014) have shown that the area was permanently cultivated during the Late Iron Age. Recent stray finds from Espoo, dated to the Iron Age, Viking Age, and Crusade Period, predict that archaeological sites from these periods can be expected to be found in the future (Wessman 2016: 26; Rosendahl 2014: 29–40). In recent studies, the discrepancy between the signs of early cultivation and the absence of Iron Age sites is mostly regarded as being due to insufficient research and/or a less conspicuous Iron Age burial ritual in the peripheral area of Uusimaa than in the central Iron Age areas of Finland (Wickholm 2005: 6–7; Salminen 2013: 85–96; Rosendahl 2014).

During the 12th and 13th centuries, immigration from Sweden reached the coastal area of Southern Finland. The Swedish colonisation has been regarded as peasant migration with few, if any, links to the incorporation of Finland in the Swedish realm (Lindkvist 2002: 46–9). New research has shown

that local nobility seems to have influenced the colonisation process and the founding of parishes and manorial estates (Haggren 2011: 161–4). However, very few nobles lived in Espoo, and the source material does not allow any such interpretations in this area.

Immigration from Sweden led to Swedish eventually becoming the predominant language of the inhabitants of the coastal area. As early as during the Middle Ages, this situation is reflected in a dominantly Swedish place-name material. But the Swedes did not colonise an area entirely devoid of settlement. Saulo Kepsu has analysed the place-names related to settlement and farming in Uusimaa, and according to him, there is an older layer of Finnish settlement names under the dominant layer of Swedish place-names (Kepsu 2010). The village of Mankby, however, seems to represent a settlement that emerged during the colonisation process, based on the results of our excavations. In spite of a rich Stone Age settlement, we found no traces of either a Bronze Age or an Iron Age settlement on the site. This might, of course, be due to reasons of research methodology, but the earliest signs of post-Stone Age habitation in Mankby are from the 13th century and seem to correlate well with the assumed time of the emergence of Swedish settlement.

THE VILLAGE

Environment and geology

Mankby is located in Espoo, on the eastern slope of a small ridge called Finnsinmäki, near the confluence of the Gumbölenjoki and Mankinjoki rivers. Finnsinmäki consists mainly of silt and sand, which makes the ridge suitable for settlement. Right to the south-east of Finnsinmäki lies a valley through which the Mankinjoki river flows. The valley formed during the post-glacial regression of the Litorina Sea and consists of a clay layer reaching down to a depth of 15–20 m (Fig. 2). In medieval times, the sea level was approximately 1.5–2 m higher than today because of the later land uplift in the area (Miettinen 2011: 79; Hyvärinen 1999: 81). However, this has not significantly changed the river valley landscape during the historical period, since the valley was dry land and the Gumbölenjoki river existed in its present location from the turn of the Late Iron Age and the Middle Ages (e.g. Miettinen 2011: 80).

The medieval settlement in the parish of Espoo was clearly concentrated in the river valleys of the parish (Rosendahl 2014). The rivers provided important resources, such as food, transportation, and water power for the inhabitants of the villages, but the most important feature was probably the soil of the river valleys, which was especially well suited for cultivation. At an early stage of the settlement, it is believed that the river valleys were used as meadows and pastures for cattle, as the soil in the valleys consists of clay, and the tools used during the Iron Age were not suited for tilling heavy soils. The cattle kept the landscape open, slowing down the growth of trees and bush-

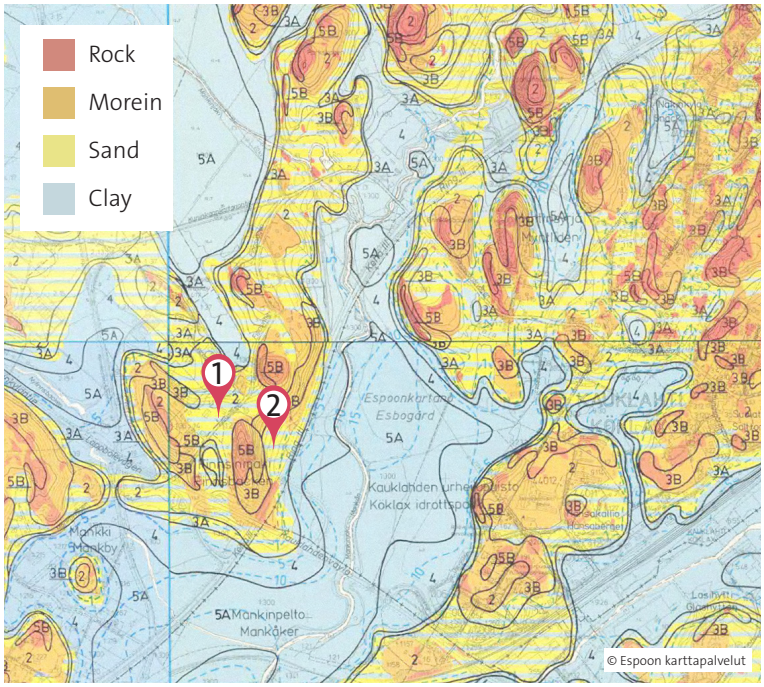

Figure 2. A map of the soil composition in the area. 1 – Finnsinmäki, 2 – Mankby. Map: Anna-Maria Salonen.

Figure 3. The dark layers of the collapsed 15th-century cellar are covered with a layer of sand to make a foundation for the 16th-century drying barn. Photo: Anna-Maria Salonen.

es (Haggrén 2010: 132; Maaranen 2010: 187). According to Eljas Orrman (2003; 1987), soil types played a major role in the settlement process. The most important features are the fertility and tilling properties of the soil. The clays formed during the glacial period are fertile, but also very heavy to till, whereas the younger, so-called Litorina clays are not so fertile, but easier to till. According to Orrman, the Finns cultivated mainly the heavy glacial clay areas, since their slash-and-burn method made the soil easier to till. On the other hand, the first sedentary farmers settled in the areas of the light Litorina clays because they did not have the right tools for cultivating the heavy glacial clays.

The settlement

The settlement of Mankby is located in a nucleated structure on toftland[1], comprising an area of approximately 50 x 100 m along a natural terrace on the south-eastern side of the Finnsinmäki slope. The inhabitants of Mankby have, however, modified the slope to meet their needs, which makes the toftland visible in the terrain today even without excavation. For example, sand has been brought, probably from other parts of the hill, to grade the terrace and to cover the remains of the old, destroyed houses and create better foundations for the new houses (Fig. 3, Report 2009: 16, 18; Haggrén et al. 2011: 45).

During our project, more than 20 house remains were identified on the toftland, but not all of these structures were in use simultaneously (Fig. 4). According to historical records, the village consisted of eight farms, of which only six were inhabited by the mid-16th century (KA2940: 66v–67; KA3016: 33v). Within the scope of the project, we excavated two areas in the southern part of the toftland, both of which revealed complex stratigraphical contexts reflecting different uses during the period of settlement in the village.

The oldest signs of medieval settlement in Mankby were found in the southern part of the toftland, on the upper terrace of the Finnsinmäki ridge. During the excavations in 2008–2013, five different building phases were identified on the upper terrace alone. The three oldest phases could not be identified until after the excavations, since they were very fragmentarily preserved. Of these building phases, only three hearths, one cultural layer, and a few charred timbers were preserved. These

[1] Toftland=the site of the houses and their outbuildings.

structures were combined as building phases using stratigraphic data and dated using wiggle matching.

During the Mankby project, five different medieval building phases were identified in the hamlet (Haggrén & Rosendahl 2016: 83–4). The first building phase, Phase 1, is dated to AD 1177–1218. This phase includes one hearth and one cultural layer with an even surface, which are interpreted as belonging to the same building (number 27). The second phase, Phase 2, consists of a hearth, located less than one metre away from building 27. This hearth (building 28) is dated to AD 1208–1255. The building representing Phase 3 is dated with wiggle matching using AMS dating from a charred timber, resulting in a date of AD 1256–1284. Phase 4 was not dated using wiggle matching, but based on the finds from the building, it can be dated to the 14th century. On top of these buildings lies a massive drying barn, which is dated to the period of the royal demesne, most likely the 16th-18th centuries. The drying barn is discussed later in this article.

Figure 4. The map of the village. The buildings and excavation areas are marked. Map: Maija Holappa.

The identification and interpretation of the building phases was challenging, since the buildings were located on top of each other on the same terrace and the oldest buildings seem to have been demolished when the younger buildings were built. However, it seems that during Phases 1 and 2, the buildings were heated single-room cottages. The building representing Phase 3 has most likely been destroyed in a fire, but it was interpreted as having had two rooms. Although it is likely that at least one of the rooms was heated, no hearth or oven that could be linked to this building with certainty was found. The building in Phase 4 was a rather well-preserved two-roomed cottage with a stone cellar. This was an exceptionally large building with unusually rich find material, and it has been interpreted as a possible manor house (Haggrén & Rosendahl 2016: 83).

Phase 4 also includes another building on the lower terrace, next to the ancient fields. This typical medieval peasant house (number 11) was dated, based on the finds, to the 15th–16th centuries, so it reaches up to Phase 5. (Report 2009:17–20; Haggrén & Rosendahl 2016: 83; Knuutinen 2016: 114.) Phase 5 of the hamlet is located between the upper terrace and the ancient fields, and consists of a building (number 12) and a cellar. In addition, another building located north of the fields has been interpreted to belong to Phase 5. Of these, only the cellar was excavated, so there is not much information on this phase. (Haggrén & Rosendahl 2016: 83.)

The other house remains at Mankby have not yet been excavated, so we have no accurate dating for these. Most of the buildings are located on the upper terrace of the toftland, and it seems that the earliest settlement first formed on this upper terrace (see map, e.g. Haggrén et al. 2011: 44). The lower terrace was in use at the same time as the cul-

tivated fields, and three pits were found there that have been interpreted as possible graves. However, no definite proof of a cemetery was found in the excavation material (Report 2010; Haggrén & Rosendahl 2016: 82).

During the late 15th century and the first half of the 16th century, the settlement spread east to the lower terraces. The reason for this could be that after the ancient fields fell out of use, the terrace made a good place for a dwelling. The lower terraces were a logical direction for the settlement to spread instead of spreading out along the terrace, since the former meadows along the river were transformed into cultivated fields.

The village space – inlands and outlands

The concept of a medieval village consists of much more than a dwelling. The land resources surrounding the inhabited toftland were included in the village space as much as the settlement (Myrdal 1999: 31–3). The fields, meadows, and outland resources were crucial elements in the physical and experienced landscape, and the organisation of these elements reflects the dynamics of the village structures and the rural community.

The villagers of Mankby were freeholding peasants who owned the rights to the land and paid their taxes directly to the crown, just like 90% of peasantry in this area (Haggrén 2011: 161). This land ownership was, however, linked to the co-operational unit of the medieval village. During this period, the fields, and in most cases also the meadows, were divided between and harvested by the individual farms, but the use of the village lands was regulated according to rules of co-operation and responsibility for the joint village property (Myrdal 1999: 100–103). The main fields of Mankby were situated in the direct vicinity of the toftlands, but in addition to the major fields, some smaller outland fields were cultivated by the villagers. The exact locations of the medieval outer fields or other smaller fields are not known, but we do know that in the process of abandonment in 1556, one of the Mankby peasants, Vincentius Jacobsson,received plots of land on the outskirts of Mankby as compensation (Haggrén & Rosendahl 2008), which indicates that the late medieval village made use of more fields than the royal demesne cared for.

On the outer rim of the village space, the resources were less divided. In Southern Finland, the forested areas of the village lands were not only collectively owned by the villagers, but they usually consisted of communal land owned by several villages, referred to as *skifteslag*. These areas also included the right to fishing waters within the borders of the villages' lands. In the case of Mankby, a *skifteslag* was formed together with the neighbouring villages of Esboby and Träskby (Haggrén 2008; 77). In our excavations, the resources from the outlands were reflected in the find material: the wood from the forest was the main building material, and firewood had been burnt in the many hearths of the village. Osteological material shows that fish was part of the diet. Even a swine bone showed marine isotope values, indicating that swine fodder could also include fish. Game is less apparent in the osteological material, perhaps due to restrictions related to hunting (Kivikero 2016: 173).

In addition to the productive resources, the village space included structures for communication, such as roads and waterways. During the fieldwork, we located a road leading to the hamlet that is still visible on the terrain. The road passes through the hamlet almost directly from north to south, and it might have been connected to the main coastal road leading from Turku to Vyborg. Today this road – popularly known as the King's Road – passes Mankby to the west of the village, on top of the Finnsinmäki ridge, a location that would have been illogical during the time the village was in use.

In the village centre, another road was discovered on the northern side of the building located on the lower terrace. A small part of the road was excavated, and based on the finds, the road is dated to the 15th–16th centuries. The road runs approximately from NW to SE, and it seems to lead towards the river (Report 2009: 18; Haggrén et al. 2011: 44; Knuutinen 2016: 123). The river itself could be sailed in medieval times, and it served as a route that opened up the Baltic to the villagers. Written sources mention Mankby peasants doing

trade in Tallinn, and the Hanseatic material culture is clearly visible in the find material (Haggrén & Rosendahl 2008; Terävä 2016: 161).

The field systems in the landscape

The land use in Mankby and in the surroundings of the village was dominantly agrarian. The cultivation of cereals was not only the main economic resource of the peasants, but the grain fields were also a major factor shaping the landscape around both the medieval and early modern settlement. The position of the fields also determined the location of the village site, which depended heavily on direct access to the fields.

The most common method of grain cultivation in Espoo until modern agriculture took over was the two-field system. This system emerged during the Iron Age and was established in Scandinavia during the Middle Ages (Myrdal 1985: 70–1, 74). In Southern Finland, according to recent studies by Teija Alenius (2014: 109), a shift from one-year to two-year rotation took place during the period between AD 1200 and 1400. The two-field rotation remained the major system of agriculture in Finland and many parts of northern Sweden, while the European system with three fields in crop rotation never became very common.

The system is based on the idea that a field is cultivated every other year and left fallow the following year. Rye, which was planted in the autumn on the fallow field, fit well into the system and became more common during the Middle Ages (Myrdal 1985: 69). The use of rye in Mankby is supported by the charred grain material that has been found during the Mankby excavations (Lempiäinen-Avci 2016: 181). The two-field system formed the landscapes around the medieval villages; the village landscape was usually dominated by two separate major fields, of which only one was in active use. The other field could be used as pasture land during the fallow year. The toftland of the village was consequently situated in the middle of the two fields, with good access to both. The fields were fenced in order to keep cattle out, and within the fenced area, the fields were divided among the peasants.

The cadastral map of the lands of the Esbogård manor from 1779 and its draft (Fig. 5; KA MMH B7:9/1), are the main source for identifying the late medieval fields of the Mankby village. When the map was drawn, the village had already been deserted for more than 200 years, but the fields named *Mankåker* (Swedish: *åker*=field) were still named after the village. The map itself consists of a plan to carry out ditching to drain the existing meadows, but if these areas are excluded, a picture is revealed of the original extent of the two main fields of Mankby. These fields form the typical arrangement used by the majority of the medieval villages that had arable land as their main source of income (Roeck-Hansen 2008: 70–2).

On the map from 1779, the main fields of Mankby cover an area of approximately 15 hectares, converted to modern measurement units. It could be assumed that the fields were used to this extent by the peasants of Mankby, at least in the last phase of the village. The right and obligation to cultivate the fields seem to have followed the European medieval custom of open fields, but divided between the peasants who ran the farms in the village. The one thing that made the landscape in this part of Europe a bit different than the continental practice was the lack of noble landowners controlling the area.

Plausible predecessors to the fields visible on the map from 1779 are the two overlapping ancient fields found in the centre of the village toftland, in a stratigraphical context older than some of the houses. In this context, ard marks in opposite directions were visible beneath the field layer. This field is interpreted as representing an earlier phase of cultivation, possibly a one-field system, in which the same field was used every year. The younger of these two fields is radiocarbon-dated to the 13th century by means of a sample of charred grain. The older field is unfortunately not dated more specifically because of the lack of datable samples.

The desertion of the ancient fields in the centre of the toftland clearly shows a shift in the use of the village space. By the mid-14th century, cultivation within the toftland ceased (Lempiäinen-Avci et al. 2006: 136) and the area of the former fields was now used for farmhouses and their yards or as a village commons. This shift could have been a part of

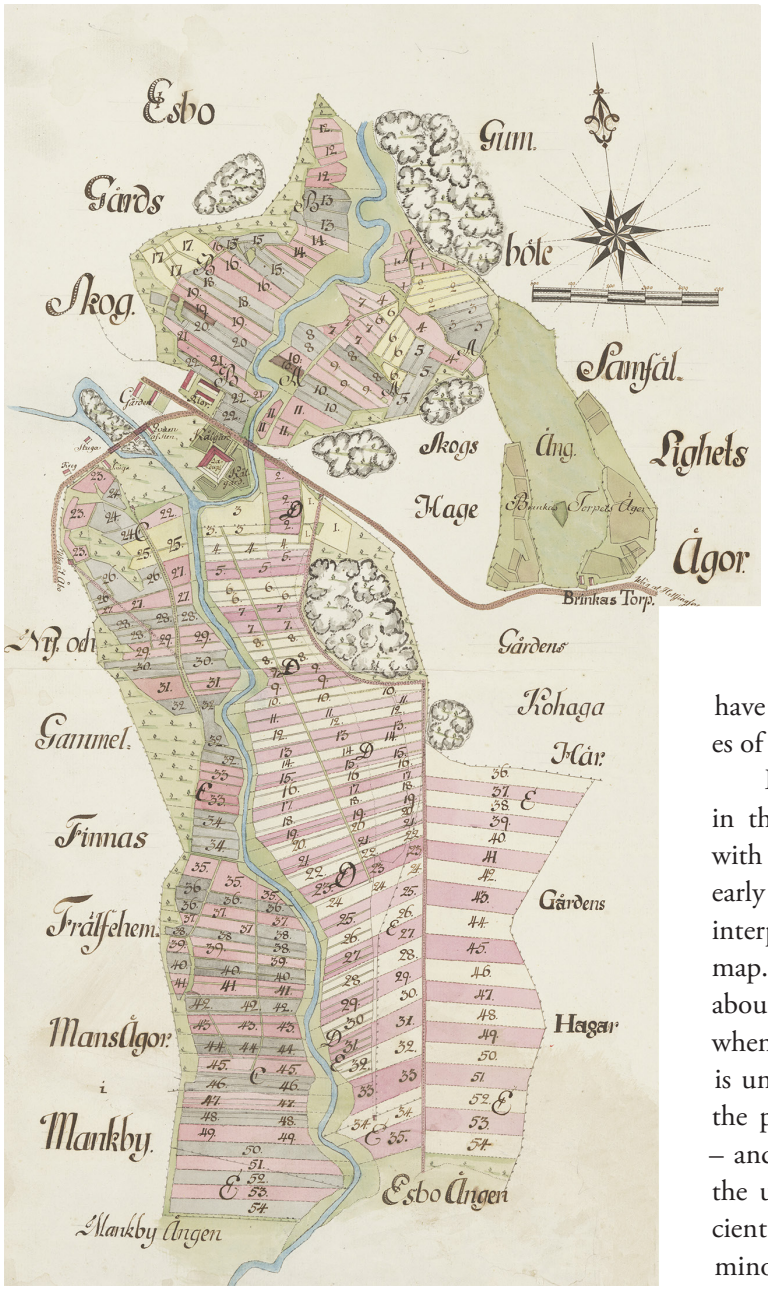

Figure 5. The cadastral map of the lands of the Esbogård manor from 1779 (KA MMH B7:9/1).

the process of abandoning the one-field system in favour of the two-field system. This scenario would imply that natural meadows along the river were tilled to increase the field area of the village.

The small ancient fields in the toftland are not the only field areas outside the Mankåker main fields. As late as during the 1960s, a number of small fields were in use in the area between the toftland and Mankåker. These are not drawn onto the map of 1779, but appear in local maps from 1831 onwards. Even if these fields are interpreted as having been taken into use in the time between these two maps, we cannot rule out the possibility that agricultural activities took place close to the toftland during the medieval period. On the contrary, the existence of these fields shows that the land has agrarian potential, and we have most probably not yet detected all traces of medieval agriculture in Mankby.

Even though the late medieval land area in the two-field system seems to correlate with the field use on the map from 1779, the early stages of the two-field system cannot be interpreted as being directly reflected by that map. It is always crucial to think critically about the use of cadastral maps, especially when a period prior to the events described is under study. It is essential to be open to the possibility of changes in the landscape – and to realise that there is a gap between the use of the archaeologically defined ancient fields and the cadastral map record. A minor rescue excavation beneath the topsoil on the southern Mankåker field in 2013 revealed signs of ditching, implying the existence of an older ditching system that is not visible on the maps. On a stratigraphically lower level than the W-E ditches correlating with those on the map, the excavation revealed ditches dug at angles from SW to NE or NW to SE, which suggests that another way of dividing the fields could have been practised prior to the striped landscape that is visible on the 1779 map. This observation challenges the landscape seen on the map, where the field is strictly divided into narrow strips, each to be cultivated by designated farms.

Another, more methodological conclusion from this observation is that landscape studies could gain a great deal of information from opening the topsoil of large field areas. This is seldom done, since both research projects and heritage management usually concentrate on the inhabited areas of the villages and dwelling sites in the archaeological record.

THE ROYAL DEMESNE – A LANDSCAPE OF POWER

In 1556, the village of Mankby and its neighbour, Esboby, were taken over by the crown in order to build a royal demesne on the villages' lands. In the process, some major shifts took place in the landscape. To begin with, the peasants and their settlement disappeared. The tofts of Mankby and Esboby were abandoned and the buildings of the demesne were erected on the spot where Esboby had once stood, while the former toftland of Mankby became a more peripheral area in the lands of the crown's estate.

The fact that the demesne was founded at this location was no coincidence. At this stage in history, the Swedish crown, personified by King Gustav I Vasa, undertook many reforms to make the kingdom's government more effective. One of the means to achieve this was the founding of royal demesnes. The importance of this project was emphasised in Finland, which was regarded as a poor and peripheral part of the kingdom (Vilkuna 2003: 248–50). To start this process, Bailiff Anders Korp was commissioned to find lands that would be suitable for this purpose. After a short process in the summer of 1556, both the bailiff and the king agreed that the Esboby-Mankby area would be suitable, and the crown managed to evict the peasants after giving them equivalent lands in other villages (Ramsay 1924: 264).

The place chosen for the demesne represented a central area in the parish. Esboby had been the largest village in Espoo with 12 farms, and Mankby was also relatively big, consisting of six to eight farms. The typical rural resources of the villages, including the use of the common forests and waters, remained in use by the demesne, as is shown by its well-known bookkeeping, which was required by the king. The field and meadow resources of Mankby and Esboby were apparently used to the same extent as during the late stage of the peasant villages (Ramsay 1924: 267–8). The fields of the two villages were situated on fertile clay soil on both sides of the Mankinjoki river, as were the meadows needed to feed the large numbers of cattle that were raised at the demesne. The river itself formed a waterway to the Baltic Sea, which enabled contact with the royal capital, Stockholm, and the important trading town of Tallinn.

Still, the demesne had a different purpose than the peasants' villages, and certainly another ideology that manifested itself in the landscape. The royal demesnes of Gustav I were production units with paid staff who performed most of the agricultural work on the estate. However, the production had a purpose beyond mere income, and this purpose was a military one. By the mid-16th century, the relationship between Sweden and Russia was tense. From 1555 to 1557, a war was fought over the rights to the border areas, and Sweden's military interests focused more and more towards the east. Thus, the King's concern in developing Finland must be seen as a reaction to this situation. Up to this point, Finland had lacked the infrastructure to provide the supplies needed for large-scale warfare. The royal demesnes and their production were intended to feed troops and serve as military bases, if needed (Vilkuna 2003: 248–51).

Hand in hand with the military purpose of the royal demesnes went a manifestation of authority in the local landscape. The royal demesnes became central places for administration and tax collection. In the long run, this became even more important than the military aspect (Vilkuna 2003: 268). At first sight, the 16th-century authorities seem to follow the medieval tradition of castle administration, only distributed in a denser network. Many of the local central places were based in medieval castles or in old royal estates. However, the new royal demesnes founded in the mid-16th century reveal that a new, early modern ideology also influenced the structure of these central places – an ideology that can be traced in their landscape.

TOWARDS PRODUCTION AND CONTROL

There is one element in the landscape that is particularly common to many of Gustav I Vasa's new royal demesnes in Finland: they seem to be located at spots where water power was available. We see this in the royal demesnes of Helsinki, Sjundby, and Perniö, among others. At the Espoo demesne, water power was a dominant element. The main building and the activity centre of the demesne were concentrated in an area in the direct vicinity of the rapids at the confluence of the Gumbölenjoki and Mankinjoki rivers, and the water was used to power the mill of the estate.

The integration of mills and sawmills in the production of the demesnes was an outspoken strategy by Gustav I Vasa (Vilkuna 2003: 250). At Espoo, a sawmill was mentioned for the first time in 1586, but regular water mills used for grain seem to have been used in the river as early as during the medieval phase, and most certainly during the time of the demesne (Ramsay 1924: 288–98). The demesnes' mills, which were controlled by the crown, served a different purpose than the mills used for household needs by the peasants of the medieval villages.

What makes the mills interesting is the way they were used as a dominant feature in the landscape. Mills had, of course, been a part of the resources of large estates earlier. For example, at the manor of Svidja (Suitia), the nearest aristocratic manor, which was owned by the noble family Fleming, a mill belonged to the estate. But this mill was not a part of the carefully planned aristocratic landscape that surrounded Svidja. Instead, the manor was situated in visible isolation, in a location distant from the productive sphere (Rosendahl 2007: 110–2). The approach to the main buildings of the Espoo demesne is something very different. Here, the rapids in the river were a central element in the environment of the demesne.

Figure 6. The drying barn is marked with a blue line and one of the older houses with a red line. Photo: Georg Haggrén.

This movement towards the productive sphere can be seen as a step away from feudalism and the landscapes that the medieval aristocracy built around their manors. In both cases, the landscape ideology is very much about power and control. Whereas the aristocracy turned towards castle architecture and military elements in their manorial landscapes (Johnson 2002; Hansson 2006), the bailiffs of the 16th-century crown expressed their power in a more concrete way by controlling the production units. They put themselves in the middle of the estate, in a location where production was carried out. They even used the same spot that had been used by the peasants of the Esboby village. The bailiffs in Espoo were not feudal lords whose power was based on their personal landholdings; instead, they were employed officials who reported every ounce of the crop to the king, and their power was expressed in a new landscape, a landscape of the centralised power of Gustav I Vasa.

The shift in the way the elite expressed its presence in the landscape is also a deconstruction of the noble warrior class, the *bellatores* of the medieval society. In early modern Swedish society, a new rising elite became more and more involved in production, especially in the mining industry, ironworks, and other metallurgic industries. The royal demesnes of Gustav I Vasa could be seen as the predecessor of the landscape of the early industries. It is interesting to note that some of the demesnes actually had ambitions to use metallurgic resources, and there is evidence of small-scale mining and quarries on other demesnes (Törnblom 1997: 100). Eventually, many of the royal demesnes were short-lived and became manors of the nobility. Thus, it can be argued that the shift from aristocratic isolation to a position with control of production is an element of the early modern noble landscape that was influenced by the landscapes of the royal demesnes of the 16th century.

The demesne's drying barn, already mentioned above, is a concrete remnant of the production at the demesne, and it was studied during our excavations at Mankby. In the south-western part of the toftland, its remains stood out from the rest. This building, number 13, was found during the survey of the area as early as in 2004, but the size and nature of the building were not revealed until the excavations in 2007–2013, during which it became clear that it was one of the demesne's massive drying barns, situated on the deserted village toft of Mankby. This find provides very concrete evidence of the extensive agricultural production that took place in 16th-century royal demesnes (Fig.6).

Only the oven, the western wall foundation, and the cornerstones remained of the building. It was the topmost layer in a complicated stratigraphy, since no less than four older houses had been located on this terrace in the 14th and 15th centuries. The terrace had been modified to meet the needs of the large barn and carry its heavy oven foundation. During the excavations, rather massive sand fill layers were found. The sand was most likely brought from other parts of the Finnsinmäki hill, and it covered the western and southern parts of excavation area 9. The sand layers were most likely built to level the terrace, but also to cover the remains of the older buildings.

The width of the building was approximately 6.7 m and the length probably 25 m (Report 2012: 41). The length is based on the location of the cornerstones; the whole building was not excavated. The building had two or three different room spaces (Report 2009: 41). The southernmost room was the drying room for grain, and there had been a massive oven sized 4 x 2.6 m (Report 2008: 17) for that purpose in the south-west corner of the room. A similar barn was used in the Raasepori demesne, according to a record from around 1722, in which a drying barn is mentioned. The drying barn at Raasepori had three rooms and proportions that were nearly identical to the drying barn at Mankby (KrA: Husesynskontoret: Husesyn på sätteriet Rasseborg 3.2. 1 722 [FR 43 7]; Report 2012: 42).

The barn was in use for over 200 years, since the finds from the excavations in 2012 date some parts of the barn to the 18th century. The excavations also revealed repairs done to the barn over the years. However, the barn is not present on the map of the lands of the Esbogård manor in 1779. Haggrén suggests that the barn may have been demolished around 1756–1782, when the owner of the Esbogård manor, Anders Henrik Ramsay, made big changes to the area (Report 2012: 42).

The barn found in our excavations is actually the only feature on the lands of Esbogård that can be linked to the royal demesne of the 16th century. The still standing buildings of the Esbogård manor all represent later times, from the 18th century onwards, when the manor had become a noble estate. These prosaic remains of a barn are, however, quite a good symbol of the function of the royal demesne. In comparison to the medieval village, the existence of the barn expresses land use that did not include dwellings and the versatility of everyday life, but focused on intense agricultural production performed by the staff on the demesne. The large barn and the huge quantities of grain dried in it to meet the demands of the demesne also stand in contrast to the peasant dwellings of the Mankby village, which were remarkably small compared to this production structure. The landscape of Mankby did not change radically when the demesne took over: the same fields remained in use, and the crops grew as before, but the underlying ideology behind the land use was entirely new on this site from 1556 onwards.

CONCLUSIONS

The site of Mankby and the landscape surrounding it can be read as a history with three main phases: the initial medieval colonisation, the presence of the dynamic medieval village, and the final desertion and incorporation into the production sphere of the royal demesne, which later became the noble manor of Esbogård.

The initial phases are naturally the hardest to detect, but observing the natural landscape and its resources gives us the tools to understand the intentional choices made by the people settling at Mankby by the 13th century. The medieval hamlet site of Mankby is located on a sandy ridge called Finnsinmäki. The settlement was situated on a terrace on the eastern side of the ridge, facing the valley of the Mankinjoki river, with good pasture land and meadows. The terrace of the dwelling site is natural, but the inhabitants of the hamlet have modified the terrace to suit their needs. Because of these modifications, the village toftland is visible in the terrain even today.

The medieval settlement of Mankby, located along the terrace on the Finnsinmäki ridge, is dated from the 14th century to the end of the 16th century, and the excavations have shown that the inhabitants were quite prosperous by the late Middle Ages. The settlement was dominantly agrarian, and the cultivation method at the end of the Middle Ages was most likely the two-field system practised on the large field areas in the river valley.

In addition to these large fields, smaller fields were located close to the settlement. Small, ancient fields, detected within the village toftland during the excavations, are the remains of an older phase during which the settlement was located on the upper terrace and the fields on the lower terrace. By the second half of the 15th century, the cultivation of the small field on the lower terrace had ended and dwellings had been built also on the lower terraces. It is possible that at this point the large fields of the two-field system first appeared in the river valley in areas that used to be meadows and pastures for cattle. The excavations in the field areas have, however, given us reason to question whether the neatly striped field systems that appear on historical maps from the 18th century onwards can be applied to the interpretation of the medieval field divisions. The older ditching systems do not seem to correlate with the record of the historical maps.

When Mankby was deserted and the land taken over by the crown in 1556, the terrace of Finnsinmäki did not stay untouched. During the time of the royal demesne, a drying barn was built on the upper terrace, where the oldest buildings had stood. The drying barn was in use from the late 16th to the 18th centuries and had been repaired many times. It can be considered as a symbol of the extensive agriculture practiced by the demesne and the later noble manor. The nature of the site of Mankby changed dramatically from a lively settlement for several peasant households to a seasonally used production space.

The surrounding landscape of Mankby did not change as conspicuously as the settlement site. The agricultural resources were used to the same extent as before, but nevertheless with a significant change in the purpose of the production. The crops of the Mankby fields no longer supported the families liv-

ing close by but were a resource of the crown, providing income and stores to feed armed troops. The royal demesne manifested itself in the centre of the productive landscape by erecting the main buildings close to the rapids in the river and its mills. On this spot, the noble estate of Esbogård is still present today in a historical landscape, while the abandoned peasant village of Mankby was eventually forgotten in the forests of the estate.

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Planted, Designed and Managed Landscapes

A Review of Finnish Garden Archaeology from an Archaeobotanical Perspective

ABSTRACT: Garden history has primarily been studied in Finland through historical sources, with archaeology playing a lesser role, although its importance has been noted. The aims of this paper are to review garden archaeological research in Finland in the context of garden archaeology and garden history research in general, to demonstrate a selection of research methods in garden archaeology, and to present research results from the 19th century garden in Lahti in Finland. A garden is here defined as a bordered and cultivated area forming a specific ecological system, specific to the culture in question. Gardens have been reflections of their eras, economic situations, and climatic periods. They have influenced and been influenced by political power, the development of science, journeys of exploration, and globalisation. Many different historical sources, such as letters, accounts, maps, and paintings have been used to study garden history. Methods used in garden archaeology include non-destructive techniques, excavations, and various scientific methods. Although the Finnish examples of garden archaeology are limited, several Scandinavian and British examples prove that archaeology can be significant in garden history studies and the restoration of historic gardens. For example, evidence of gardening was found during archaeological excavations in 2013 at the historical village of Lahti in Finland. During these excavations, a vegetable garden with intact planting beds was found. The planting beds were studied archaeobotanically, but the results did not reveal either plant residues or visible fertilizers. The lack of information, concerning especially the oldest garden sites, presents a challenge for comprehensive interpretations. The problem could be solved at least partly through archaeological and archaeobotanical research. Garden history is such a wide field that all relevant disciplines and aspects should be involved in a collaboration to form a whole.

KEYWORDS: Garden archaeology, scientific methods, multidisciplinary, archaeobotany, Finland.

INTRODUCTION AND BACKGROUND

Garden history has been studied in Finland mainly through historical sources in the fields of history, art history, landscape architecture, botany, dendrology, and to some extent in horticultural sciences, but not that much with garden archaeological methods (Suolahti 1912; Melander 1921; Knapas 1988; Hemgård 1992; Hämet-Ahti 1992; Häyrynen 1993a; 1993b; Ruoff 1993; 2001; Rosengren 1994; 1995; Sinisalo 1997; Enroth & Kukkonen 1999; Häyrynen et al. 2001; Luppi 2001a; Lounat-

vuori 2004; Frondelius 2005; Väre et al. 2008). However, the importance of multidisciplinary work in Finnish garden history was noticed already in the 1990s (Hemgård 1992; Sinkkilä 1992a; Häyrynen 1993b; 2001; Rosengren 1995; Luppi 2001a), and archaeological studies in historic gardens have been carried out and reported on (Luppi 2001a; Sutinen 2005a; 2005b). Archaeobotanical research has revealed garden plant remains in Finland. Macrofossils of garden species are known from settlement areas, towns, and some rural sites (e.g. Aalto 1994; Lempiäinen 1994; 2007; Onnela 2000). Nevertheless, large garden environments have not been widely studied through archaeology, by uncovering garden structures or carrying out macrofossil or other natural scientific analyses from garden soils. More studies combining all relevant research fields would be needed to create a comprehensive understanding of past gardens and a holistic discussion of landscape studies.

The aim of this paper is to review garden archaeological research in Finland in the context of garden archaeology and garden history research in general, and to present a suitable selection of research methods in garden archaeology. At the same time, the objective is to show the advantages of a multidisciplinary approach to garden history, including the potential of garden archaeology and archaeobotany. Lastly, the research results of a recent case study from Lahti in southern Finland, revealing 19th century garden structures, are presented.

Definition of a garden

Defining what a *garden* is may not be a straightforward task. Humphry Repton (1752–1818), the great English landscape designer, defined a garden as 'a piece of ground fenced off from cattle, and appropriated to the use and pleasure of man: it is, or ought to be, cultivated' (van Erp-Houtepen 1986; citing Repton 1816: *Fragments on Landscape Gardening and Architecture*, pp. 141–2). Amina-Aïcha Malek (2013a:15) describes a garden in wider terms: '*Gardens constitute a specific ecological system demanding constant human monitoring; including interactions between human and nature. Gardens are places carefully set apart from surrounding environment…perfected nature according to a specific cultural view*.'

People in the past, living in a natural landscape, settled down at their dwelling sites, and presumably started to manage the surrounding vegetation, and to plant selected species, resulting in a garden. At the beginning of the cultivation of plants, people apparently founded vegetable gardens near their dwellings (Jones 2005; van der Veen 2005). The transferral of useful plants from nature to settlements may have begun with edible root and leaf plants before the cultivation from seeds, preceding cereal cultivation. The construction of gardens shaped the landscapes of both wild and cultural areas. Kitchen gardens were located close to the settlement and were used for small-scale cultivation; they are defined as delimited cultivated areas with a boundary (Rohde Sloth et al. 2012). The difference between a garden and a field is unclear, since a garden of a particular culture can be a field to another, but generally in a kitchen garden several species are grown, while in a field only a single crop is cultivated (Rohde Sloth et al. 2012). Many oil and fibre plants, and legumes, thrive in field cultivation, but for example flax (*Linum usitatissumum*) and pea (*Pisum sativum*) have been grown by horticultural methods in Scandinavia (Rohde Sloth et al. 2012). Other early garden plants in Sweden include celery (*Apium graveolens*), dill (*Anethum graveolens*), henbane (*Hyoscyamus niger*), and opium poppy (*Papaver somniferum*) (Rohde Sloth et al. 2012). In addition, Scandinavian gardens may have had an ornamental composition already in prehistory, with e.g. the common daisy (*Bellis perennis*) (Rohde Sloth et al. 2012).

Defining an existing historic garden is a different task (see e.g. Charter of Florence: Sinkkilä 1992b; Galletti 2013). In a garden originating from the 18th century, old trees could still be original, but the rest of the vegetation has undergone change, even if the species were the same and the specimens were the offspring of the originals. A historic garden can nevertheless be considered as a historical, living monument, and esteemed as a valuable element of cultural heritage, if the idea, design, and landscape have been kept the same as the original.

Gardens as created landscapes, small or large, have not been just plots for useful economic cultivation, or alternatively, sceneries for political play. Gardens have been places where people could be a part of the landscape, experiencing and sensing the planted and designed vegetation around them. Gardens have not been only vegetable or fruit patches for economic use, or aesthetic constructions for beauty and pleasure. Gardens may have been tiny, or grandiose oases combining these economic and aesthetic elements within a constructed cultural environment. Gardens have also been reflections of different eras, measuring and exhibiting historic economic situations, and being impacted by different kinds of climatic periods. Gardens have acted as theatres of political power, as in Turku Castle, and marked colonialism and globalisation (e.g. Ruoff 2001; Martinsson & Ryman 2007). Likewise, they have been indicators of the development of science, botany, and medicine, and they have inspired journeys of exploration (e.g. Kari 1940; Enroth & Kukkonen 1999; Martinsson & Ryman 2007).

Historical sources used in garden history

The traditional study of garden history has been based on historical sources, and the sources used in garden history studies in Finland and elsewhere have been diverse. The letters of garden owners, account books, and well-documented design processes of gardens are important sources of information (Häyrynen 2001; Liski 2001). Drawn maps and landscaping schemes provide evidence of gardens, although they may not necessarily have actualised as they were planned (Häyrynen 2001; Häyrynen et al. 2001; Ruoff 2001). Contemporary paintings offer an insight into past gardens as well (e.g. Ruoff 1993). Still, paintings may not be reliable source material, since a garden owner may have demanded an airbrushed and romantic picture illustrating the magnificence of a garden with any decrepit parts left out, instead of a pedantic imitation of reality. The history of garden art has slightly ignored modest kitchen gardens, which may, however, have been as beautiful and refreshing environments to people living near them as the large landscape gardens were to their owners. Art history has understandably not focused much on actual horticulture (e.g. Knapas 1988), but the different strands of gardening as an occupation, and gardening as an art, out of necessity, and for private pleasure, were not that far from each other in the Middle Ages (Johnson 1990).

From the late 16th century onwards, there exist lists of garden plants which are, however, sometimes difficult to interpret to an accurate species level, particularly before Carl Linnaeus' time, and hence different interpretations of the species present may occur (Rudbeck 1666; Tillandz 1673; Linné 1748; Kari 1940; Peldán 1967; Ruoff 2001; Martinsson & Ryman 2007). Vegetation surveys of present-day flora in historic gardens provide important data regarding the plants grown earlier at the sites, by pinpointing old cultural species still surviving in the vegetation (e.g. Silkkilä & Koskinen 1990; Järvinen & Lempiäinen 2004). However, a report on the inventories of historic gardens showed that much is yet to be done in Finland (Hartikainen et al. 2013).

In the Scandinavian context, Anna Andréasson et al. (2014a) have shown that the research in garden history is multidisciplinary, and different kinds of sources can reveal valuable information regarding past gardens and gardening. These sources include the results of archaeology and archaeobotany (e.g. Heimdahl 2014a; 2014b; Lindeblad & Nordström 2014), but sources for garden history can even include studies with genetics (Leino et al. 2014, Lindén & Iwarsson 2014).

ARCHAEOLOGICAL APPROACHES

Methods used in garden archaeology

As early as the 16th century in Renaissance Italy, garden history was investigated through excavations by the garden designer and architect Pirro Ligorio, who studied a garden from the classical period (Sinisalo 1997: 53). Later at another Italian site, the "Villa of Horace", the garden was partly excavated first in 1911, then in the 1930s, and again in 1998–2001 with a highly multidisciplinary team including a garden archaeologist, a garden architect, a horticulturalist, and an archaeobotanist. These excavations revealed mostly

remains of a Flavian era garden from the late 1st century AD (Gleason 2013a).

Several non-destructive archaeological methods, which do not interfere with the ground, are utilized in exploring gardens. With these methods, garden features can be recognised and recorded both from the surface and underground (Gleason & Leone 2013). The starting point for archaeological studies of historic gardens is the archive study of available old maps, and the comparison of maps from different periods (Luppi 2001a). After the maps, it is important to study aerial photography, which can reveal both visible and ruined features of a garden; this should be done in different seasons, times of day, and weather conditions, since seasonal variations affect, for example, the visibility of crop marks in shallow spots (Gleason & Leone 2013).

Ground penetrating radar (GPR) is one of the geophysical methods used in garden archaeology; it offers reliable information on underground structures, objects, and remains, such as broken-down walls, paths, and edged plantings (Luppi 2001a; Winroth et al. 2011; Andréasson & Pettersson 2014). The surveys with GPR in the garden sites of Mälsåker Castle in Sweden revealed old gravel paths and a garden layout similar to an old map from the 20th century, but also earlier layouts that were not found in the older maps from the 19th century (Trinks 2006).

Historic gardens contain built structures, such as pavilions, water structures, bridges and sheds, or their remains, either on the surface or underground. These can be investigated through excavations, but then they need conservation afterwards. Excavated garden soil can also retain remains of planting pots, indicating pot cultivation or a nursery (Rosengren 1995; Gleason & Malek 2014). Chris Currie (1993) states that flowerpots are perhaps the most common ceramic artefacts recovered from British post-medieval garden sites, although the find category has been quite absent from discussion in archaeological literature. For example, distinctive flowerpots were obtained from a deposit dated to c. I780–1800 at Castle Bromwich Hall site, and their typological identification resulted in the conclusion that two types of plant-pots were in use after c. 1600 (Currie 1993). Planting pots, found in excavations, have given direct evidence of gardening in Sweden as well (Lindeblad & Nordström 2014). However, in a garden that is excavated, the soil is not only a context from which artefacts are found, but the soil itself is an artefact that must be analysed (Gleason 2013b). It is characteristic to landscape and garden archaeology in general that material culture is closely linked to ecological data, which makes a garden a very complicated object to study under one field season, and thus the field work must be documented with a great accuracy and interpretations drawn from results of several field seasons (Gleason 2013b).

Various scientific methods can be used in garden archaeology. Chemical analyses of garden soil (Ca, Mg, P, ash, pH) have provided information on the fertilisation of cultivated garden plots, in Finland as well as in British cases (Currier & Locock 1991; Murphy & Scaife 1991; de Moulins & Weir 1997; Luppi 2001a). Archaeobotanical methods, plant macrofossil and pollen analyses, can reveal plants that were cultivated in a plot or that grew there as weeds (Murphy & Scaife 1991; Halvorsen 2012; Alanko et al. 2015). Radiocarbon dating of macrofossil remains can also be useful in garden studies (Alanko et al. 2015). Macrofossils of garden species were found, for example, in archaeological investigations at the Ner-Killingberg garden site in Norway (Guldåker 2014a; Heimdahl 2014c). In Finland, macrofossils of garden plants and cultural weeds have been found, for example, at the garden sites of Suomenlinna Fortress, Suitia Manor, Roselund Parsonage, and Fagervik Manor (Lempiäinen 1997; 1999a; 1999b; 2002a; 2002c, respectively). Archaeological and archaeobotanical studies of small garden plots in Sweden have produced new and important knowledge of Scandinavian garden history (Heimdahl & Lindeblad 2014). However, macrofossils of garden plants are not necessarily found in the plots where they grew, but in the excavated household plots where they were used (e.g., Heimdahl & Lindeblad 2014). As Dominique De Moulins & David A. Weir (1997) state, the evidence of what was cultivated in gardens must mostly be found outside the gardens, whereas the plant remains found in garden beds represent fertilisers and reveal activity in middens;

occasionally garden waste is returned to the planting beds.

Palynology, although a substantial part of garden studies, has not been applied to a great degree in historic garden studies worldwide (Grüger 2013). However, pollen remains may reveal the presence of plant species which are able to flower in a northern climate, such as Finland, but do not produce fruits, as well as species which lack their pollinator insects in their new introductory environments, and thus also do not bear fruit. Since most garden plants are insect-pollinated or self-pollinating, their pollen in soil demonstrates plants grown very locally (Grüger 2013). Pollen from garden soil in Norway yielded evidence of garden trees that did not appear in the macrofossil data, e.g., horse chestnut (*Aesculus hippocastanum*), walnut (*Juglans* sp.), and lilac (*Syringa* sp.) (Halvorsen 2012). Insect remains in gardens can also reveal important horticultural relationships, in the form of pollinator or pest insects, found, for example, in stored grain in Pompeii, and at Roman sites in Britain (Murphy & Scaife 1991; Larew 2013). Phytolith studies can be useful in a garden context by providing evidence of gardening practices, such as fallowing and irrigation, or directly through phytoliths from cultigens (Horrocks 2013). Phytolith analysis has been applied, for example, in Ecuador for studying the pre-Columbian subsistence gardening of maize (*Zea mays*), enabling the differentiation of cultivated forms from wild ones and providing proof of maize cultivation dated to 5000 BP (Horrocks 2013).

An extensive guide of methods, techniques, interpretations, and field examples is given in a recent edited volume on garden archaeology, aiming at a wide understanding of garden studies in their entirety (Malek 2013b). The book explains the various disciplines and methods needed, and presents case studies, although these do not include any Scandinavian cases. The evaluation of different methods used in specific investigations is important, since not all methods are useful in every case (Frost et al. 2004). Still, archaeobotany, for example, is a rather essential part of garden archaeology, and in most cases garden research should not be carried out without it.

Case studies of garden archaeology and restoration in Britain, Scandinavia, and Finland

British garden archaeology started in the 1960s, when Christopher Taylor found remains of Tudor or Stuart period gardens. Taylor continued the work with gardens, which led to the acknowledgement of garden remains as a type of national monument, and to the development of the field in a unique way in Europe (Malek 2013c). In the past forty years, the restoration of historic gardens has developed into a popular branch of heritage management in Britain (Currie 2013), but consequently excavations have mostly been directed at the garden sites aiming at restoration (Malek 2013c). Castle Bromwich Hall was one of the pioneer sites, where archaeology was used to assist the restoration of gardens. The application of archaeological and scientific methods to historic gardens, and the preservation of, e.g., bones, seeds, and pollen, were tested at the site. The work at Castle Bromwich created significant innovations in British garden archaeology: it was the first garden site where archaeobotanical sampling was proven to be worthwhile, and where a considerable number of garden beds were found through archaeology (Currie 2013). As for the case of Kirby Hall in England, its investigations, including archaeological excavations in gardens and a reconstruction project, were carried out in 1987–1994, while at the same time this heritage site was continuously open to the public (Dix 2013).

In Scandinavia, garden archaeology is a developing field that has been partly separated into two different tracks: one following the American and British tradition of cultural landscape management and building conservation, concentrating on historic parks and formal gardens; and the other deriving from agrarian and landscape archaeology and archaeobotany within contract archaeology (Andréasson et al. 2014b). Emerging from this background, many successful case studies of garden archaeology and restoration have been carried out. In the garden of Spydebergs Parsonage, Norway, garden archaeological and archaeobotanical methods were used as a groundwork for reconstruction (Guldåker 2012; 2014b; Heimdahl 2014d; Eggen 2015). At Uraniborg, Tycho Brahe's Renaissance garden on the Is-

land of Ven, Sweden, investigation included excavations, a debate about planning, and reconstruction. This resulted in a long and interesting project which had its challenges, but also demonstrated the need for interdisciplinary work (Lundquist 2004). In the case study of the kitchen garden at Strömsholm Castle, Sweden, written sources and maps were used as background information, and different archaeological methods were considered; the study was aimed at advancing the field of garden archaeology, as well as at demonstrating a practical set of methods for this case and for future studies (Frost et al. 2004). The multidisciplinary garden history case in the Milde estate in Norway, had its starting point in pollen and macrofossil analyses, and genetics. It was aimed at the restoration of the garden and succeeded well (Moe et al. 2006). Karin Lindeblad & Annika Nordström (2014) interpreted their research sources and applied different methods in garden archaeology in medieval and early modern Swedish towns, and they could show the presence of horticulture in towns through their excavations. In Norrköping in Sweden, kitchen gardens were found in excavated 17th and 18th century layers, and the plant remains included sour cherry (*Prunus cerasus*) and cabbage (*Brassica* cf. *oleraceae*), among others (Lindberg & Lindeblad 2010).

Garden archaeology is quite a marginal field in Finnish archaeological research: for example, during the period 1996–2005, six garden sites were excavated (Luppi 2001a; Sutinen 2005a). These sites included the gardens of Suitia Manor in Uusimaa, from the 15th century (1996–97, 1998), Brinkhall Manor in Turku (2003–2005), Tullisaari Manor in Helsinki (1998), Roselund Parsonage in Pietarsaari, Pohjanmaa, from the 18th century (2002), and the gardens and parks in Suomenlinna Fortress in Helsinki (1996, 2000), from the 19th century (Fig. 1) (Niukkanen 1998; Härö & Piispanen 2001; Karisto 2001; Luppi 2001a; 2001b; 2001c; Uotila & Lehtonen 2004; Sutinen 2005a). Within these sites, small-scale excavations were carried out by making test pits and ditches, including chemical analysis for phosphorus, but larger areas were also excavated. The investigations targeted, among others, a kitchen garden and an orangery in Tullisaari and Suitia Manors, and a fruit garden and a hop garden

Figure 1. Garden sites excavated in Finland: 1 – Suitia Manor in Siuntio, 2 – Brinkhall Manor in Turku, 3 – Tullisaari Manor and Suomenlinna Fortress in Helsinki, 4 – Roselund Parsonage in Pietarsaari. In addition 5 – Lahti. Other sites mentioned in the text: 2 – Turku Castle, 3 – Kumpula and Herttoniemi Manors in Helsinki, 6 – Fagervik Manor in Inkoo, 7 – Laukko Manor in Vesilahti, 8 – Kuusisto Castle in Kaarina, 9 – Naantali Cloister and 10 – Louhisaari Manor in Askainen. Map: Maija Holappa.

in Suitia (Lempiäinen 1998a; Luppi 2001a). GPR surveys were also carried out. They were helpful in Tullisaari, but not all of them were successful (Luppi 2001a). Fortunately, the method has been developed since (Winroth et al. 2011; Andréasson & Pettersson 2014). In the cases of Suitia, Tullisaari, Roselund, and Suomenlinna, macrofossil analyses were also carried out (Lempiäinen 1997; 1998a; 1999a; 1999b; 2002a; 2002b). In addition, archaeobotanical studies have been carried out in other manor gardens in Finland: Kumpula and Hert-

toniemi Manors in Helsinki (Alanko et al. 2015; Lempiäinen 1998b; Rosengren 2001; respectively), Laukko Manor in Häme (Lempiäinen 2000), and Fagervik Manor in Uusimaa (Lempiäinen 2002c).

In some of the Finnish cases, archaeology has been a part of the background study for restoration or reconstruction of the sites. However, the restorations in Finland have realised the historic gardens mostly as they were in the 18th or 19th centuries, and not as how they may have been in earlier times. This situation arises from the lack of information about earlier gardens. The problem could be solved at least partly through archaeological and archaeobotanical research (e.g. Härö & Piispanen 2001). However, the evaluation of the investigation and restoration of historic gardens is a complex task (Ignatieva 2015; Schnitter 2015). The questions are, what will be restored and why. The garden owner has an opinion, researchers from different disciplines have theirs, and that of a landscape architect may be different from that of an archaeologist. Authorities and funding set limits, and the public has a view as well. Furthermore, it can be questioned whether only sites with a great historical significance should be restored, or also those sites that are more modest but of cultural historical importance (Lundquist 2004). The situation is the same in the evaluation of which gardens should be studied archaeologically, and whether to excavate or only to restore. After the British model of The National Trust, the Finnish Cultural Heritage Foundation and The Society of National Heritage Support were founded in 1986 to protect valuable garden sites. These organisations have acted quite locally, however, and they have not had a greater national impact. Resources for the restoration of old gardens, as well as for garden archaeological excavations, are unfortunately usually limited (e.g. Härö & Piispanen 2001), like were the resources in Finland, when the gardens were first designed and constructed (Häyrynen 2001).

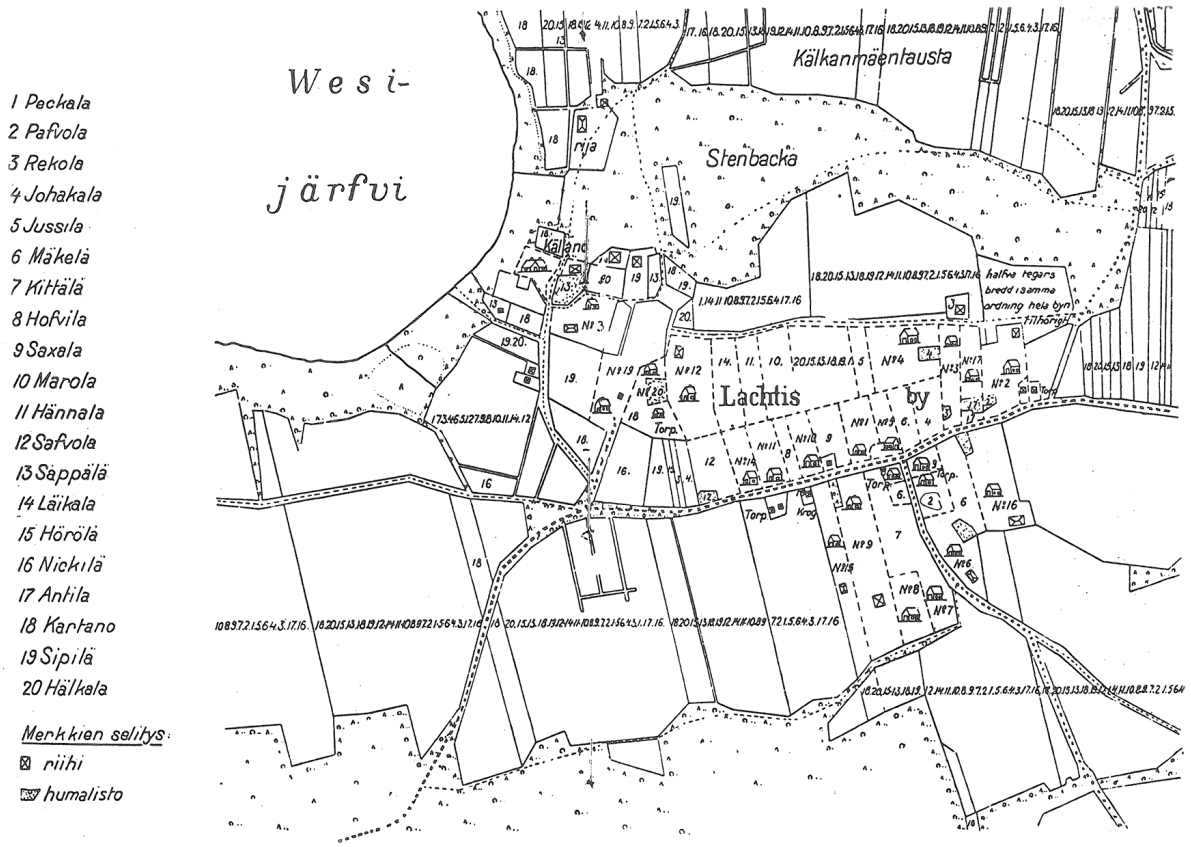

Figure 2. A geometric map of Lahti village. Map: Kuusi 1980, Hollolan historia. In: Hassinen 1999, page 21.

ARCHAEOLOGICAL EXCAVATIONS IN LAHTI VILLAGE

In the field of garden archaeology, not very much has happened in Finland in the past ten years. However, an encouraging case study can be presented, as the large-scale excavations at the market square in the city of Lahti in 2013 revealed an entire garden plot in the former historical village of Lahti.

The village of Lahti was first mentioned in written documents in 1445 (FMU 2622). Almost the entire village burnt to the ground in June 1877 (Nieminen 1920; Takala 1999). Historical written sources from Lahti before the 1860s are very few. The map of Lahti from 1752 (Fig. 2), drawn by Nils Westermark, and the map of 1870, drawn by G.A Jernström, are very important sources, as they provide some information about the structure of the village (Hassinen 1999). In these maps, the houses, buildings, roads, fields, meadows, and land boundaries are visible. However, it is not sure whether all the buildings were drawn in the maps, and some buildings could also be imaginary. Based on the maps, every household had a hop garden, small field plots, and a kitchen garden (Hassinen 1999). From an archaeobotanical point of view, it was going to be interesting to see, if hop gardens, fields, and other structures could be found by archaeological excavations, and what kind of results botanical analyses could produce from these contexts.

Planting beds and the results of archaeobotanical analysis

During the archaeological excavations of 2013 in the Lahti city centre, archaeologists revealed a nineteenth-century garden plot with well-preserved planting beds (Fig. 3 and 4). The planting beds belong to the house called Juhakkala (*Johakala* in the map). The planting beds were discovered under a thick fill layer, which covered the remains of the burned village and formed the foundation for the market square. There were no anomalies or structures above the beds that could indicate the presence of any archaeological remains. However, underneath the fill there was a structure that formed five beds, which were approximately 10 m long and 30 cm deep each. The beds were 0.5–1 m wide, and consisted of clayey soil mixed with sand, small pieces of charcoal, wood, and tiles. They were separated by ditches, which were 40 cm wide. As the planting beds consisted of homogeneous soil, traces of neither digging or tillage technology nor rooting patterns were found at the bottom of them. The beds were founded on a flat ground with an east-west orientation. The boundaries of the garden were clearly visible on the western side, where the beds bordered to a shallow ditch, while in the east and south the area was surrounded by a deeper ditch. The size of the entire garden plot was 70 square metres (Seppänen 2015, pers. comm.).

After the whole structure was uncovered, 30 soil samples for archaeobotanical analyses were taken from the beds, from the bottom of the ditches, and from the vertical profiles of the beds. Altogether 27 different plant species or families were found, and the total number of counted macrofossil remains was 1497 seeds (Table 1). The archaeobotanical material was mainly uncharred, and it was dominated by weed seeds, such as fat hen (*Chenopodium album*), common fumitory (*Fumaria officinalis*), and common chickweed (*Stellaria media*). Besides the weed seeds, there were exotic fig (*Ficus carica*) seeds, locally growing wild strawberries (*Fragaria vesca*) and raspberries (*Rubus idaeus*), as well as the seeds of sedge (*Carex* sp.) species and rushes (*Juncus* sp. / *Luzula* sp.) that were found in an uncharred state. Moreover, charred grains of barley (*Hordeum vulgare*) and rye (*Secale cereale*) were discovered. It is worth noting that no remains of chaff were found in the samples.

Based on the analysis of the archaeobotanical material in Lahti, the composition of the plant species and the state of seed preservation was rather variable. In all the studied samples, arable weeds were very common, and the identified plant species flourish on waste heaps, fields, and other kinds of cultural areas with a human impact. The samples included also moderate amounts of sedge and rush species, which both prefer wet or damp environments. The presence of sedges and rushes could result from watering the plants growing in the beds with water from the nearby ditch, which can be seen in the excavation map (Fig. 3). Figs were

◀ Figure 3. Map of the excavation area in Lahti. Planting beds are marked with brown color in the upper right corner and a ditch for irrigation on it's south-western side. Plan: Lahti City Museum / Janne Haarala, Eetu Sorvali 2014.

▼ Figure 4. Photo of the garden plot, which consisted of five planting beds, separated from each other by ditches and confined with a shallow ditch on the west . Photo: Lahti City Museum / Piritta Häkälä 2013.

imported fruits, while cereals were probably locally cultivated, whereas strawberries and raspberries were wild berries collected from nearby. Given that the arable weeds, fig, strawberry and raspberry seeds were uncharred, it can be assumed that these seeds were the remains from human faeces and animal manure that was spread on the fields as a fertiliser. Due to the taphonomy or bioturbance, uncharred seeds may also originate from the modern layers, and do not necessarily belong to the archaeological layers (see, e.g. Evans & O´Connor 1999). The cereal grains were charred, and that can result from charring that occurred during crop processing or food preparation. Charred grains ended up in a field when ashes and dirt from a fireplace or ovens were spread on the planting beds. The charred material has not been C14 dated, as it is assumed that all the charred material belongs to the period when Lahti village was destroyed in a fire in 1877.

As can be seen from the archaeobotanical results, the analysis did not reveal anything that could indicate, which plants were planted in the beds. During the excavations in 2013, when the planting beds had been uncovered and their shape was clearly visible, it was originally assumed that the beds were used for growing potatoes (*Solanum tuberosum*). Potato cultivation first began in Finland in the 1730s. At the beginning of the 19th century, the Finnish Society for Economy (*Suomen Talousseura*) made a great effort to disperse the knowledge of potato cultivation to farmers all around Finland. By the 1850s, the potato was a very commonly cultivated species in Finland, and economically one of the most important plants besides the traditionally cultivated cereals (Soininen 1974; Vuorela 1975; Niemelä 2008). Three neighbouring parishes of Lahti, namely Asikkala, Lammi, and Hollola, were mentioned in historical sources as significant centres of potato cultivation already in the 1790s (Soininen 1974). Earlier archaeological excavations in Lahti in 1997–1998 revealed remains of an oven which contained 46 charred potatoes. They were all well-preserved, but in a very fragile condition. According to the archaeological dating of the context, the oven and the potatoes dated from the end of the 18th

or the beginning of the 19th century (Lempiäinen 1999c).

Empty planting beds

Even though there are historical maps of Lahti, which reveal the locations of gardens and other cultivated areas, we still do not know where the gardens were exactly located, and what was cultivated in them. In the historical maps of Lahti, the gardens are generally located behind the houses and in the backyards. In the light of the archaeological excavations, however, it is evident that gardens were also founded in the middle of the village, where the wells and ditches ensured the access to a continuous water supply. It is notable that the planting beds found in Lahti were not marked on the historical maps. Therefore, it is impossible to estimate the importance and frequency of this kind of planting system in the village of Lahti. However, Westermark's map from 1752 (Fig. 2) indicates that every house had plenty of free space in their lot, and these empty areas were most probably used for cultivation and gardening to some extent. In Sweden, Elisabeth Gräslund Berg (2014) and Pia Nilsson (2014) have also studied the locations of gardens in historical maps, and noted that not all the garden plots were marked on the maps.

Archaeobotanical analysis did not reveal any traces of the plants that could have been grown in the planting beds in Lahti. This result is also rather common in other studies related to gardens plots and fields. Planting beds are also known from Castle Bromwich Hill, England, dated to the 1850s (Currie & Locock 1991). In Castle Bromwich Hill, the archaeobotanical material consisted of weed varieties, some cereal grains, and chaff. However, it remained unresolved as to what was grown in the beds. According to Currie & Martin Locock (1991), the beds could have been used for anything from growing melons or cucumbers, to planting shrub-like plants, such as roses. The planting beds could also have been used as a nursery garden, from where the plants were moved to somewhere else. On the other hand, the beds could have been used for growing root vegetables or legumes (Currie & Locock 1991). All these plants can grow in planting beds, and they do not necessary leave any traces or archaeobotanical remains.

It is understandable that the planting beds are found empty of archaeobotanical material. First, vegetables and legumes were harvested and carried away when they were ripe, and the leaves were left to decompose in the field or thrown to the dung heaps, while shrubs and seedlings were relocated to a suitable place for long-term growing. Of course, there is also the possibility that the planting beds were not in use at all, or were only used infrequently, and therefore weeds were flourishing there.

Although the archaeobotanical data from Lahti could not shed light on either the cultivation history or the cultivated plants, it is without question that the peasants in Lahti village had gardens and cultivated plants. Most probably, they grew swedes, potatoes, cereal crops, legumes, and cucurbits, as well as linen, hops, and tobacco, since we know that peasants were selling these products at the market (Nieminen 1920; Heinonen 1999). The planting beds in Lahti were well constructed, and when archaeologists found them, they were well-preserved. The boundaries of the garden were clearly visible, so it seems certain that the garden was meant for growing something, since it was so carefully laid out. The boundary ditch was also meant to lead water away and keep the beds moist, but not too wet. The nearby ditch ensured a regular water supply to the garden. The orientation of the beds, from east to west on open land, guaranteed the optimal conditions for the plants to grow. Given the structure of the beds and their location at the back of the plot, as well as the earlier archaeobotanical finds of potatoes from Lahti, it is credible that the farmers of Juhakkala (*Johakala*) were growing potatoes in the planting beds in their backyard lots.

CONCLUSIONS

Written records and maps concerning garden sites in Finland from the Middle Ages onwards have been studied and interpreted quite many times, but more knowledge could still be revealed from these sources through new investigations. For future research in garden archaeology in Finland, one of the

major challenges will be the shortage of funding. Still, there is a need for archaeological research at the Finnish sites connected to gardens that have no written sources, or at least none from the oldest phases. It is assumed that medieval gardens existed in Finland, for example, in Kuusisto Castle, Naantali Cloister, Louhisaari Manor, and Suitia Manor (Härö & Piispanen 2001; Ruoff 2001; Lempiäinen 2003; Uotila 2004; Frondelius 2005; Alanko & Uotila accepted). Only a few written documents from the medieval period exist. Some of the oldest are those concerning gardens in the 15th-century Turku, both in the town and in the castle (Ruoff 2001). Although it is known from the history of Turku Castle that Duke Johan (later King John III of Sweden) established a great Renaissance garden in the place of an old kitchen garden in the 1550s, and a list exists of the medicinal plants cultivated in the castle's garden in 1583, no precise descriptions or identified physical remains of the garden have been found (Peldán 1967; Sinisalo 1997; Häyrynen 2001). It could be interesting to archaeologically investigate those garden sites which are known to have a long history of various phases over centuries, and aim at establishing separate time layers for these gardens. An example of this kind of site would be Suitia Manor, which is, according to literature, said to have one of the oldest gardens in Finland, dating back c. 470 years (e.g. Härö & Piispanen 2001; Sutinen 2005a). It might also be possible to demonstrate chronological changes in vegetation and garden cultivation at some sites through radiocarbon-dated macrofossils from excavated layers (Alanko & Uotila accepted).

The problem of the lack of information is even greater regarding vernacular gardens in towns and rural sites, on which written documents may be impossible to find. This illustrates the necessity to study medieval or even early modern gardens archaeologically, and the evident potential of archaeology and archaeobotany in garden history research, because the available historical sources are not adequate. In Sweden, archaeobotany has revealed small kitchen gardens, which are older than was expected from written sources, as well as hidden medieval urban gardens (Heimdahl 2010; Andréasson et al. 2014b; Heimdahl & Lindeblad 2014). As a result, the overall level of knowledge has improved, and history has been rewritten to include, for example, Viking Age gardening in Sweden (Heimdahl 2010; Heimdahl & Lindeblad 2014). Earlier, questionable assumptions were made, due to the scarcity of documents, arguing that proper gardening did not exist in Finland (i.e. Sweden) in the Middle Ages. Literature has occasionally ignored knowledge about plant species and kitchen gardens as uninteresting, stating that no garden existed if it was a plot of herbs. On the other hand, as early as before the eruption of Vesuvius in AD 79, even the most modest houses in that area had tiny gardens, which were identifiable by archaeology, and they have been acknowledged as important elements of our understanding of that culture (Jashemski 2013).

Archaeobotanical studies are a part of garden archaeology, as well as a part of archaeological research in general. However, as was noted from the excavations carried out in Lahti, the investigation of the planting beds did not reveal macrofossil plant remains, which could have indicated the plants cultivated in the garden. However, the knowledge of weeds and other plants still increases our knowledge of the human – plant interactions. At garden sites, macrofossil analyses should be carried out both on the garden soil and on the cultural layers associated with the buildings and waste pits, because remains of garden plants can be found more often in the latter contexts. For the future of garden archaeology and garden history studies, applying archaeobotany is worthwhile when the research questions include identifying the planting and plant species in gardens. Garden history is such a wide field for research that all relevant disciplines and perspectives from art history to archaeology should be involved, but most importantly, the discussion and collaboration between these disciplines should be maintained.

NOTES

Parts of the text of this paper, excluding the section on the archaeological excavations in Lahti, will also be published in the summary of the PhD thesis of the first author, Teija Alanko.

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