TURUN YLIOPISTON JULKAISUJA
ANNALES UNIVERSITATIS TURKUENSIS

SARJA - SER. B OSA - TOM. 312
HUMANIORA

KYMITTÆ

Sites, centrality and long-term settlement change in the Kemiönsaari region in SW Finland

by

HENRIK ASPLUND

Appendix 1:
The sites

Appendix 2:
The palaeoecological study of three mires on the island Kemiönsaari, SW Finland
by Teija Alenius

TURUN YLIOPISTO
Turku 2008

Maps and pictures by the author if not referenced otherwise.
Digital map elements used according to the copyright of the National Land Survey of Finland, license number MYY/11/05.

Language revision by Colette Gattoni
Layout and prepress by Lehtipaja / Raija Herrala-Nurmi.
Cover design by Lehtipaja / Merja Koponen.

ISBN 978-951-29-3627-4 (PRINT)
ISBN 978-951-29-3628-1 (PDF)
ISSN 0082-6987
Painosalama Oy – Turku, Finland 2008

Till mina föräldrar
och min familj

Contents

Acknowledgements

The prehistory of this study goes back to the year 1983, when I (still a student at that time) was asked to lecture a basic course in archaeology at the Adult Education Institute in Dragsfjärd. After saying yes, I looked up Dragsfjärd on a map and noticed that this was a municipality situated on a big island called Kemiönsaari (Sw. Kimitoön). Although the names were slightly familiar and I had some previous idea of what Kemiönsaari was, I have no memory of visiting the area before. During the following years the visits increased as courses in archaeology and small fieldwork projects went on. The cooperation with local amateur archaeologists proved to be fruitful. Due to the efforts of local enthusiasts parts of the prehistory of the island could be rewritten. So many people were involved that it is not possible to name them all, but a big thanks goes to all of them. Two names I will mention: Hans Myhrman in Dragsfjärd, an extremely skilled surveyor responsible for locating tens of previously unknown sites, and Ernst Lindroos in Kemiö, a primus motor and co-organizer of fieldwork and other activities.

Parts of this book are based on materials and methods I could not have mastered myself, like the pollen data and analyses presented. The first efforts in the field of palynology were made as early as the 1980's together with palynologist Irmeli Vuorela. The sites presented in detail in Appendix 2 of this book were analysed by palynologist Teija Alenius. I am thankful for having the opportunity of co-working with both. I am also grateful for the help given by other scientists, like Tarja Formisto and Pirkko Ukkonen for their osteological analyses, as well as biologist Ilpo Haahtela, botanist Terttu Lempiäinen and archaeo-osteologist Auli Tourunen for their analyses concerning materials within their specific area of knowledge.

The study has been supervised by Professor Jussi-Pekka Taavitsainen at the University of Turku. In addition to his remarks I have had the benefit of receiving comments on the predecessor of this book – my Lic. Phil. thesis – by Docent Eljas Orrman and Docent Markus Hiekkanen. Especially the detailed comments and critique given by Professor Valter Lang of the University of Tartu, who acted as opponent of the Lic. Phil. thesis, proved to be very helpful. In the process of finalizing the manuscript the additional help offered by Dr. Sirkku Pihlman has been essential.

Several colleagues have helped with putting small pieces of information in place. Especially I would like to thank Professor Andrejs Vasks at the University of Latvia for his help concerning the Latvian cuneiform axes. I would also like to thank my present and former co-workers at the University of Turku, several of which have contributed to this study in one way or another. The same goes for colleagues and friends both in Finland and abroad who have kindly offered their assistance when needed. I have received many influences and ideas from my teachers, starting with the very first years as an student of archaeology. Warm thoughts go to all of them. Particularly I want to mention Professor Emeritus Unto Salo and the former assistant of the department, Docent Jukka Luoto. Together with Luoto I had the opportunity to conduct my first fieldwork in the municipalities of Piikkiö and Paimio in the 1980's, thus becoming acquainted with areas later to be included in this study.

The transformation of the manuscript into this book was done with the kind assistance of Raija Herrala-Nurmi who worked out the layout. I also had the benefit of having a skilled editor in the family, Sari Mäntylä, who did much of the proof-reading. The revision of the English text was done by Colette Gattoni of Åbo Akademi University.

Over the years archaeological and palynological research related to Kemiönsaari has been financially supported by the Finnish Cultural Foundation, Föreningen Konstsamfundet, the Jenny and Antti Wihuri Foundation, the Kommerserådet Otto A. Malms donationsfond, the Nordenskiöld-samfundet I Finland r.f., and the Society of Swedish Literature in Finland.

1. Introduction

1.1. A problem of the Iron Age archipelago and mainland

Places containing archaeological data defined as 'sites' and the patterning of these constitute a common basis for settlement archaeological research. In this study, dealing with features in the archaeological record within a study area in southwestern Finland, key elements are sites, spatial aggregation of sites as well as the problem of sitelessness, viewed in a context of time and environment. The main focus is on the settlement development on a big island – Kemiönsaari (Sw. *Kimitoön*), the name of which first appears in written sources in the form *Kymittæ* in 1325.[1]

Before more comprehensive research began in the mid-1980's the archeological data from Kemiönsaari included Stone Age stray finds as well as a few Stone Age settlement sites. The Bronze Age was represented by cairns and a few bronze objects. With regard to the Iron Age, only a couple of stray finds were known from the area and no settlement sites of the period had been found. Over the years more Iron Age material has been revealed, but not in comparison with the surrounding mainland areas. The amount of Iron Age remains on the island is still noticeably small, when at the same time the amount of material related especially to the Stone Age and (to a lesser degree) the Bronze Age has grown significantly. It is the comparison of the archaeological data from Kemiönsaari and the nearby part of the south-western Finnish archipelago with material from the mainland that is the point of departure in this study. Explaining the causes for the difference between the archipelago and mainland, particularly regarding the Iron Age, is the main objective. Trying to reach this goal leads to a type of retrospective reasoning that can be called reductive or (opposite to a prognosis approach) "postgnostic" (Tabaczyński 1998: 54-55). The point is to find the (unknown) causes of phenomena – in this case changing archaeological site patterns – which are believed to be the (known) effects of those causes.

One aspect of the study is that of discontinuity, *i.e.* how to deal with discontinuities of the archaeological record of a specific area. Within Finnish archaeology the issue

1 The document containing the name is included in a compilation of medieval texts, *Registrum Ecclesiae Aboensis*. In the classic publication of the texts the name occurs in the form "*Kymittæ*" (Hausen 1890: 25), as in several later works dealing with place-names (*e.g.* Pipping 1918: 63; Huldén 2001: 131). This seems to be correct if compared with the published facsimile of the *Registrum Ecclesiae Aboensis* (1952: 252). Due to some reason the name has also been presented in the form "*Kymmittæ*" or "*Kymmittae*" (Pitkänen 1985: 335-336; Suistoranta 1997: 27), which is evidently incorrect.

of discontinuity has drawn attention especially regarding periods of the Iron Age, the lack of archaeological data of which poses problems for archaeologists trying to explain the settlement history of areas lacking finds. Such discussions have concerned, for example, the Iron Age of the province of Uusimaa, the Late Iron Age of Southern Ostrobothnia as well as that of the Åland Islands. Furthermore, Iron Age finds and features are sparse in many parts of the interior areas of Finland as well as northern Finland. From the perspective of Kemiönsaari, the most essential equivalent is the archaeology and ideas of the general settlement development of the south-western Finnish archipelago, an area where the explanation of the scarcity of Iron Age archaeological finds is closely connected with issues of continuity and/ or discontinuity. One aim of the Kemiönsaari study is to examine how continuities appear within one region when examined in detail, contrasting material from an area sparse in finds with material from an area characterized by a more affluent pattern of archaeological data.

The difference in materials from Kemiönsaari when compared with the mainland is a problem with two main dimensions: environment and time. If we are simply looking at the Iron Age as a specific period in time, the difference could be reduced only to a case of separate environments, as the archipelago seems to be sparse in finds, while clusters of Iron Age remains occur on the mainland. Time as a factor itself becomes important when we realize that this difference is not as obvious regarding the Stone Age or the Bronze Age – or the Historical Period. The difference in Iron Age materials is a result of changes in time that should be viewed in a long-term perspective. This is why the study is based on archaeological material concerning settlement from the Stone Age to the Historical Period. The 'material' includes information from archives and from the literature as well as from fieldwork within the study area. The material was collected over a long period of time. The last fieldwork organized specifically for this study was conducted in 2002, but additions and updates have been added even after that. The list of sites included in the study is presented in Appendix 1, which also contains references concerning each site. A list of field reports according to municipalities has been added after the list of literature. Included in the study (and referenced in Appendix 1) are about one hundred reported inspections, excavations etc. conducted or supervised by the author.

Although the problem of change needs to be dealt with using a long-term approach, the Early Iron Age is a period of special interest. Important changes in site patterns are related in one way or another to this period. The Early Iron Age – especially the Pre-Roman and Roman Iron Age transition – can be considered as one important turning point in the development of southwestern Finnish settlement. Because of the focus on this period of transition, the term 'Early Iron

Age' will refer in the following to both the Pre-Roman Iron Age and the Roman Period. The Pre-Roman Iron Age is, however, in several aspects a continuation of the Bronze Age. Pre-Roman settlement sites still look a little like those of the Stone Age or the Bronze Age, and cairns were built in a fashion somewhat similar to that of the preceding period. Excavations in the area of Turku, rather close to the present study area, have in fact indicated site continuity from the Late Neolithic or Early Bronze Age Kiukainen Culture to the Pre-Roman Iron Age (Asplund 1997a; 1997b: 251-252). In these cases people actually lived on the same spot during the Early Iron Age as during earlier periods. Some degree of connection between the location of Bronze Age and Pre-Roman settlement can be noted also elsewhere, although not always that clearly. In the Turku area the particularly obvious long-term site continuity may have been the result of a stable period of local development due to a topography where shore-displacement did not lead to significant changes of the landscape during a long period of time (Pukkila 2005).

In evaluating settlement development in the archipelago area, it is interesting that Pre-Roman sites have also been found on the island of Kemiönsaari. These sites are of special importance for this study. They have probably not been utilized during preceding periods, but at least one can speak of an areal continuity of settlement on the island from the Bronze Age to the Pre-Roman Iron Age. Regardless of this continuity, however, the Early Iron Age seems to represent a period of transition. During the following periods of the Iron Age AD, clusters of cemeteries appeared in the big river valleys on the mainland coast, while traces of settlement in the archipelago become sparse. The reasons for this development must have their roots in the Early Iron Age or be due to long-term developmental factors that reached a culmination point at this time. A common explanation is that it was changes in subsistence strategies, especially the intensification of agriculture, which led to the flourishing of some particular mainland areas.

As Iron Age stray finds are few and cemeteries of the types known from the mainland are practically unknown in the archipelago, one question to ask is whether the archipelago became deserted during the Iron Age. This question is difficult to answer, as people might have lived in the archipelago without leaving similar traces as on the mainland. According to one interpretation, the tradition of building cairn graves prevailed in the archipelago when new burial customs were introduced on the mainland. In some of the cairns in the archipelago Iron Age artefacts have actually been found, and there are also cairns on such low elevations that (due to changes in sea level) they cannot have been built before the Iron Age (Tuovinen 1990a: 53-57, 61-62, 64, 67; 2000a: 25-28; 2002a; 2002b: 113-114). Other factors that have been pointed out in support of the idea of continuous settlement in the archipelago are the advantageous marine milieu and the diversity of natural resources, along with the scanty archaeological research conducted in the area (Tuovinen 1990a: 65-66; 2000a: 23-24; 2002a: 42, 56, 261-262). Thinking in this way, the archipelago can be regarded as a potential zone of settlement and interaction between different groups of people, with an environment that provided a stable subsistence and opportunities for the exchange of goods and ideas. The reason why this is not reflected in the archaeological material is assumed to be due mainly to the insignificant amount of fieldwork done, as well as to the different magnitude of recent land-use in the archipelago compared to that of the mainland.

This view has been summarized in an important work on the Bronze Age and Iron Age of the southwestern Finnish coastal area, Tapani Tuovinen's (2002a) dissertation on the burial cairns of the archipelago, the main interpretations of which will be discussed more closely in the following chapters of this book.[2] The conclusion reached by Tuovinen is that the continuation through the Iron Age of the cairn ritual in the archipelago (while new grave rituals were introduced on the mainland) represents a continuation in the archipelago of the inhabitation and lifestyle of the Bronze Age, based on the versatile natural resources of the area (including arable land). The mainland settlement developed an economy more specialized on the raising of cattle and agriculture. Between these populations and economic areas there may, according to Tuovinen (2002a: 275), have existed a barter system for reducing risks due to agriculture; economic contacts may have had a similar character as known from the Historical Period when islanders traded fish, meat, eggs, butter and firewood with central settlement areas in exchange for grain, salt, hemp, and iron. Furthermore, the islanders may have functioned as pilots on ships in the waters of the archipelago difficult to navigate in; maybe this could have increased in the 8th century when trade started to become market-based long-distance activity (Tuovinen 2002a: 275-276).

The ideas presented by Tuovinen are convincing, in particular regarding the existence of Iron Age cairns in the archipelago and the improbability of a lack of habitation, but some interpretations may require further analysis. This is the case at least concerning the basis for the interpretation of continuity. Identifying Iron Age remains in the archipelago may not be enough, as most of the reliably dated sites seem to represent either the very beginning or the very end of the Iron Age. The possibility of discontinuities or changes in the intensity of activities, as well as changes with regard to the roles and relative importance of different areas, cannot be ruled out. It is also clear that the idea of sparse finds due to lack of investigations is somewhat problematic, as the amount of research in the archipelago has increased

2 The title of Tuovinen's (2002a) dissertation is "The Burial Cairns and the Landscape in the Archipelago of Åboland, SW Finland, in the Bronze Age and the Iron Age". The book has been reviewed by Lavento (2003).

considerably during the last decades. A better argument in favour of settlement stability in the archipelago presented by Tuovinen (2002a: 256-258) is the principle that an area should be considered as inhabited if such a notion is not challenged by obvious evidence. This is a sound concept and one that is very difficult to prove wrong. In other words, using this logic, it is a proposed settlement break or other types of changes affecting the settlement in a negative way that should be explained and evidenced, not settlement continuity.

From whatever angle one chooses to look at the question of settlement development in the Kemiönsaari region, it is in any case apparent that development in the mainland river valleys must have differed from that of the islands. The prerequisites for Iron Age settlement existed in the archipelago, but still settlement sites, cemeteries, and most other conclusive indications of permanent settlement after the Pre-Roman Iron Age are found on the mainland and not in the archipelago. The differences in archaeological materials between the mainland and the archipelago are so obvious that they must reflect a fundamental change.

1.2. The study area

The core of the study area is the island of Kemiönsaari – the third largest island in Finland, covering a territory of 560 km^2. Kemiönsaari is thus smaller than the biggest islands in the Baltic, but comparable with, for example, Bornholm. The location and character of Kemiönsaari is quite different from all the other big islands. The land mass is separated from the mainland by narrow sounds, making Kemiönsaari look like a large piece of the mainland drifting slightly away from the coast (the reality is of course quite the opposite – land upheaval is slowly bringing the island closer to the mainland). The topography and morphology of the island is variegated, although dominated by a rocky surface and zones of rifts in the bedrock. These large fractures are visible in the landscape as valleys of differing width, nowadays often cultivated. The climate of the Kemiönsaari area is one of the most favourable in Finland. The annual mean temperature on the island (5.5°C) is among the highest (Tikkanen & Westerholm 1992). Due to this, Kemiönsaari is within the area of the longest thermic period of tillage of the soil and the longest thermic pasturing period in Finland (Aario 1960: 6).

The main part of Kemiönsaari and the additional archipelago of smaller islands belong to the municipalities Dragsfjärd, Kemiö (Sw. *Kimito*) and Västanfjärd. The northernmost part of Kemiönsaari is nowadays part of the Halikko municipality. In addition to the Kemiönsaari material, comparative information for the investigation has been gathered from twelve municipalities near Kemiönsaari: Nauvo (Sw. *Nagu*)

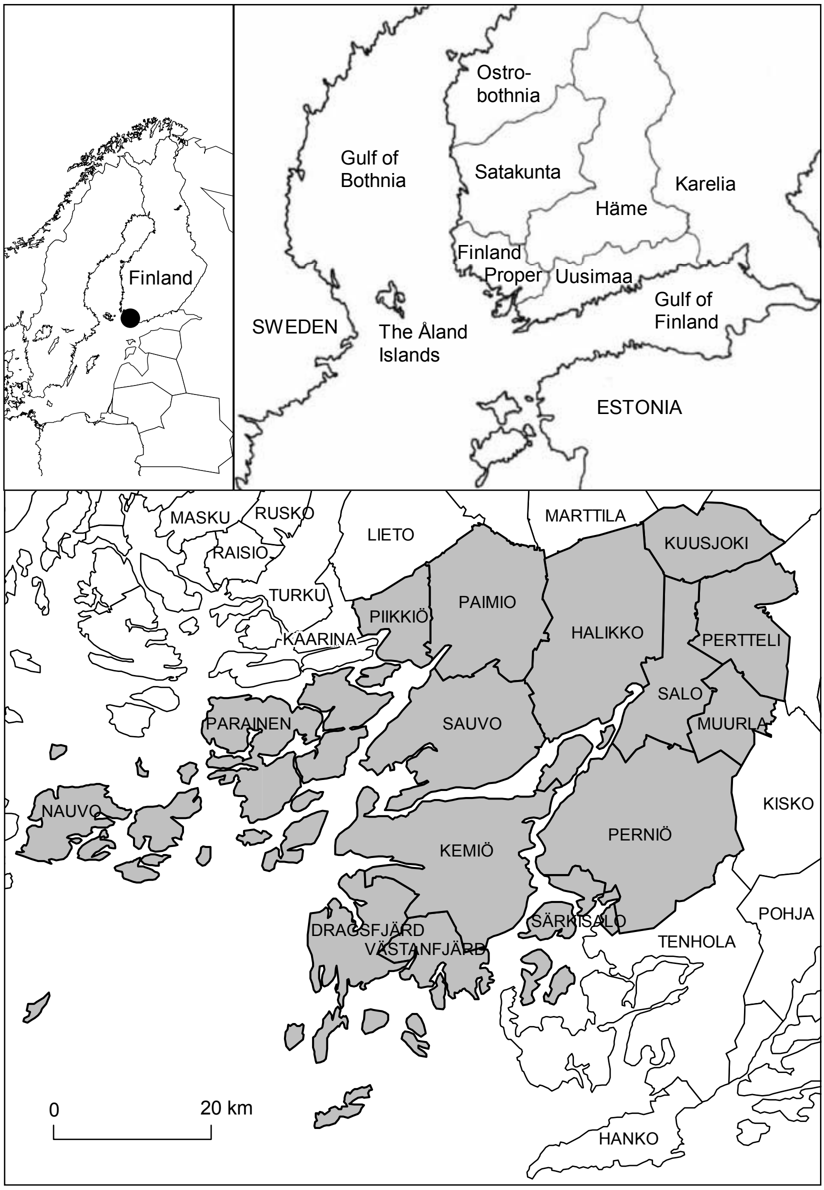


Fig. 1. The study area consists of 15 municipalities in the eastern part of the province of Finland Proper in southwestern Finland. The main focus is on the island of Kemiönsaari, i.e. the municipalities of Dragsfjärd, Kemiö and Västanfjärd. The historical division of provinces is indicated in the upper part of the map.

and Parainen (Sw. *Pargas*) in the archipelago as well as Halikko, Kuusjoki, Muurla, Paimio (Sw. *Pemar*), Perniö (Sw. *Bjärnå*), Pertteli (Sw. *St. Bertils*), Piikkiö (Sw. *Pikis*), Salo (the former parish of Uskela), Sauvo (Sw. *Sagu*) and Särkisalo (Sw. *Finby*) on the mainland (Fig. 1). The total study area thus covers a land area of 3114 km^2.

The distinction between a 'mainland municipality' and one belonging to the archipelago poses some problems. In the case of Särkisalo, for instance, half of the territory is on the mainland while the other half consists of islands. One might also question whether Kemiö should actually be treated as a relevant part of the archipelago. This, however, is not a major problem. The municipalities chosen provide borders for the gathering of data and a starting point for analysis, while the mainland/archipelago dichotomy concerning the present municipalities should be understood merely as a way of presenting trends in the data. Some of the comparisons are simply easiest to make at this level. In these cases the material from the Kemiönsaari municipalities together with that from Nauvo and Parainen will be contrasted with material from the rest of the comparative study area.

1.3. A short history of research of Kemiönsaari

Archaeological research of Kemiönsaari began in the late 19th century. In 1871, H. A. Reinholm conducted an excavation at Högholmen in Hiittinen (Sw. *Hitis*) in the southern part of the archipelago, and in 1886 Volter Högman investigated Bronze Age cairns in the Kemiönsaari area. Högman's work was important; he gathered information on a total of 120 archaeological remains, most of which were cairns, and twelve of which he excavated (Tuovinen 2002a: 35-40).

In the 1920's and 1930's only some minor surveys and excursions were made in the area as well as a rescue excavation of a cairn in Söderby in Kemiö (*cf.* Tuovinen 2002a: 40). Later important excavations were carried out in 1938-39 on the medieval chapel site at Kyrksundet in Hiittinen (Nordman 1940). An even more essential step towards a general understanding of the prehistory of the area was the publication of a synthesis of the archaeological material by Nils Cleve in 1942. The main emphasis was on the Bronze Age (as the cairns of the area were regarded as belonging mainly to this period). The Stone Age of the area was at that time known only in the form of a couple of dozen stone artefacts and the Iron Age was represented by just a few finds and observations (Cleve 1942: 4, 16-18). Soon after the publication, however, Cleve himself found the first Stone Age settlement sites in Dragsfjärd (Cleve 1948: 487-488).

The next important research period only started in 1983, when the University of Turku began a survey of cairns in southwestern Finland (Tuovinen 1990a, 27-

28; Salo 1992), including the municipalities of Dragsfjärd, Kemiö and Västanfjärd. During the same year a course for amateur archaeologists started at the Adult Education Institute in Dragsfjärd. This course continued for several years, thus stimulating the discovery of previously unknown antiquities. A similar course started at the Adult Education Institute in Kemiö a year later. During the 1980's and 1990's the institutes also organized several small excavations in the area. These amateur activities led to important discoveries and research findings, mainly due to the fact that the antiquities of the area proved to be insufficiently known, and because of the involvement of the University of Turku, which provided a channel for the reporting of new finds and observations. Also the excavations financed by the institutes were organized in cooperation with the university (*cf.* Pihlman 1995: 6-9).

In the archipelago area the survey of cairns soon developed into a more general approach, with the aim of registering other types of sites and antiquities in maritime environments as well (Tuovinen 1990a: 29). The most remarkable observation was the discovery of a Late Iron Age trading site at Kyrksundet in Hiittinen in 1991. The National Board of Antiquities conducted further investigations of this site during the years 1992-1996. Altogether, the increase in archaeological material in the Kemiönsaari area during the 1980s and 1990s was considerable. In addition to some minor summaries (Asplund & Vuorela 1989; Asplund 1990; Tikkanen & Westerholm 1992: 18-21), a larger synthesis was published in 1997 (Asplund 1997b), the main contribution of which was an evaluation of the new Stone Age materials and a presentation of the first finds from Pre-Roman settlement sites on Kemiönsaari. The results of the survey of cairns in the area have also been published; the Kemiönsaari data is included in the general survey report of the project (Tuovinen & Vuorinen 1992) and in the monograph on the cairns of the archipelago (Tuovinen 2002a).

1.4. Sites and centrality

Archaeological information from Kemiönsaari and the comparative study area has been assembled in a database, containing geographical data together with descriptive information and references. A listing of site names, coordinates, classification and references is presented in Appendix 1. The overall material consists of 3,226 items of information. The main information unit is the 'site', which in this case means any geographically defined place containing archaeological information, classified as to type and chronology. This definition differs from more traditional ideas of archaeological sites (Renfrew & Bahn 1991: 42; Bahn 1992: 460;

Mignon 1993: 290-293; *cf.* Dunnell 1992: 22-25; Carman 1999: 23; Barford 2000: 85-86) in the sense that archaeological information does not necessarily have to include visible structures or artefacts, and in that the physical location of the 'site' may be known only within certain (even vague) limits. In addition to structures, artefact clusters and single finds, the definition can in principle include places related to narratives describing finds or the use of places in the past, as well as locations containing nothing but ecofacts or geofacts.[3] The latter can be regarded as archaeological sites if archaeometrically dated and thus producing evidence of past human impact on the natural environment (*cf.* Barford 2000: 87). Furthermore the 'site' is not always an entity possible to locate at present. It may have disappeared or may as well be a unit of archaeological information containing just indistinct geographical data. The fact that the site is not only a geographically defined locale, but subjectively defined as to type or function as well as dating, also involves the possibility of several overlapping sites at one single spot.

This definition of the site is convenient with regard to the collecting and storing of data, but it is, of course, problematic if applied directly as a

Site type	Number
Boat find	18
Cairn	640
Cairn?	118
Cemetery	72
Cemetery?	34
Chapel site	3
Charcoal burning or tar extraction site	23
Clearance cairn	4
Cup-marked stone	49
Cup-marked stone?	6
Fortification	2
Harbour	4
Hill-site	11
Hill-site?	9
Holy well	4
Inscription	32
Labyrinth	7
Labyrinth?	2
Mound	7
Mound?	5
Pit-trap	5
Pit-trap?	4
Pollen sample site	16
Quarry	3
Settlement site	224
Settlement site?	151
Stone oven	39
Stone oven?	5
Stray find	1486
Stray find?	98
Tomtning	6
Tomtning?	4
Undefined	117
Undefined pit site	13
Village	5
Total	**3226**

Fig. 2. Types and numbers of occurrences of archaeological sites identified in the study area.

[3] Here the term 'geofact' refers to remains of the geological and biological formation of the cultural landscape, preserved through geological and biological processes rather than by conscious human actions (Welinder 1992: 76). This is not to be confused with the use of the term 'geofact' meaning a proposed artefact that may actually be of geological origin (*e.g.* Kinnunen 2005).

representation of the use of places in the past. This is due to the often stated fact that the site is a conceptual construction not directly applicable to real human life; some landscapes or places where people live and act are characterized by the accumulation of material remains while others are not (*e.g.* Barford 2000: 86). In large-scale studies such as the Kemiönsaari case the 'site' is, however, still the most realistic concept for ordering and classification of data. In the current database types of sites were mostly accepted in the way they have been registered during surveys and excavations (Fig. 2) and the main chronological framework was coded as in the Registry of Ancient Monuments at the National Board of Antiquities (Uino 2000: 243).[4] In addition, the character of the sites was in many cases evaluated further in the descriptive part of the database and the chronology was supplemented with more detailed dates whenever possible.

The sites entered into the database were not defined as necessarily having geographical locations within certain limits, such as, for example, in the case of a mapped cemetery or a known find-spot for an artefact. This means that an artefact with information assigning only the parish or municipality where

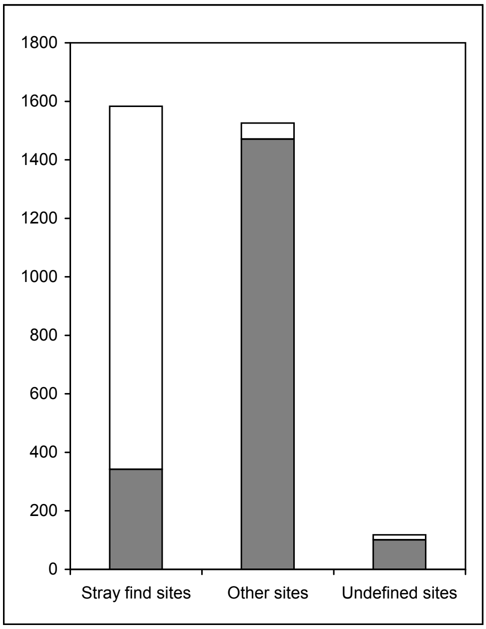


Fig. 3. Number of items with defined geographical coordinates (coloured) in relation to the total number of items classified as stray find sites, other types of sites and undefined sites in the study area.

4 With regard to the dating of sites it is obvious that Historical Period sites are underrepresented. If noted at all in archaeological surveys they have often gained a lower status in the survey reports than prehistoric sites. In the database information on such sites (as well as undated sites) have been included in cases when the sites have been specifically pointed out in reports or when the depiction and/or location of the sites have been regarded as relevant. Oral information related to Historical Period use of specific places as well as sporadic information on common Historical Period settlement remains like house foundations etc. have mostly been left out of the register. Types of sites not included in the study at all are underwater sites such as wrecks of different age, submerged stray finds etc. According to the register of underwater sites at the National Board of Antiquities, there are 130 such sites registered within the study area, 77 of which are wooden wrecks. The most numerous underwater sites are (not unexpectedly) in the archipelago, as in the municipality of Dragsfjärd (61 sites, 36 of which are wooden wrecks), and Nauvo (26 sites, 17 of which are wooden wrecks). Most of the sites are undoubtedly from the Historical Period – none has been regarded prehistoric.

it has been found represents a 'site' potentially as important as a site defined by precise geographical coordinates. In fact, over 40 % of the information collected for this study lacks a well-determined location (Fig. 3). Sites of this type may seem more abstract, but in some form they have certainly existed. A site in this category is a place containing archaeological information, classifiable as to type and dating, known to have existed within certain geographical boundaries, although vaguely defined. The definition in a way accepts the history of finds and observations as one factor in the formation of sites, which stresses the contemporaneity and subjectivity of the concept. Different finds may originate from the same geographical locale and prehistoric context, but through a different history of discovery and interpretation they may end up as representing different 'sites'. This is one bias present in the calculations of the quantity of sites – especially those lacking precise geographical coordinates. The use of such indefinite geographical information is possible, but is related to the scale one is working with: the closer to the landscape we proceed, the more exact data we have to work with. As the lack of detailed geographical information mainly concerns single finds, a quantitative comparison of stray find distribution in the study area can be carried out only according to present-day municipalities. Other types of sites do not pose such problems, since they have often been well mapped due to antiquarian research and aims of registering and protecting monuments in the landscape.

As already stated above, the concept of a site in the sense of the location of a place containing archaeological information is relatively unproblematic, but the further interpretation of the archaeological data is not. In particular those sites denoting spatial aggregates of information are difficult to deal with, as the archaeological record itself does not define specific types of sites. The interpretation or creation of site types from clusters of information depends in all cases on the archaeologist. In fact, one reason why the site concept has been regarded weak is that it simplifies and blurs archaeological variation (*e.g.* Tuovinen 2000b: 33-34). Further criticism is related to the idea that, although clustered, archaeological material can be regarded as spatially continuous. According to this view, rather than looking for structured sites, the archaeological record could be viewed as a pattern of continuous artefact distribution and density. This shifts the interest from the site to the artefact and has led to a call for 'off-site' (Foley 1981: 166, 180), 'siteless' or 'nonsite' archaeology (Dunnell & Dancey 1983; Dunnell 1992: 33-37). Another view, further complicating the issue of sites, stresses the value of thinking in terms of 'place' rather than 'site'. We are not dealing only with mapped and measurable space but also with the meanings and associations that locations have had for people in the past and have in the present (*e.g.* Carman 1999: 26). All these restrictions with regard to the proficiency of the notion of the 'site' thus should be kept in mind. One may also ask, if holding on to the site concept, whether or not each type of site should have an explicit definition? In principle the answer to this question is yes, but within this study one mainly has to rely on the observations and interpretations recorded in former reports, with all the problems of subjectivity they may contain. Siteless archaeology, for example in the sense of avoiding the use of the site concept in the discussion of aggregates of information (or even single finds), has not been possible to realize.[5] Another perspective on the idea of sitelessness is, however, important. Even if this study is based on a large number of information items, this is not the reason why the main study area is interesting. On the contrary: Kemiönsaari draws our attention because of the scarcity of information for parts of the Iron Age. One point in the present study is that even findless areas have a past and should be included in the debate over settlement archaeology.

The contrast between areas sparse in archaeological finds and areas with clusters of finds inevitably leads to a discussion on the reasons for such a pattern. Groups of contemporary sites within a region are likely to indicate some kind of importance with regard to the practical function or emblematic meaning of the area. When bordered by areas characterized by lack or scarcity of similar features, site clusters give the impression of centrality, *i.e.* being central areas in some respect when compared with areas lacking similar groups of sites. Centrality implicitly also indicates a relationship between the area regarded central and areas outside it, as a centre can have meaning only in relation to a surrounding area. This relationship should not be thought of as solely associated with the recorded material culture remains, but as part of prehistoric reality. If discussing, for example, central areas of some period of the Iron Age, this entails the idea of centrality having been experienced by at least someone during the period in question. It also involves the recognition of marginality, 'the outside', 'the periphery' or some other appearance of non-centrality.

5 Even if difficult to put into practice, the idea of site-less archaeology must be regarded as a potentially important topic within the build-up of archaeological databases for research as well as protection. In Finland the development with regard to survey reports and thus the information collected for the Registry of Ancient Monuments at the National Board of Antiquities seems, however, in some cases to promote the opposite, *i.e.* combining information into larger entities. There has been a tendency of registering (for protection and maintenance purposes) whole landscapes or sites which are conglomerates of earlier archaeological data. The problem with this development is the blurring out of previous more detailed artefact or single observation data. It would be wiser to collect and preserve data as detailed as possible, realizing that the formation and defining of protected landscapes is a process of interpretation, which should not be the basic result of the survey, but merely an elucidation of the data collected. A strategy of more detailed collecting and reporting of data (including more careful holding on to and follow-up of previous information on single sites and artefacts) would also make survey reports and registers more suitable for archaeological research.

Ideas of central settlement areas with surrounding zones of economic utilization have been present ever since 1826 when von Thünen presented his model according to which different types of land-use within a uniform environment will form concentric circles around a centre of settlement (Hodder & Orton 1976: 229-231; Butzer 1982: 216-218). Within archaeology the theoretical debate concerning relations between settlements and their surroundings accelerated in the 1970's when, for example, site-catchment analysis was introduced (Vita-Finzi & Higgs 1970). Of great importance was the centre / periphery terminology applied by Wallerstein (1974) in his book "The Modern World–System", the ideas of which were adopted by anthropologists, and soon found their way also into the field of archaeology. 'Centre' and 'periphery' then became a widely used terminological pair. Later there was also criticism of the use of these concepts, which came to be regarded as partial, Eurocentric and non-dialectic (*e.g.* Mogren 1996: 137-138).

More recently the concepts of 'central place' and 'power centre' have been used in connection with special sites signifying centrality, especially in Scandinavia, but also in, for example, Estonia. In Scandinavian archaeology the concept 'central place' indicates a settlement with a rich and varied find material, indicative of a place of regional or supra-regional importance. Usually it is assumed, that a centre of this kind was the residence of a paramount leader and his attached specialists. Their function may have included the monopoly of force, economic management and ceremonial legitimisation of power (Fabech 1999: 456). The idea of 'centrality' of the Kemiönsaari study maybe comes closest to Brink's (1996: 237) idea of a central place being a site or a small settlement structure with "some function or significance exceeding the particular site or settlement, in other words, some kind of "power" over a wider area".

Regarding Finland principally just one analysis of settlement development has been done with special reference to centrality / marginality and the meaning of central places. The study deals with Southern Ostrobothnia. According to Viklund (2002) there existed sites (like Pörnullbacken, Gulldynt and Pukkila) in Ostrobothnia, reminiscent of central sites in Scandinavia during the Middle Iron Age. These central places with their old connections and settlement structure might have declined due to the early state formation process in Scandinavia in the Late Iron Age. This could, according to Viklund, be one reason for the sparse archaeological material and site discontinuity in Late Iron Age Ostrobothnia. Like in Viklund's study, it has often been the Migration Period that has inspired archaeologists to discuss Iron Age central areas. The most well-known attempt in this direction is the one by Ramqvist (1988; 1990; *cf.* Ramqvist & Müller-Wille 1988) where an idea of petty kingdoms and power centres (a couple of which in Finland) during the Migration Period is presented. Schauman-Lönnqvist (1996) has discussed the same issue, with reference to Ramqvist, but concerning the Merovingian Period. According to her there is no evidence in the archaeological record of power centres – at least not during her period of study. Rather there appears to have been small seats where petty noblemen represented the power elite on the local level, but no centres capable of controlling whole provinces. Certain families or kin groups were involved in a system that supplied them with prestige goods from Scandinavia and Europe; in such a prestige goods system luxury goods and services would have been exchanged between leaders and allies (Schauman-Lönnqvist 1996: 134-135). The nature of finds indicates that in the Merovingian Period the local people were allied with the chieftains of central Sweden. In the Laitila area examined by Schauman-Lönnqvist the Scandinavian and continental contacts were not restricted to the Merovingian Period, but were according to Schauman-Lönnqvist (1996: 135) apparently already established during the Roman Period.

These are just a couple of examples on ideas related to centrality and Iron Age society – a topic which will be explored further in the latter parts of this book. It should be immediately pointed out, however, that there is a wide range of ideas concerning the level of social organization and complexity during the Iron Age. Some archaeologists have claimed the existence of provincial organizations during the Late Iron Age (the maximalistic view) while others have acknowledged a limited (minimalistic) level of organizational development where no stable structures of social organization existed. From the point of view of this study it is interesting to note that Tuovinen (2002a: 251-252), writing from the point of view of the southwestern Finnish archipelago, has expressed criticism against the idea of centrality and power structures during the Bronze Age as well as the Iron Age. According to him "territories, central places, and expressions of power have connections with the structure of Western communities, perhaps even with male-dominated research traditions", so he does not find it surprising that analogies are sought in prehistory. Tuovinen does not totally deny the possibility of occurrence of such phenomena, but according to his view, the Metal Age communities should be regarded as fairly local and egalitarian.

One problem for archaeologists when discussing centre and periphery relationships is how to evaluate the lack of archaeological material. Problems occur if 'centre' is defined solely as a cluster of finds and 'periphery' as an absence of finds – or merely as a remote area. In such cases it is questionable whether these concepts contribute any additional information at all. This is a problem also in the present study, as it is difficult to give 'centre' and 'periphery' any particular definition; a central settlement area is simply identifiable as an aggregation of sites within a microregion, and the area outside is something else. This constellation of sites could, however, have involved a real centre-periphery relationship. If the scarcity of Iron Age finds outside the central settlement areas were accepted as indicating a scarcity of permanent settlement, the relationships between centres and surrounding areas during the Iron Age could perhaps be described as a set of relationships between centres and separate areas of production. Applying a terminology used by Venclová (1995: 162-164) the Iron Age archipelago could have acted not only as an area of settlement and production but like an 'industrial zone', constituting the dislocated production areas of several settlement areas.

The defining characteristic of a centre (or core) / periphery structure is asymmetrical relations (Sherratt 1993: 4-5). If no structural inter-dependence between areas exist, it is doubtful to speak about a periphery. Another possibility would be to refer to a 'margin', in the meaning of an area occasionally in contact with a core, but without obligations or other forms of asymmetrical connections (Sherratt 1993: 6). In a simple model by Dahnberg & Sandin (1996) two areas may have 1) no contact, meaning that no centre / periphery relationships exist; 2) symmetrical contact, likewise meaning the absence of a centre / periphery relationship; or 3) asymmetrical contact, meaning the presence of a centre / periphery relationship. This is a good division to keep in mind. Asymmetrical centre / periphery relationships can probably be defined and properly explained with regard for example to the relationship between wilderness utilization areas and central settlement areas in Finland in general, but on a smaller scale this is more problematic. Within the study area, we may ask how asymmetrical contact might be identified? If, for example, settlement aggregation would have been the cause for clustering of sites, it cannot be assumed that this automatically led to an interest in the specific exploitation of peripheral areas – on the contrary, this could indicate a shift of interest from a dispersed presence in the landscape to a more fixed involvement in the emerging centres. With regard to the relationships between settlement units and areas, this could actually mean moving from a state of symmetrical contact towards another pattern of symmetrical contact, even though the pattern of settlement changed. On the other hand, if the archipelago was continuously settled by a specific island population, as suggested by Tuovinen (2002a), his idea of an economic barter system between archipelago and mainland is not necessarily the only possible form of contact – at least not on a coequal basis. Rather, the difference in archaeological materials could indicate the different status of areas – central settlement areas and an outlying periphery – which may have promoted a factual central area dominion of the periphery.

1.5. The long-term perspective

A basic component of this study is the recording and interpretation of changes of the archaeological record within the study area. The term 'settlement change' refers to the interpretation according to which different patterns of site or artefact distribution potentially indicate changes in settlement distribution or density, discontinuities or changes in the nature or intensity of utilization, as well as changes related to the roles and relative importance of different settlement areas.

In trying to understand the general settlement development as well as specific periods of change, time is a highly important factor. Continuity or change of cultural phenomena can have meaning only within a segment of time. In this study, a long-term perspective has been considered appropriate in order to understand the reasons for the formation of specific site patterns during the Iron Age, the main feature being clustering of sites giving the impression of central settlement areas. The idea is to compare Iron Age material from both the central settlement areas and the potential 'periphery' with information on settlement development prior to the Iron Age and (to a lesser degree) the Historical Period settlement of the area. This has been done as long-term processes can be considered as possibly explanatory in the case of settlement formation and transformation. An opposite approach, focusing on some period of the Iron Age alone, would in this case not have been adequate. Working in too narrow a time perspective, one might process data without being able to take into account mechanisms of long duration. Events reflected in the archaeological material might be overestimated and the results skewed as when working in a too narrow geographical niche. The systemic idea that something happening at a time 'n' is dependent on the system's state at 'n-1' is still quite sensible.

The theory of a deeper long-term dimension (*longue durée*) behind the unique events of history has been stressed by the *Annales* school of historians (*cf.* Duby 1994: 194, 213-214), which has influenced archaeology as well (Hodder 1987; Knapp 1992). According to this view, cultural evolution can be characterized as a series of environmental, economic and social processes occurring at different rhythms and rates. These intertwined processes lead to the recreation or change of diverse aspects of culture while historical events have the character of indeterminate short-term bursts of change or unique human actions (Braudel 1980: 27-34; Knapp 1992: 6; Smith 1992: 25). Archaeological evidence of change is, however, difficult to interpret as reflecting historical events (*e.g.* Sherratt 1992: 140). One good example of this problem is provided by Duke (1992: 108), in his discussion of change applying *Annales* concepts and identifying the adoption of the bow and arrow as an "event". In Duke's case the 'event' is applied merely as a marker of transition, thus pushing the use of the concept too far from its original meaning. For changes of this nature the concept 'episode' has been suggested (Kuna 1995: 46). An episode, unlike an event, is not unique or particular, but something that is an essential part of a structural process. In the following parts of this study we can, for example, ask whether the abandonment of Pre-Roman settlement sites on Kemiönsaari could have been episodes of a process or merely events arising from particular decisions.

In addition to the structural long-term history, the archaeology of small time-scales has also become increasingly important. The archaeology of short-term time-scales often means studies related to the social history of ordinary life, while long-term approaches explore general trends and the history of institutions and organization. Short-term archaeologies work within the context of the human lifecycle, approaching questions such as for example age in the construction of personal and social identities (Gilchrist 2000). Such scales of research are not within the scope of this study. The Kemiönsaari discussion aims at exploring general trends and the broad ecological and organizational history of settlement development. The role of individuals in the process of decision-making and generation of change, however, cannot be ruled out. Thus there cannot be a manifest distinction between time-scales. The short term may reproduce or create the long term (Hodder 1987: 5); or – *vice versa* – long-term development may lead to a state promoting sudden episodes of change.

1.6. Palynology – a comparative analysis

One possible approach when trying to elucidate the settlement history of an area sparse in archaeological finds is the use of palynology. A comparison of archaeological data with palynological evidence, *i.e.* geofacts obtained by means of pollen sampling, may provide answers as to the history of farming as well as more general information on environmental factors and changes. The first attempts in this direction were made within the main study area in the 1980's when two sites in the northeastern part of Kemiönsaari were sampled and analysed (Asplund & Vuorela 1989). Later three other sample sites were selected from other parts of the island, two of which were as close as possible to the Pre-Roman settlement sites in Kemiö and Västanfjärd (Appendix 2). Unfortunately, the locations of the sample sites are to a great deal dependent on the availability of suitable basins to be sampled. Thus the locations are not optimal as to their relationship with archaeologically defined sites, nor has it been possible to systematically cover the whole island. The five sample sites analysed have, however, a reasonably good coverage as they all come from different parts of the island, from variegated environments and from elevations providing the opportunity to study the whole of the Iron Age – some of them also earlier periods. The presupposition is that the results of these analyses are feasible to use as a comparative material and that they can be used for a synthesis of the land-use history of the island.

An important fact that can be stated immediately at the onset is that evidence of farming occurs in the archipelago of the study area already preceding the Iron Age. The earliest date from Kemiönsaari, 3360 ± 100 BP (Hel-2410), is from sediment containing cereal pollen at Ilsokärret in Kemiö (Asplund & Vuorela 1989; Vuorela 1990: 119-120; 1999: 147-148).[6] A calibration of this dating gives the ranges 1890-1420 cal BC, *i.e.* the latest Neolithic or the Early Bronze Age.[7] Sporadic evidence of farming can also be seen in pollen samples from Kemiönsaari dating to the Bronze Age and the Early Iron Age. Comparative materials from other parts of the study area point in the same direction: cultivation was practised both in the archipelago and on the mainland as early as the Late Neolithic or the Bronze Age. In the archipelago an important site is Lalaxkärret in Nauvo, where the absolute Cerealia level is dated to about 1960 cal BC, which is actually one of the oldest reliable dates for cereal pollen in Finland altogether (Vuorela 1990; 1998: 176). These observations support the idea that the adoption of a subsistence economy based at least partly on agriculture did happen earlier than the changes in archaeological materials and site patterns that become visible in the Iron Age AD. If these changes mirror something related to farming subsistence it is not the introduction of farming which is reflected, but some development within a society already practising cultivation.

6 The site has earlier been mistakenly published under the name "Isokärret".

7 The calibrated dates in this book are given with a 95.4% probability, calibrated according to Stuiver *et al.* (1998), if not referenced otherwise.

2. Settlement and environment

2.1. What is settlement archaeology?

In the preceding chapter the geographical environment and time-scale of this study were broadly defined. Within this geographical and chronological setting, the focus is on archaeological material related to the people who settled and utilised the area and on changes occurring through space and time. The general approach of the study can be described as 'settlement archaeology' or a 'settlement pattern study'.

Already in the early 20th century the term 'settlement archaeology' was included in the vocabulary of the German archaeologist Gustaf Kossinna and his followers (Jankuhn 1976: 2, 23; 1979: 20). The concept *siedlungsarchäologische Methode* was part of an approach focussing on ethnic conditions of the past and the present, bound together by the development of continuities within settlement areas (Kossinna 1911). Kossinna supposed that Germany was a centre of prehistoric developments, which led to his ideas later being used in nazi propaganda. In modern form, the German *Siedlungsarchäeologie* was launched in the 1960's and 1970's when, in particular, Herbert Jankuhn (1977; *cf.* 1976; 1979) dealt with the topic on a number of occasions.

The roots of Swedish settlement archaeology too have been sought in studies conducted in the early 20th century (Ambrosiani 1987). As in Germany, however, a modern settlement archaeology oriented towards cultural geography developed later, in the 1960's and 1970's (Dahlbäck 1977: 379-385). Apart from scientific progress, surveys started in connection with the new general map (*ekonomiska kartan*) in the 1930's were also of importance for developments in Sweden, as was the new Antiquities Act, launched in 1942 (Selinge 1989). The new survey results together with the new legislation gave archaeologists a good starting point for conducting large excavations at a time of increasing land-use due to economic growth during the 1950's and 1960's. The material gathered in the surveys and the large number of excavated sites led to a need for general interpretations concerning settlement development (Selinge 1986: 4).

The first major Swedish settlement-archaeological synthesis was made by Björn Ambrosiani (1964). It dealt with settlement formation, the process of colonization and the development of villages in a study area in central Sweden, making use of over ten thousand registered sites and an analysis of historical maps of the area. It is not surprising that settlement archaeology was also the theme of the Nordic Archaeological Congress (*Nordiska arkeologmötet*) held in Sweden in 1964. During the following years, studies conducted by cultural geographers (on for example field systems) came to have great influence on settlement-archaeological research (*e.g.* Lindquist 1968; Sporrong 1971). New types of agrarian remains also gained increased interest among archaeologists when survey updates started to be made in the 1970's (Klang 1981; Hyenstrand 1983: 51; Widgren 1986; Selinge 1989: 19-21).

From a Nordic point of view the main framework of settlement archaeology is to be found in German and Swedish approaches. The concept itself is, however, far from self-evident; settlement archaeology has actually proved to be a rather complex term. Settlement studies can focus on a variety of scales, ranging from artefacts and activity areas within sites to the distribution of sites throughout an entire geographic region. There is no single definition of 'settlement archaeology' – a fact due in part to the problem of defining 'settlement' or 'settlement site' (*cf.* Carman 1999). In archaeology a settlement is generally considered to be a spatially and functionally distinct type of site characterised by the presence of domestic activities (Brück 1999: 55). Some scholars even stress that it is the presence of house remains in the archaeological material that makes it possible to identify a settlement or to address relevant settlement archaeological questions (Säfvestad & Björhem 1989: 44; Brück 1999: 63).

On the other hand, studies of settlement location and settlement patterns – often referred to as a branch of 'spatial archaeology' – may operate with more vague settlement data. In Finland, studies for example of Iron Age settlement units have mainly been based on cemetery materials rather than information from settlement sites. In its most extreme form such a study may proceed from the initial premise that cemeteries indicate the location of settlement and the cemetery datings the duration of settlement; one may accordingly presume that there has existed a settlement site close by each cemetery and that each cemetery belongs to one settlement unit (*e.g.* Lehtonen 2000: 46). This is a theoretically weak approach, which poses a number of problems, but is nevertheless understandable in areas where settlement sites have not been identified. The criticism of the representativeness of grave materials, however, can be very serious, pointing out that graves are representative only of the distribution in time of certain burial customs and the (geographical as well as chronological) distribution of those graves archaeologists have considered worth excavating (Näsman 1994: 21). Even if the criticism is not pushed that far, the main problem remains that a direct relationship between cemeteries and settlement is difficult to confirm; graves reflect religious beliefs, ideology and social strategies rather than the actual society and settlement (Bennett 1987; Cassel 1998: 27-30; *cf.* Lang 1996; Pihlman 2003; 2004).

Settlement archaeology is deeply concerned with spatial relationships. As Hyenstrand (1983: 10) once put it, it is settlement history and settlement archaeology that actually give cultural history a spatial dimension. The form of spatial analysis referred to as ‘settlement pattern studies’ covers most of the angles of the kind of settlement archaeology that has been in mind in the course of the present study. One general definition of a settlement pattern study is that it is a study of "the spatial distribution of human habitation and the activity over the geographical landscape, reflected in archaeological remains and their location relative to one another" (Mignon 1993: 285). This definition nevertheless covers only the material of the analysis. The interpretative part of such a study should include an exploration of the influence of environmental, economical and sociocultural factors on settlement location and density.

A more detailed definition of ‘settlement archaeology’, has been given by Lang (1996: 604) in connection with a large case study conducted in northern Estonia. In that case, settlement archaeology was defined as "a study of the establishment and development of human settlement (usually) in a long-term perspective and in its whole versatility, among others: the dimensions, variability and geographic distribution of settlement units, the choice of settlement areas, the mutual influences between man and environment, the creation and re-creation of cultural landscape, the land colonization (so-called *landnam*) and land-use systems, the social structure, proprietorship rights and territoriality of society – and all these in their mutual relations and interaction". There is no need to rewrite or present any new definition of settlement archaeology for the purpose of the Kemiönsaari study, but it may be in place to once more shortly reflect upon this issue (which of course can be regarded as a general view of settlement archaeology). First of all, the material studied must cover different types of archaeological sites, not only settlement remains. In addition to actual habitation, settlement archaeology should also explore the whole range of utilisation of the environment and presence in the landscape. Secondly, in order to understand change, a long-term perspective must be applied. And, finally, the interpretation of settlement structure and settlement change should take into consideration both environmental and economical as well as sociocultural and -political factors.

2.2. Some concepts

2.2.1. Areas and chronology

Valter Lang (1996) has applied three main concepts in his analysis of settlement: 1) the ‘settlement unit’ (Est. *asutusüksus*), which is the form according to which people live together (for example on a farm or in a village), established as a result of social and economic development of society; 2) the ‘settlement area’ (Est. *asutuspiirikond*), which is that part of the geographical area which has been turned into a cultural landscape; and 3) the ‘territory’ (Est. *territoorium*), which is a socio-political concept understood as the geographic expression of social power. Other useful and partly overlapping concepts could be 1) the ‘community area', defined as that part of the landscape inhabited and used by the basic economic and social unit; 2) the 'settlement zone', consisting of a group of community areas, and 3) the 'microregion', identified as a strip or cluster of settlement zones (Dreslerová 1995). Concepts such as these should always be defined, because their content may vary from case to case: for example a 'microregion' or 'micro-scale study' may in some cases mean a study of one settlement unit only (*e.g.* Ramqvist 1981). In the following discussion of Iron Age settlement in southwestern Finland, one starting point is the assumption that settlement sites and cemeteries in one way or another represent settlement units, that groups of synchronous settlement sites or cemeteries form settlement zones, and that natural geographical boundaries separate one or more settlement zones into microregions, probably also reflecting a division of the study area into socio-political territories.

Other important concepts in settlement archaeology are 1) 'site continuity' and 2) 'areal continuity' (Becker 1977, 30); these address the geographical relations of settlements as well as the dynamics of continuity and change. These concepts were already used in the preceding chapter in the example of Pre-Roman settlements, which in some cases seem to support the idea of a site continuity or areal continuity of settlement from the Bronze Age to the Early Iron Age. It must, however, be pointed out that the concept of 'areal continuity' – like the term 'semi-static development' as defined by Callmer (1986: 173) – often refers to rather small movements of settlements within one community area (*cf.* Thrane 1977: 117-118), while in this study the concept refers to continuity within a settlement zone or microregion.

Continuity can also be discussed in relation to different archaeological criteria of continuity, as suggested by Meinander (1986: 369; *cf.* Taavitsainen *et al.* 1998: 214-215; Taavitsainen 1999a: 354-355). According to this point of view, continuity may be assessed in terms of six different types of criteria: 1) physical-anthropological, 2) chorological, 3) topographic, 4) typological, 5) ritual, and 6) ecological or economic. The most important of these with regard to the present study is the criterion of chorological continuity, referring to the occurrence of archaeological evidence of successive periods within the confines of a specified geographical area. Chorological continuity is here regarded as synonymous with areal continuity and topographic continuity as synonymous with site continuity.

In all settlement archaeology and especially with regard to changing settlement patterns, one problem is the question of chronology: in other words, which sites are truly contemporary or which sites follow each other. Continuity or discontinuity is to a large extent a problem of establishing the longevity of settlements. When we view settlement site materials for example from the Finnish Pre-Roman Iron Age, it is close to impossible to know which sites have been used simultaneously, as settlement sites are often given only the archaeological dating of a certain ceramic type, covering half a millennium. It cannot be assumed that all sites have such continuity. This illustrates the point that there is no stable and synchronous material available for detailed settlement pattern studies. The illusion of site contemporaneity, however, is hard to abandon. Natural scientific dating methods may give the archaeologist some confidence, but even the time-spans provided by these do not necessarily solve the problem (*e.g.* Artelius 1989). From this it follows that mapped settlement patterns are just constructs based on the evaluation and chronological interpretation of survey results of varying representativity and validity. Changes in settlement patterns recorded by the archaeologist may, however, reflect real changes in settlement structure and organization.

2.2.2. Settlement units

Further concepts, related to the synchronous structure of basic settlement units, are 'single farm' and 'village' – a terminological pair forming the core of much settlement archaeological discourse. The problem of the village concept as well as questions on the time and reasons for village establishment have been the focus of many studies, for example in Scandinavia (*e.g.* Myhre 1999; Schmidt Sabo 2001; 2005). A single farm can be defined as a permanent self-supporting settlement unit, the inhabitants of which practise agriculture. In archaeology a single farm manifests itself in the form of a settlement site or a nearby cemetery situated within a resource area suitable for an agricultural subsistence strategy (Asplund *et al.* 1999; Taavitsainen 2000: 24). The village concept can have somewhat different definitions in history as well as human geography and archaeology. In old Swedish cadastral records, two or more farmsteads, which go under the same name, have been regarded as constituting a village (Sw. *by*) (Fallgren 1993: 61). In history and archaeology, the basis for the definition of a village seems to be a settlement consisting of at least two – or three (Becker 1983, 6) – farms cooperating in the use of land and resources (*cf.* Biuw 1992: 319; Scmidt Sabo 2001: 51-54). A village could thus be described as a unit formed by at least two cooperating farms, with opportunities for daily communication among the inhabitants; in rare cases, villages known from historical sources may furthermore have been distinguished for administrative or historical reasons without actual cooperation between farms (Asplund *et al.* 1999; Taavitsainen 2000: 24). In conclusion, a village is mainly defined by a quantitative criterion (at least two farms) as well as a functional one (cooperation) (Fallgren 1993: 61).

In archaeology, the quantitative criterion of a village can be established if sites interpreted as synchronous farms are situated close together, but proximity does not necessarily mean that a village community actually existed (*e.g.* Tusa 1993: 50). For example in certain historical villages several contemporary Iron Age cemeteries occur, probably indicating cemeteries for different families or farmsteads within the borders of the later village. These may have formed some kind of village units during the Iron Age (Kivikoski 1961: 162-163), if we can assume a general areal continuity with regard to villages from the Iron Age to the historical period (*cf.* Salo

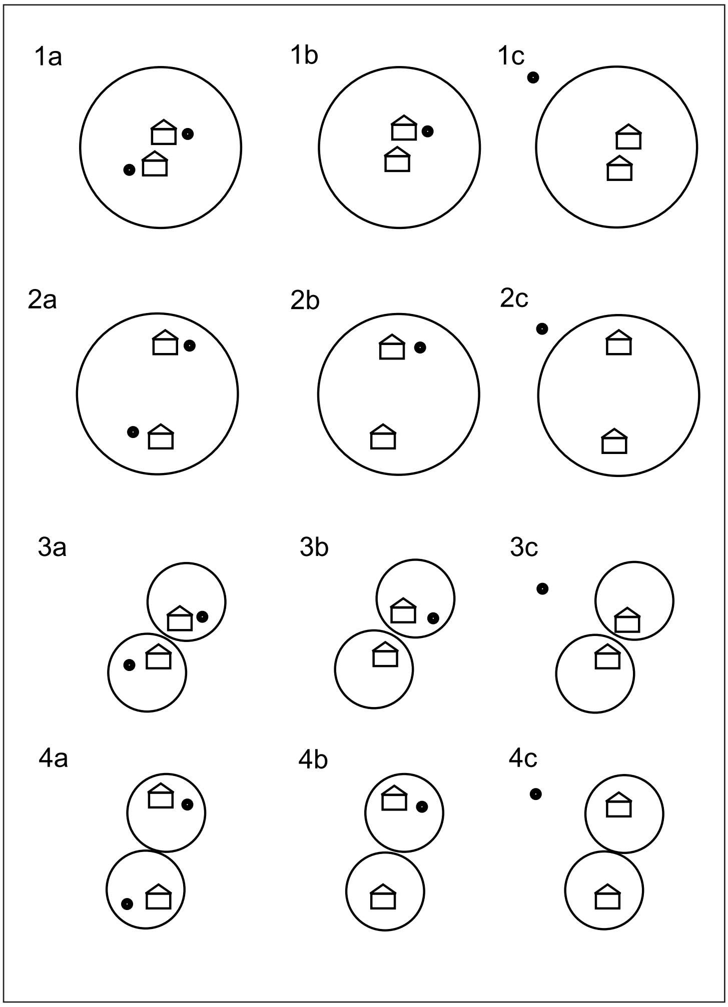


Fig. 4. Living together – working together? Theoretical combinations of farms, cemeteries (dots) and cooperation (circles). Farms may be located near (1,3) or far (2,4) from one another; cemeteries may be related to a single farm (a) or to several farms (b), or may be situated outside the basic settlement unit (c); there may be cooperation between farms (1-2), or single farms may function independently (3-4). Redrawn from Asplund et al. (1999).

1995a: 29). The functional criterion, *i.e.* the question of cooperation, is more abstract, but for example field systems, cattle roads and enclosures (*e.g.* Fallgren 1993: 64-65) as well as large cemeteries (Meinander 1980: 8; *cf.* Taavitsainen 1990: 144) have been taken into account in the discussion of village formation. It is obvious that the possibility of identifying village formation depends totally on the availability of suitable material, allowing interpretations regarding the functional aspect of the village. The normal survey material, consisting chiefly of cemeteries and settlement sites, is not enough, as distances and relationships between farms and cemeteries in a village may theoretically be the same as in a settlement structure based on independent single farms. Riddersporre (1999: 173) has presented a four-type model of organization of landscape and settlement, which exemplifies different possibilities of settlement structure (live together / live apart) and the form of landscape utilisation (work together / work apart). In order to achieve a better fit with the Iron Age archaeological reality where also cemeteries (bury together / bury apart) are of importance, the model can be increased to a nine-type one comprising three categories: 1) settlement location, 2) the form of organization of the cultural landscape and co-operation, and 3) the way in which cemeteries are connected with settlements (Fig. 4). If applying the idea of large Finnish Late Iron Age cemeteries representing village formation, the settlement unit constituting a village would probably have had the form 1b or 2b; the medieval village, with a common graveyard at the Church outside the village, probably the form 1c or 2c.

A third concept suggested for the description and analysis of the basic units of settlement is the 'primary unit' (Blomkvist 1999: 296-299). This term refers to the smallest functional settlement unit and its natural preconditions, thus bypassing the issue of village formation and allowing comparisons between units of different character without a strict classification. A neutral concept such as this could prove to be a good idea, especially as the village concept in archaeology is biased by the idea of the regulated medieval village (Frölund & Wilson 1993: 144). In Scandinavia, for example, it has been claimed that the Late Iron Age farming systems – regardless of whether they occur as larger fields or small scattered plots – indicate production organized by each farm separately, meaning that the common settlement unit during the period 500-900 AD was in fact the single farm; those agglomerated settlements that occurred could rather be described as single farm conglomerates than as actual villages (Olsson & Thomasson 2001: 8-9). The proper regulated villages were formed later in a feudal context during the period 900-1200 in large areas of northern Europe; in southern Scandinavia this development can be traced back to the 12th and 13th centuries. A need to refer to settlement without using the village concept thus is understandable, but the word 'primary' is a strange choice for this over-all concept, as the primary unit could just as well refer to the first established settlement within a given area. Why not simply use the term 'settlement unit'? One should also be aware of the problem of translation of the term 'village'. This word is now widely used in prehistoric archaeology, although the English historical 'village' usually consists of a number of farms and a church. The smaller 'hamlet' would probably describe the Finnish *kylä* or Swedish *by* more accurately (Fallgren 1993: 61; Schmidt Sabo 2001: 53).

While interesting, the question of single farms and villages is beyond the main scope of the Kemiönsaari study. The form of settlement will be referred to only in terms of settlement units, as no convincing new material related to village formation has been established. Village formation within the study area has most recently been discussed by Schauman-Lönnqvist (1989: 92-96), with particular reference to the Iron Age remains in the municipality of Salo. According to her interpretation, the cemeteries in the Isokylä area from the Roman Period, Migration Period and early Merovingian Period are representative of single farms. The conclusion is reached that the formation of the village known from historical sources happened over a 400-year period after the early Merovingian Period, which according to Schauman-Lönnqvist (1989: 93-94) may apply for the most part to the whole of southwestern Finland. This statement is in agreement with the general idea that village formation in Finland happened in the Late Iron Age, as suggested by Meinander (1980).

In more recent Finnish settlement archaeological debate, the question of village formation has not been foregrounded. Instead a new line of discussion related to other forms of relationships between Iron Age farms has emerged. The general idea, presented by Pihlman (2004), is that different categories of farms have existed and that leading farms and subordinate farms have formed economical and social units. This hypothesis, as well as other ideas on settlement structure and development presented by Pihlman, will be dealt with on several occasions within this book, starting with chapter 2.3.3.

One focus of the present study, rather than on villages or single farm-based economical units, will be on the option of formation of units of a larger scale. These units – 'territories' if using Lang's (1996) terminology – could be defined as territorial and organizational units, the settlement units of which are grouped together in a microregion and bound together by an areal (regional) identity and some form of superstructure of a socio-political nature. In the predecessor of this book – the licentiate thesis, which this study is based on (Asplund 2001a) – these units were discussed under the general concept of parishes and interpreted as units preceding the proper ecclesiastical parishes of the Middle Ages. The units were furthermore identified with the Finnish name for the parish, *i.e. pitäjä*. The way of handling the concepts proved to be problematic. It led to confusion especially regarding the parish concept and its relationship with the hypothetical organizational units of the

Iron Age.[8] In the following chapters of this book, the *pitäjä* and the parish will be discussed separately and the concept 'territory' (in addition to the 'microregion') will be used to categorize the archaeologically identified regions within which some form of common decision making is supposed to have existed. In the stage of research reached in the licentiate thesis, focus was especially on the possibility of socio-political development – the increase of complexity, power and social control – being explanatory with regard to changes in settlement patterns. One question asked was whether the development of Iron Age settlement in the study area could be explained in terms of the formation or re-formation of socio-political territories. In this book focus is to a certain extent changed back to environmental factors, but still sociopolitical development remains an important line of discussion and thus the dilemma of territories and the *pitäjä* is still relevant.

Earlier research on the history and prehistory of the Finnish *pitäjä* has addressed two main sets of problems. One relates to the identification of Iron Age predecessors of the historical parishes, using information on, for example, hill-forts as well as place-names referring to cult sites (*hiisi*) and the presumed farms of Iron Age chieftains (*moisio*) (Tallgren 1933; *cf*. Saloranta 2000: 39), or the division of land property (Suvanto 1973: 38-48, 68-70). The other line of discussion relates to how the *pitäjä* was constituted. According to one theory, the unit was formed as a result of some external force (Vilkuna 1964: 37-39). Others see it as a local constuct – maybe not a strictly organised administrative unit at all, but based above all on common aims and spontaneous cooperation (Jutikkala 1972: 7-9; Litzen 1977: 330-331; Taavitsainen 2000: 24). It has also been pointed out that there is a difference between the ecclesiastical parishes (Fi. *pitäjä*) and the administrative borders of taxation units, indicating that no single, absolute concept of the parish has existed (Litzen 1977). In the present study the problem of territories as well as the *pitäjä* is approached from a slightly different perspective. The discussion does not start from the unit itself, but from asking whether changes in sites patterns, *i.e.* site clustering in some areas in opposition to sparse finds in others could have been due to the formation of socio-political territories, and if so, could these territories be identified with the *pitäjä*.

8 Another example of this is the use of the Swedish word *socken* (parish) when referring to the hypothetical organizational units of the Iron Age (Asplund 2000: 53).

2.3. Environmental history and settlement archaeology in SW Finland

2.3.1. Historical background in brief

In many settlement archaeological studies there is a level of analysis addressing the relationship between man and nature in time. The archaeology of man and environment relationships can be referred to as 'landscape archaeology', nowadays not seldom in a form of social archaeology approaching notions of ritual landscapes or landscapes of power, landscapes of war etc. (*cf*. Fabech *et al.* 1999: 20). Originally the concept was applied to cases focussing on how a settlement interacts with the physical setting of the landscape as well as other environmental factors. Such approaches are related to studies of environmental history and cultural ecology.

In Finnish research, environmental aspects of historical research became popular rather late. Even in the 1950's and 60's, the findings of natural scientists were used mainly to explain historical development, but independent questions concerning the impact and importance of environmental factors were seldom raised (Heino 1995: 48). In the 1970's and 80's, new lines of ecological thinking had their influence on historical scholarship. The growing concern for the contemporary environment led to an increased interest also in past relationships between man and nature. Ecological terminology was often used in the field of archaeology as well, focussing for example on ecosystems and the energy production of the environment (Welinder 1984: 113-117; *cf.* Welinder 1986). In this context in the late 1970's and the 1980's the rise of larger environmentally oriented studies in the field of Finnish archaeology finally did come about. The first attempt in this direction was the "Isokylä project", which conducted large excavations in the Salo Isokylä area during 1978-1982 (Uino 1982; Schauman-Lönnqvist *et al*. 1986: 21-22). The project focussed on aspects of the Iron Age community, like settlement pattern, social organization and economy. For the first time multidisciplinary archaeometric studies (Aalto 1982; Carpelan & Jungner 1982; Matiskainen 1982; *cf.* Uino 1986) were incorporated as an essential part of the project. The results of the project chiefly concern the Isokylä settlement zone, but the analysis of Iron Age settlement development by Schauman-Lönnqvist (1989) deals with the whole Salo (Uskela) microregion (with the addition of the sites in the Halikko and Pertteli municipalities).

In those years questions concerning in particular the cultural landscape arose in archaeology, mainly influenced by earlier studies in the field of Scandinavian cultural geography. In Sweden the important project "The cultural landscape during 6000 years" (the Ystad Project) started in 1982, with the goal of a long-term multidisciplinary study of the relationship between society and the environment

(Stjernquist 1992; Berglund 1994). A year later, a similar three-year multidisciplinary project – the "Paimio project" – funded by the Academy of Finland started in southwestern Finland, focussing on changes of settlement and landscape caused by early land-use (Kukkonen 1985; Hiltunen 1986: 65-67). The project unfortunately succeeded in producing only some short articles; a major synthesis of its work is lacking. Its achievements are therefore not actually known. What is perhaps the most valuable of the results published is a discussion by Hiltunen and Luoto (1985) of Iron Age settlement, agricultural techniques, and the problem of evaluating the location of historical versus Iron Age fields and meadows. Due to the sparse published results it is not surprising that the Paimio Project is not mentioned at all in a brief review of Finnish settlement-archaeological research by Lang (1996: 344-346). Lang refers to only one example from mainland Finland – the Salo project – together with one study of settlement development in the Åland Islands (Roeck Hansen 1991). Special attention is furthermore given to a statistical study by Seger (1984: *cf.* 1983). Even if the total picture of settlement-archaeological research in southwestern Finland alone has been somewhat more complex (including for example analyses on the level of the parish or municipality), the fact remains that the Salo project was the most important undertaking in this field during the 1980's.

2.3.2. Changing environment – changing society

In the 1990's, the project "Changing Environment – Changing Society" at the University of Turku continued the multidisciplinary discussion on relationships between environmental factors and the development of settlement during the Iron Age and the Historical Period in southwestern Finland. The purpose of the project was to "examine the reciprocal circumstances that existed between settlement and environment in the Iron Age and the Middle Ages" (Salo 1994). No detailed project plan has been published, but the main framework of the project was related to the identification and evaluation of environmental change, adaptive strategies and their impact on settlement development. The main approach of the project was one of environmental determinism, but another purpose was to examine the role of sociocultural factors in economic processes as well as the role of human-induced environmental change (Vuorinen 1993: 17). One of the basic hypotheses of the project with regard to settlement development was that settlement structure, settlement intensity and settlement change would be due to economical factors; in other words, that the settlement process would reflect trends of economic development (*cf.* Vuorinen 1993: 21). Three volumes published by the project

(Nissinaho 1994; 1995; 2000) cover various topics of settlement and landscape studies, the archaeological research being best represented in the last one.[9]

The archaeological sub-projects included the analysis of settlement development of several of the big river valleys on the southwestern Finnish mainland as well as that of the southwestern Finnish archipelago. The results concerning the latter area have been best summarized in the publications by Tapani Tuovinen (*e.g.* 2002). Also some results concerning the mainland area have been published. In addition to a review of settlement development in the Aura river valley in the municipalities Turku and Lieto (Salo 1995a), the results of one of the archaeological sub-projects is known in the form of an abstract from the second EAA meeting in Riga (Nissinaho 1996), later followed by a separate study related to one specific settlement area (Nissinaho 2002; 2007).[10] Furthermore, two detailed studies have been published, dealing with Iron Age settlement development in the Vähäjoki river valley (Saloranta 2000) and the Aura river valley (Lehtonen 2000), both in the area of Turku, along with quite extensive statistics on Iron Age archaeological data gathered by the project (Vuorinen 2000b; 2000c; 2000d). Interesting from an archaeological point of view is, moreover, a tentative analysis of areal division of land, comparing Thiessen polygons drawn from the location of historical villages with real village borders (Nissinaho 1997).

Although presented in brief, Nissinaho's (1996) view of settlement development is interesting and deserves a short comment together with the results published by Saloranta (2000) and Lehtonen (2000). Nissinaho's (1996) investigation is based on material from three river valleys in southwestern Finland. Within her study area, the original catchment area for each settlement was about one square kilometre. In the Early and Middle Iron Age, until the end of the Merovingian Period, the same area of land-use allowed settlement growth. During this period the number of settlements doubled, which according to Nissinaho (1996: 60) indicates that the efficiency of the land-use system and agricultural technology increased. During the Viking Age new settlements were founded and settlement began spreading closer to the coast, where land uplift had added new agricultural resources. According to Nissinaho (1996: 60), the settlement structure became twofold, consisting of "large main settlements, each with several settlement units and the single farms of the settlers". Similar thoughts have been expressed in a microstudy of the Masku river

9 The last volume (Nissinaho 2000) has been reviewed by Markus Hiekkanen (2002a; 2002b).

10 In addition to being related to the "Changing Environment – Changing Society" project the later study by Nissinaho (2002; 2007) was influenced by the project Culture Clash or Compromise, which dealt with the Europeanisation process of the Baltic Sea area (*cf.* Blomkvist 1998).

basin; settlement grew bigger but did not expand during the main part of the Iron Age. According to Nissinaho (2002: 110-113; 2007: 202) this means that resources utilized from the core area of settlement were regarded sufficient enough – over time it was possible to raise the effectiveness of cultivation and during the same time new land was exposed for grazing due to the retreating shoreline; furthermore there was the possibility of using fishing as a stabilizing component of subsistence. Environmental resources would have allowed areal settlement expansion as early as the Iron Age, but farming obviously had reached a stage where it provided a surplus which made population growth and a higher settlement density possible within the old settlement area. In the Late Iron Age, however, farming and subsistence strategies developed in a direction promoting the start of colonization of new lands.

An increase of settlement density as well as settlement expansion during the Late Iron Age has also been recorded in the other study areas of the project. In the Vähäjoki river valley settlement units originating from the Viking Age seem to have been established in the area of earlier "primary" units (Saloranta 2000: 19). In the Aura river valley settlement before the late Merovingian Period has been described as unstable, but from the 8th century onwards a growth of settlement is indicated by extensive cemeteries; in the Viking Age a drastic expansion took place, as evidenced by the doubling of the number of cemeteries (Lehtonen 2000: 52-56, 79-80). The settlement in the Aura river area spread during the Viking Age both towards the coast and towards the upper reaches of the river. A rough comparison with settlement development in the Salo Isokylä area (Schauman-Lönnqvist 1989) shows a resemblance between the two areas, in the sense that cemetery materials indicate an modest increase of settlement units during the earlier parts of the Iron Age, but the main extension of the settlement zone took place during the Late Iron Age – in particular the Viking Age. In the Salo (and Pertteli) area, expansion was also directed both towards the coast and northwards inland.[11]

[11] What is lacking in the studies referred to is an adequate evaluation of the relationship between the Pre-Roman settlement and the later settlement development recorded in the analysis of cemeteries. Concerning the Aura river area it is mentioned that the Pre-Roman Iron Age is sparse in finds (Lehtonen 2000: 52-53). In the Vähäjoki river valley some "epineolithic" sites are mentioned as occurring in the same areas as later Iron Age settlement, while others have remained in outlying areas, seen from the point of Late Iron Age land-use (Saloranta 2000: 18). Schauman-Lönnqvist (1989: 95; *cf*. Uino 1986: 134-135) briefly mentions the uninterrupted continuity of settlement from the Bronze Age to the Middle Ages in the Isokylä settlement zone. In the microregions dealt with by Nissinaho (1988: 44), Pre-Roman finds seem to be missing; the oldest recorded settlement site mentioned is Myllymäki in Masku, with a radiocarbon age of 1840 ± 110 (Hel-2412), corresponding to the period 100 cal BC – 450 cal AD. In this case only cairns, probably datable to the Bronze Age, indicate a possible long-term areal continuity.

Nissinaho has used the settlement formation process described above as a model for other parts of her study area. Reasons for dissimilarities and variation in settlement patterns in different areas are suggested to be found in ecological diversity and deficiencies in environmental development (Nissinaho 1996: 60-61). This environmental deterministic view is understandable in the context of the main ideas of the "Changing Environment – Changing Society" project. Synchronous variation as well as changes through time may, however, also have other reasons. It can be accepted that environmental conditions set some outer limits and that inner factors such as demography and the economy are of importance. Still it may be questioned whether this is enough; in some stages of development social behaviour too may have been crucial in determining where and how people chose to settle.

2.3.3. From village into town

A wider range of social aspects was foregrounded in the project "From Village into Town, Changing Ways of Life in southwestern Finland from the 10th to the 16th century" carried out during the years 2001-2005 by the University of Turku and the Turku Provincial Museum. The approach is well exemplified by the discussions aimed at understanding the very concept of 'way of life' (Suhonen 2005).[12] The central questions were, how main social conditions and factors changed or remained the same, when the city of Turku developed as a new structure for the newly Christianised society, how the urban way of life changed and was differentiated, and how trade and production developed during the Middle Ages (Pihlman *et al*. 2001; *cf*. Ruotsi 2003). The project was divided into three sections, one of which a rural section, aimed at exploring the condition of Late Iron Age society in the surroundings of the later city.[13] The rural section produced results and ideas concerning Iron Age settlement and settlement organization which also are important and relevant to discuss in the case of Kemiönsaari and its surroundings.

12 The change of perspective when compared with Changing Environment – Changing Society point up already when comparing titles of books published by the projects: "Sites and Settlements" (Nissinaho 2000) now changed into "Rituals and Relations" (Mäntylä 2005b).

13 One specific site of importance for the rural section was the Mulli settlement site in the municipality of Raisio, close to Turku. It was excavated 1994-1997 by a venture called the "Raisio project", *i.e.* already prior to the start of From Village into Town. The site consists of a farmyard with its buildings, trench system, structures and artefacts from the 10th to the 13th century (Vuorinen 1997; 2003: 191-198; Pihlman 2005). It is one of the best preserved Late Iron Age settlement sites excavated in Finland, providing opportunities for various analyses, detailed dating and interpretations as well as reconstructions.

In particular ideas presented by Sirkku Pihlman (2004; *cf*. 2003: 32-33) concerning Iron Age settlement structure and the representativity of cemeteries are important. According to her view each cemetery represents a settlement unit larger than the single farm – a unit so big that it later formed several Historical Period villages. The cemetery rituals were restricted to, or performed by, the leading family of the unit. Other families – due to kinship or other ties – were part of the unit, but lived at farms which did not practise cemetery rituals of their own. The relationships between leading farmilies and other families may have been based on real kinship, kinship-like constructed relations, rented farms or unfree tenants. Pihlman's theory is influenced by Mats Widgren's (1998) idea of a social settlement hierarchy during the Middle Iron Age in Sweden. Widgren has presented a hypothetical division where a system of smaller and bigger farms existed with different status and dependence relationships. On the lowest level (A) there would have been small homesteds where the tenants were unfree, with the obligation of taking care of animals or land. These homesteads were subordinated some bigger farm and often existed in peripheral areas, which is one reson why they are difficult to find archaeologically. On the next level (B) there would have been middle sized farms occupied by free men, often close to farms of the third level (C); the relationships between these may have involved kinship, protection etc. The third level farms were big, based on specialized agriculture, having the possibility of gaining surplus, which could be invested in bigger or additional buildings, larger herds etc. The highest level of farms (D) would have been of the same kind, but surplus was also collected through control of handicraft production and trade; maybe also tribute was paid by other farms.

The idea of different kinds of dependence relationships between farms adds a new aspect to the discussion on settlement units. One may ask how a combination of a leading farm and subordinate farms is to be understood in the framework of single farms versus villages (or hamlets)? If the subordinate farms could be regarded as self-supporting (albeit some obligations towards another settlement unit) we would be dealing with single farms belonging to different hierarchies (something like 4b in Fig. 4). However, if the lower range farms were in some way totally dependent on the home farm, the combination could possibly be regarded as only one single farm unit consisting of the main farm and outlying production units. The possibility of the economical unit of several farms forming a village-like combination is not unthinkable, either. If the interdependence of farms had been close to mutual, symmetric cooperation (like 2b in Fig. 4), this would fulfil the functional criterion and we would have to consider whether to actually use the concept of the village (or hamlet).

Ideas such as these enter a range of possible social as well as economical relationships and hierarchies into the debate of settlement organization and settlement patterns and how these are reflected in the archaeological record of southwestern Finland. One of Pihlman's (2004) ideas is that the unit consisting of several farms could be spread out in different resource areas and thus add to the stability of the unit. What seems to be the idea, however, is that these farms would have been situated within the area of the oldest villages known from historical sources, *i.e.* not in the archipelago or other remote areas. The social complexity discussed by Pihlman would thus concern hierarchies within a settlement zone or microregion. These are interesting thoughts which – although archaeologically unattested – will be discussed further in the last chapters of this book.

2.4. Environment and behaviour

2.4.1. Man and nature

In research based on environmental determinism during the 1970's and 1980's, humans were often regarded as dependent on nature, with few opportunities to control their physical surroundings. It is, for example, evident that cultural ecologists have seldom asked why people have accepted changes arising from environmental or technological causes. Was it just because of the slow rate of change, or did someone perhaps persuade others to adopt new practices (Paynter & McGuire 1991: 3)? Also the Braudelian concept of the *longue durée* has often been connected with ecological determinism, as long-term physical or material factors are seen as constraints on human behaviour (*cf.* Knapp 1992: 6). Nowadays, however, the relationship between man and nature is regarded as more complex. The post-processual reaction which began in the 1980's started a debate on (among other things) the possibilities of human exploitation and manipulation of the environment, as well as on the subjectivity of landscape. The consequence of such a debate with regard to settlement archaeology is that non-material factors also could have been of importance for changes in settlement patterns. The discussion should be taken one step further, to the level of social, political and psychological behaviour as neither environment nor demography or economy alone decide where and how people will live. Human behaviour is largely learned, not genetically or environmentally determined. From this it follows that existing social and ideological conditions (as well as random historical accident) must be taken into account in attempting to understand human responses to differing environmental conditions. We could, for example, ask whether changes in settlement patterns might occur even in the absence of any major ecological shift, without changing utilisation of the environment, or during times of just limited demographic growth.

Kuna (1995: 49) has briefly touched on the question of how sudden and unexpected changes in the natural and social environment might have affected past societies. In his view, such events as disasters, famines or technical inventions are nothing more than stimuli, to which societies could have responded in different ways. His point is that conscious change-oriented behaviour is just one of the possible reactions to crises or inventions. This is certainly true. Continuity or change in settlement was probably not always logical, since individuals and groups of people may at times have been poor interpreters of cultural and environmental situations; changes may have been ill timed or behavioural responses inappropriate (Gumerman 1994: 5). As already stated in the preceding chapter, time scales are important. Responses towards long-term development have been made by individuals acting within a time-perspective of a lifetime and, on the other hand, choices made by individuals may have led to long-term change. Long-term effects of manipulation of the environment, for example, have been impossible to overlook by people involved in the actions (*cf*. Keller 2003: 85-86).

An attempt to understand prehistoric settlement development should involve different aspects and perspectives – spatial, environmental, economic, demographic, social and behavioural. Furthermore, the interpretation of spatial observations of changes in site patterns must involve a discussion of the scale of change; areal discontinuity or change has to mean something quite different from the changes within the same community area or settlement zone. In the Kemiönsaari case, the emphasis should thus be on both environmental conditions and behavioural aspects, exploring the nature and context of Iron Age remains, areal settlement stability, the general development of food production, demography as well as the development of sociocultural or -political complexity and its possible effects on settlement development.

2.4.2. Archaeologies of space and place

The growing interest among archaeologists in phenomenology, semiotics and other approaches towards the complexity of landscape conceptualisation (*e.g.* Ingold 1993; Tilley 1994; Children & Nash 1997; Knapp & Ashmore 1999; Jennbert 2000) is due to a general theoretical change in the disciplines of both geography and archaeology. In geography, the trend towards new, humanistic ideas of science evolved similarly to that of the post-processual critique of archaeological theory. It has become possible to challenge the scientific fixation on a single reality, and to stress subjective interpretations: geographical phenomena can be viewed through the experiences of the individual (Haarni *et al.* 1997: 16). Whereas earlier, people could be seen as part of a landscape, today landscapes are considered to be part of people (Ingold 1993: 154). The meanings – values, feelings, explanations and memories – attached to the environment have been considered increasingly important, regardless of whether they are related to a real or imaginary world. The theoretical framework for this kind of human geography stems from humanistic philosophies such as existentialism and phenomenology, whose aim is to deal not only with the physical demands of human beings but with the human mind as well. To consider the attitudes of prehistoric societies towards the landscape may be as important as the ecological and functional dimensions of settlement archaeology.

One concept that came under increasing scrutiny by geographers during the 1990's was that of 'space'. The common denominator for these new visions of space is that it is no longer perceived as a neutral scene or container, within which social action takes place, but as a factor in social construction (Haarni 1997, 88; *cf.* Tilley 1994, 10). According to Christopher Tilley (1994: 10-11), spaces are socially constructed and are subject to unceasing reproduction or change; thus spaces also always involve subjective dimensions. In humanistic geography – as in the phenomenology of Tilley – 'place' is another essential concept. The idea of place was discussed and redefined in the 1970's by Yi-Fu Tuan (1977; *cf.* Chapman 1997: 32). 'Place' refers to locales to which meanings are attached. Place is not an objective location but a phenomenon, the content of which is created by human experience and interpretation (Haarni *et al.* 1997: 16-17; *cf.* Tilley 1994: 15). A place is formed when abstract space becomes a subjective place.

Even if places are always subjectively experienced, the shared experiences and common visions of the community with regard to the character of specific places affect the formation of regional group identities (Haarni *et al.* 1997: 18; Knapp & Ashmore 1999: 14-16). In the forming of an areal (regional) identity, four (in some cases coinciding) stages can be distinguished: 1) a territorial shaping, when an area is distinguished from others through the recognition of borders (*cf.* Ingold 1993: 156); 2) a symbolic shaping, when icons and symbols characterising the area are formed; 3) an institutional shaping, when institutions of importance for the area are established; and 4) the stabilising of the role of the area (Riikonen 1997: 184). Following this division, the territorial shaping of an areal identity, during, for example, the Iron Age, could have meant the recognition of natural geographical borders or the borders of the cultural landscape. Furthermore, one could speculate whether not also centres – the farm, a river or river valley, the core of the settlement zone or microregion – could have been important for the experiencing of areal identity. Icons of the symbolic shaping of areal identity could have been the family shrine, places for common rituals etc. The question of institutional shaping and stabilisation remains more abstract, but can of course be discussed. In the latter parts of this book institutional issues such as common decision making and territorial organization will be explored.

Mental dimensions of landscape thus should be part of a discourse of settlement archaeology, even if not always easy to apply. As the following chapter will show, from a long-term perspective there is considerable variation in the uses of space and in the ways in which places are foregrounded in the landscape. In particular the way in which Bronze Age people conceptualised their landscape seems to have been distinctive. What lies behind the creation of architectural space in places where large cairns were built in a way suggesting that this must have been a part of contemporary group identity? Do these icons actually relate to the making of places more than to buried individuals or to some segment of society? Other aspects of the conceptualisation of space and place can be discussed with respect to hill-sites, as well as to the formation of central settlement areas during the Iron Age. It can be assumed that the bond between people and landscape in these territories was experienced most strongly in relation to the home farm and the cemeteries where important rituals were performed, but probably also in relation to the cultural landscape of the microregion. Outside the central settlement areas, the connection was probably different. The wilderness could not be utilised in a routine manner; forest, land and water had a mythological content and had to be dealt with through various rituals. This could be reflected in the archaeological material regarding, for example, single finds. In such a context, single find distributions may equally well relate to the ritualised landscape as to economic activities directly.

3. Archaeological material in a changing landscape

3.1. Stone Age material of the study area

Settlement sites and stray finds indicate utilization of the archipelago since the Stone Age, even though the amount of land was much smaller at that time due to the considerably higher water level. The total study area (including the mainland part) contains 237 recorded Stone Age settlement sites, 91 of which are considered uncertain. Included in these numbers are Late Neolithic sites defined as belonging to the Stone Age and/or Bronze Age. The number of sites within the archipelago part of the study area is 52 (Fig. 5). Sites marked as uncertain are mostly cases consisting of a number of artefacts found together in locations without clear evidence of domestic activities. The number of settlement sites in relation to altitude shows a similar trend on the mainland as in present-day archipelago municipalities (Fig. 6). This suggests a basically similar development of settlement and utilization over the whole study area.

A considerable difference can be observed between the number of uncertain cases on the present-day mainland and in the archipelago. On Kemiönsaari only one settlement site has been registered as uncertain. This must be due to the fact

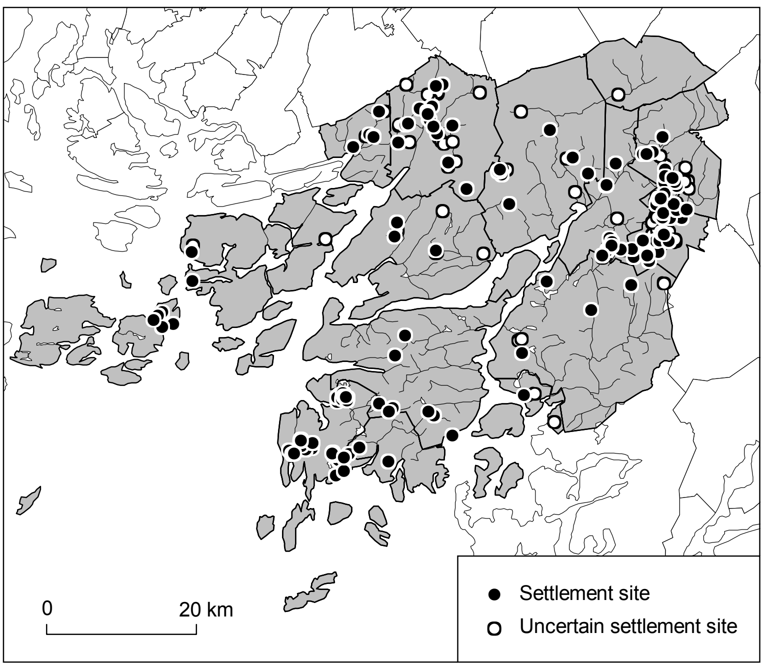
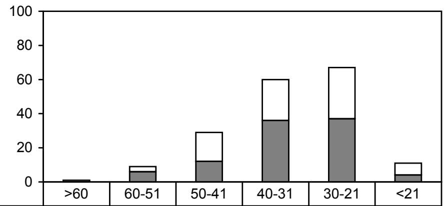
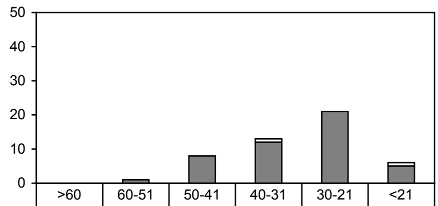


Fig. 5. Stone Age settlement sites in the study area, from Mesolithic to Late Neolithic.



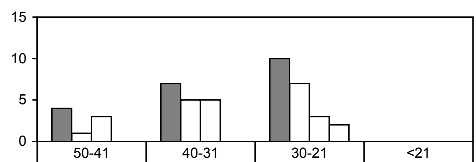
	>60	60-51	50-41	40-31	30-21	<21
□ Uncertain	1	3	17	24	30	7
■ Settlement sites	0	6	12	36	37	4



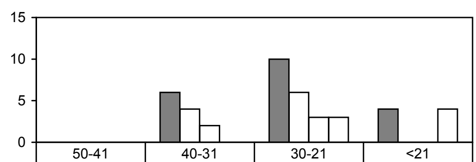
	>60	60-51	50-41	40-31	30-21	<21
□ Uncertain	0	0	0	1	0	1
■ Settlement sites	0	1	8	12	21	5

Fig. 6. Stone Age settlement sites in mainland municipalities (Halikko, Kuusjoki, Muurla, Paimio, Perniö, Pertteli, Piikkiö, Salo, Sauvo, Särkisalo) grouped by altitude (upper diagram) and Stone Age settlement sites in archipelago municipalities (Dragsfjärd, Kemiö, Nauvo, Parainen, Västanfjärd) grouped by altitude (lower diagram).

that the island material is better documented; thus it has been easier to decide whether a given site should be regarded as a stray find site or a settlement site. As the occurrence of ceramics can be one criterion for domestic activities, a further comparison can be drawn, applied only to those sites where ceramics have been found. This comparison further supports the idea of a similar development on the mainland and in the archipelago (Fig. 7). Ceramics have been found in a higher percentage in the contemporary archipelago municipalities, probably due to test excavations and closer surveys.



	50-41	40-31	30-21	<21
■ Ceramics	4	7	10	0
□ Ka	1	5	7	0
□ B	3	5	3	0
□ Ki	0	0	2	0



	50-41	40-31	30-21	<21
■ Ceramics	0	6	10	4
□ Ka	0	4	6	0
□ B	0	2	3	0
□ Ki	0	0	3	4

Fig. 7. Stone Age settlement sites containing ceramics in mainland municipalities (Halikko, Kuusjoki, Muurla, Paimio, Perniö, Pertteli, Piikkiö, Salo, Sauvo, Särkisalo) grouped by altitude (upper diagram) and Stone Age settlement sites containing ceramics in archipelago municipalities (Dragsfjärd, Kemiö, Nauvo, Parainen, Västanfjärd) grouped by altitude (lower digram). The number of sites with ceramic material attributed to the Comb Ceramic culture (Ka), the Battle Axe culture (B), and the Kiukainen culture (Ki) has been added for comparison.

The distribution of stray find sites (Fig. 8) does not add very much to the picture of Stone Age utilization of the study area. Some points, however, can be made. There are far more stray finds on the mainland than, for example, on Kemiönsaari, probably reflecting a kind of artefact-per-area ratio and the total time of utilization of the different parts of the study area. This has not been explored further. At the level of individual municipalities, we may note Dragsfjärd, in the archipelago, with 30 settlement sites but only 20 stray find sites, compared to Perniö, on the mainland, with only 8 settlement sites but 233 stray find sites (Fig. 9). This illustrates the differences in the representativeness of materials from different parts of the study area. In Dragsfjärd, settlement sites have been actively searched for by amateur archaeologists (Myhrman 1990a; 1990b); in Perniö, on the other hand, surveys have probably focussed on other types of remains. Another reason for the high number of single artefacts recorded from Perniö is probably the fact that the local museum has long maintained an archaeological collection of its own, thus stimulating local people to report and donate their finds.

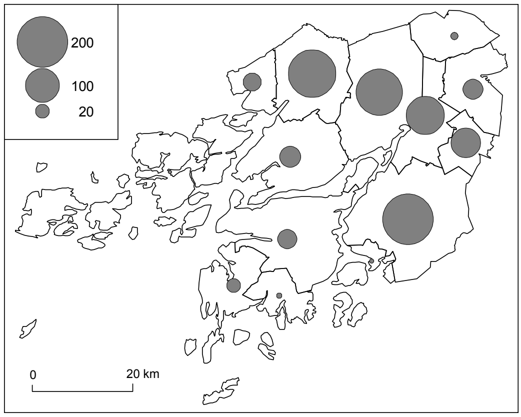


Fig. 8. Distribution of Stone Age stray find sites in study area.

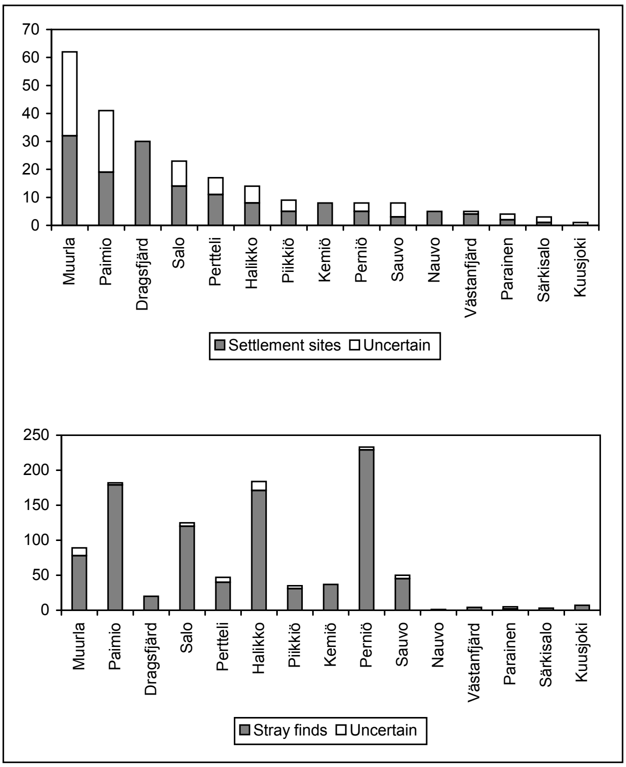


Fig. 9. Number of Stone Age settlement sites according to municipalities (upper diagram), compared with the number of Stone Age stray find sites according to municipalities (lower diagram).

3.2. The Stone Age material of Kemiönsaari

3.2.1. Pioneers in the archipelago

Approximately 7000 years ago, in place of the present-day Kemiönsaari island, there was a rocky outer archipelago, the largest islands of which were the size of a few square kilometres (Asplund 1990: Bild 1A; 1997b: 217; Tikkanen & Westerholm 1992: Figure 4A). At that time salt water had already begun to flow into the Baltic Sea through the Danish sounds that were opening up; the salinity of the water started to rise and the phase of the Ancylus lake was about to end. Already at this stage people moved to inhabit the largest islands, several kilometres from the more sheltered inner islands and dozens of kilometres from the mainland of the time. These people were experienced navigators and their subsistence must have been based on diverse marine hunting.

Five separate Stone Age settlement sites, the altitudes of which vary between 40 and 55 metres above sea level, have been distinguished in Nordanå in the municipality of Dragsfjärd. According to the contour lines of the base map the settlement site situated highest, that of Bötesberget, is more than 50 metres above sea level. Considering its elevation, it has probably been inhabited during the final stage of the Ancylus lake (like maybe some of the other sites as well). The oldest shore of the Litorina phase in Dragsfjärd is at an elevation of roughly 44 metres (Glückert 1976: Appendix I; Hatakka & Glückert 2000: Fig. 6; *cf.* Glückert 1996).[14] The finds from the settlement sites consist mainly of quartz, although

Period	Dating (cal BC)
The Suomusjärvi Culture (S)	8400-5100
Early Comb Ware (Ka 1)	5100-4100
The Jäkärlä Group (Ka J)	4300-3000
Typical Comb Ware (Ka 2)	3900-3400
Late Comb Ware (Ka 3)	3600-3200
The Pyheensilta Stage (Ka P)	3000-2400
The Battle Axe Culture (B)	3200-2900
The Kiukainen Culture (K)	2400-1500

Fig. 10. General Stone Age chronology of southwestern Finland. The different periods of Comb Ware as well as the Jäkärlä Group and the Pyheensilta Stage are sub-periods or local variants of the Comb Ceramic Culture. The absolute datings (some of which are rather problematic) have been given according to Huurre (1998), with modifications regarding the Jäkärlä Group and the Pyheensilta stage (Asplund 1995) as well as Typical and Late Comb Ware, the datings of which have been adjusted according to AMS chronology (Pesonen 2004).

[14] A more exact dating of the oldest sites on Kemiönsaari with the aid of shoreline dates has been hampered by difficulties regarding the calculation of shore level displacement of the area. This problem is referred to in closer detail in Chapter 4.

at the settlement site of Bötesberget flint was also found (Asplund 1997b: 220). The artefact finds represent simple forms with no explicit dating features; there is, however, nothing in the nature of the finds themselves that would preclude dating them to the Mesolithic. It is nevertheless questionable whether the settlement sites can automatically be considered as belonging to the Suomusjärvi culture of the Finnish Mesolithic (Fig. 10); the presence of flint material could imply a certain amount of contact with the Estonian Kunda culture, where the use of flint was more common than in Finland.[15]

The settlement sites of Nordanå indicate that humans were already active in the area at the time when the first islands larger than islets emerged from the sea in the Late Mesolithic. This impression is emphasised by settlement sites found in Ölmos in an area called Sandbrinkarna, which like the ones in Nordanå are situated high above the present-day sea level, at approximately 45-55 metres. Settlement sites situated at an elevation of approximately 40 metres have furthermore been found in Storfinhofva and in Galtarby in Västanfjärd (Fig. 11).

It would be hard to think of other reasons for the settlement of the outer archipelago in the Late Mesolithic than the great significance of marine hunting for the economy of the time. The settlement sites of Nordanå, Bötesberget and Ölmos were most likely bases from which mainly sealing, fishing and fowling were practised for a certain part of the year. At other times people inhabited the coastal area of the mainland or the larger islands near the coast, from which it was also possible to hunt game and practise a more diverse subsistence economy. The fact that people were seeking to inhabit coastal areas, the archipelago and even the rough outer archipelago was not connected with the need to find new areas to inhabit as mainland settlement grew; rather the reason was that the archipelago provided a good living environment for Stone Age man. Results in the field of cultural ecological studies concerning marine adaptation and the common, universal features of archipelagic settlement indicate that prehistoric coastal settlements were more stable than inland settlements. In addition to main settlements that were used year round, people could also inhabit temporary hunting and gathering sites; related to this is the possibility of rapid travel by boat, which was far less laborious than travelling on land (Tuovinen 1990b: 16). Archipelagos with a long and broken coastline are especially favourable to this development. In such environments natural resources and means of subsistence were more

[15] The impact of the Kunda culture in the very origin of postglacial settlement of Finland has been stressed (Takala 2004). The Mesolithic sites on Kemiönsaari are from a later stage, but the Bötesberget site might still reflect a similar southern influence. The location is one of the westernmost areas in Southern Finland where a Mesolithic flint industry has been traced.

Fig. 11. The oldest settlement sites plotted against the 40 metre elevation line, representing the Early Neolithic shoreline. The oldest sites in Nordanå and Ölmos are most likely a lot older than the shoreline reconstruction.

diverse than inland (Tuovinen 1990a: 23; 1990b: 16-17). During the final stage of the Ancylus lake, moving to inhabit small islands was a natural choice for humans, as fishing, fowling and, to an increasing degree, sealing formed an important part in the subsistence strategy. The first habitations may have been dwellings occupied during the hunting and gathering seasons for the people living permanently in the area of present-day Perniö, but it is likely that the settlement soon had the necessary qualities for year-round occupation.

In comparison, the earliest settlements of the Åland Islands were previously considered to be traces of temporary visits during the winter sealing season. Later, however, it has been assumed that permanent settlement was possible on this outer archipelago as well; if longer hunting trips were made, they were just as likely to have been made from the permanent settlements of the archipelago to the mainland than the other way round (Nuñez 1986: 21-22; 1990: 44-46; 1994: 116). In addition to hunting, the islands already in the Stone Age offered protection, firewood and vegetable food.

Among the topics considered in the debate over the suitability of the archipelago for Stone Age settlement is the so-called *polynya* phenomenon, which refers to currents that remain open in the winter. These open-water areas serve as resting places and sources of food for animals – as oases in the frozen sea – as well as important hunting sites for people. Nuñez (1990: 46-47; 1994: 121-122; 1996: 29-32) has proposed that in the Stone Age the broken archipelago of the Åland Islands may have been a favourable setting for currents that would have maintained openings in the ice throughout the winter; these in turn would have attracted people to inhabit the outer archipelago. The reconstruction of ancient sea currents is close to impossible; such phenomena, however, may also have been significant closer to the mainland, as in the area of Kemiönsaari, when the archipelago started to develop over 6000 years ago. Finds related to the first population's immigration into the area provide no direct answers as to the reasons for settlement. However, studies of burnt bones found from the earliest settlements do offer some information on the marine nature of the hunting and trapping that was practised. According to present-day knowledge, people started to utilize the Kemiönsaari area soon after the first islands had risen above the surface of the sea. The same tendency towards an early utilisation of the Stone Age outer archipelago can be seen on the Estonian islands, on the Åland Islands, and on the eastern coast of Central Sweden (Kriiska 1995; 1996a; 1996b; 2002; Kriiska & Saluäär 2000; Nuñez 1994; Åkerlund 1996).

3.2.2. The Subneolithic

The settlement site Söderby II, situated at an elevation of over 35 metres in the village of Söderlångvik in Dragsfjärd, can be considered the oldest identified Subneolithic settlement site.[16] The most significant finds are a few fragments of decorated pottery that have as decoration elements short and distinct comb impressions (TYA 364:8,13), and in one case a dense so-called spruce twig ornament composed of impressed lines (TYA 364:13). The last-mentioned piece has been regarded as belonging to the younger stage of Early Comb Ware (Ka 1:2), and would thus be stylistically the oldest ceramic find from Kemiönsaari (Asplund 1997b: 223).[17] Comb-impressed fragments of pottery found at the same settlement site may belong either to the Early or the Typical Comb Ware (Ka 2), or to the ceramics of the Jäkärlä Group (Ka J; Edgren 1966), typical of southwestern Finland. On the basis of other finds from the Kemiönsaari island it would appear that the ceramic style of the Jäkärlä Group was dominant in the area, since Typical Comb Ware occurs with certainty in only one settlement site, Ansvedja in Dragsfjärd. Ceramics of the Jäkärlä Group that have been identified with certainty have so far only been found in Söderlångvik (Nöjis) in Dragsfjärd and in Bogsböle in Kemiö (TYA 610:5-6), but other settlement sites also have ceramics that are likely to come under the Jäkärlä Group (Asplund 1997b: 224-228).

Ceramics have also been found in several settlement site areas likely to date back to the Late Comb Ware (Ka 3) period. The settlement site most clearly belonging to this period is Oxmossen, situated in Storfinhofva in Dragsfjärd. The pieces of pottery found in Oxmossen are decorated just with pit impressions (TYA 517:15; Asplund 1997b: 227). Oxmossen is probably the largest of the prehistoric settlement sites discovered on Kemiönsaari island; finds have been discovered over a distance of a hundred metres from the sides of a forest ditch dug through the settlement site, and there are indications that the settlement site may have been even larger. However, land areas had by that time grown large enough to make year-round settlement possible (Fig. 12). This may explain the extensive and distinct traces of settlement in some sites.

16 A Subneolithic culture is contemporary with and to a certain extent similar to the Neolithic cultures in Europe, having adopted Neolithic features (like the use of pottery), but differing as to not practising agriculture or cattle husbandry (Gimbutas 1956: 11; Meinander 1961: 3-4).

17 The identification of the spruce twig ornamented piece is problematic due to its small size. The composition of the clay paste could in principle make possible the interpretation that this is not a piece of a ceramic vessel at all, but a fragment of an ornamented clay figurine. If so, it would belong to the Early Neolithic type of clay idols (Europaeus 1930: 85-88; Äyräpää 1942: 82-91; Heikkurinen-Montell 1986), which would not alter the typological dating of the site.

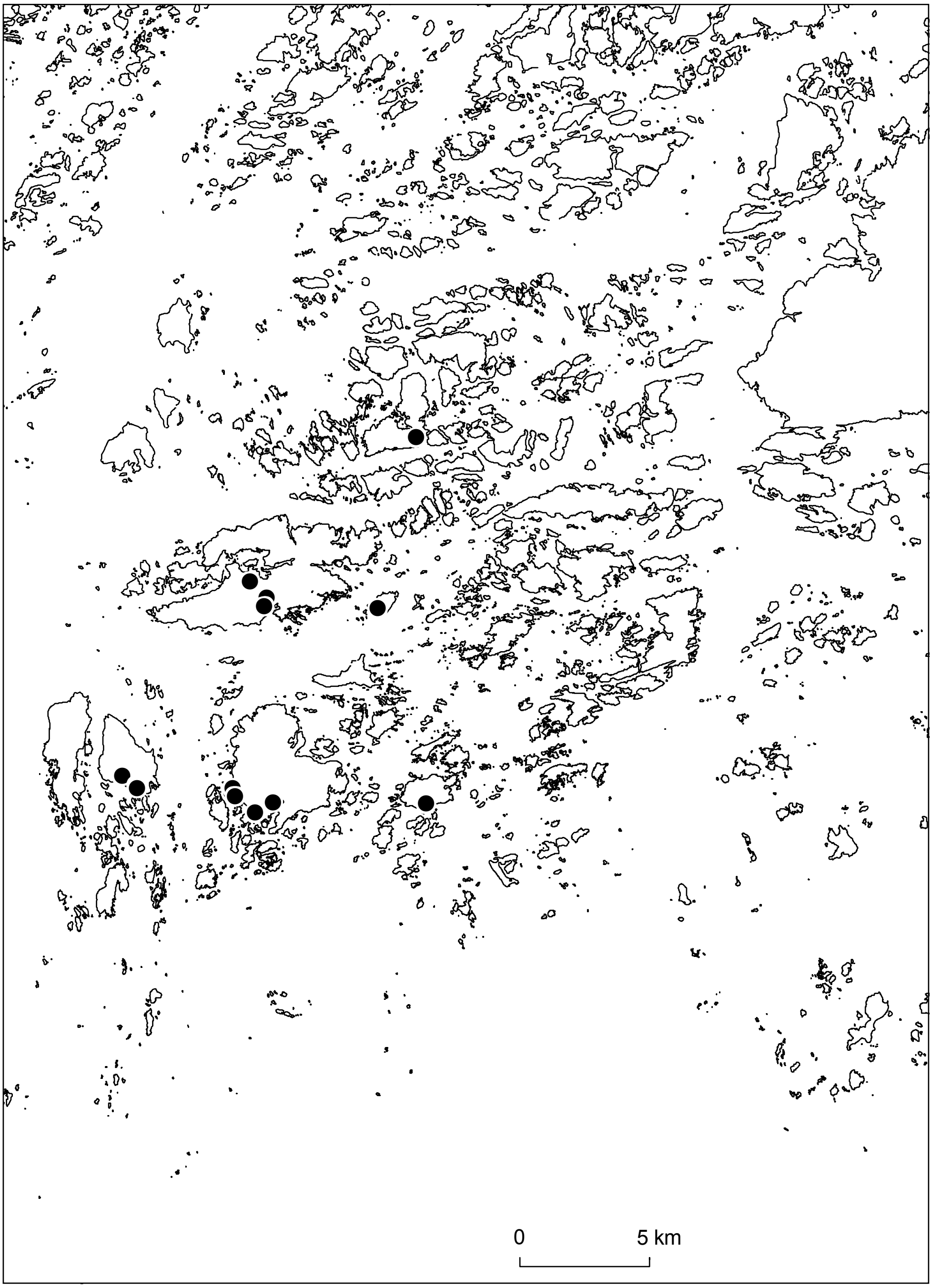


Fig. 12. Subneolithic settlement sites at 30-39 metre elevations plotted against the 30 metre contour line, representing the sea level at around 3500 BC.

Finds clearly belonging to the Pyheensilta Stage (Ka P) have so far not been identified on Kemiönsaari, although some of the settlement sites at the altitudes of the Late Comb Ware shoreline or below must date back to this period. Kemiönsaari would in principle present a good opportunity to conduct research on the various phases of the Comb Ware Period as well as the Neolithic proper, as there are numerous settlements at varying elevations in a relatively small area. This would make possible local comparisons of settlement remains from different periods. For example, all the main settlement phases from the Late Mesolithic to the Late Bronze Age can be found within a radius of about one kilometre in the area of the villages of Söderlångvik and Hammarsboda in Dragsfjärd.

During the Subneolithic Stone Age the islands of Parainen were also inhabited. The oldest known settlement site in this part of the archipelago is Fagervik, which is presumably connected with the Pyheensilta Stage, although identifiable decorated ceramics have not been found from the site (Asplund 2000: 14-25). The site, however, is better dated than most archipelagic settlement sites. A traditional radiocarbon dating of charcoal from a hearth gave a result of 4080 ± 70 BP (Su-3244), and an AMS dated charred nutshell the result of 4060 ± 45 BP (GrA-14033). A calibration of the dates gives a result of ca 2880-2460 cal BC. The utilisation of the investigated part of the settlement site thus occurred some time during this timespan. This is the earliest direct evidence of human occupation of the islands of Parainen. The outer archipelago landscape then occupied by Stone Age man resembled the environment where pioneer Stone Age settlement was established a couple of millennia earlier on Kemiönsaari.

3.2.3. The Battle Axe Culture

In the Åland Islands – in the settlement sites of Långbergsöda in Saltvik, Trännmyra in Sund as well as Jettböle in Jomala – there occur, among finds representing other cultural groups, some ceramics of the Battle Axe Culture (Cleve 1948: 487; Dreijer 1979: 21-23). This, together with some battle-axe finds, indicate that Battle Axe Culture elements have been present also in the archipelago. Finds from the Åland Islands, however, are still rather limited (Stenbäck 1998: 95; 2003: 82). This is the case also within the archipelago part of the study area outside Kemiönsaari where there is only one stray find connected with this culture. This is a fragment of a battleaxe (KM 15526), found in Parsby in Parainen. The elevation of the site is so low that it must have been submerged during the period of the Battle Axe Culture, which rules out the possibility of the find being part of a settlement. On Kemiönsaari the situation is different as several finds indicate a Battle Axe Culture precence in

Fig. 13. Battle Axe Culture settlement sites (squares) and other sites on approximately 25-29 metre elevations (dots) plotted against the 25 metre contour line, representing the sea level sometime between 3000-2500 BC.

the area. This is interesting as the settlement sites of the culture are generally less confined to the coast than those of the Comb Ceramic Culture. It has traditionally been thought that the archipelago and the utilization of marine resources did not have great significance for people associated with the Battle Axe Culture.

Several decades ago, a whole battle-axe was found in Mattkärr in Kemiö and two halves in Stenmo (KM 10925; KM 14538; KM 19232:7; Asplund 1997: 237). In addition, some symmetrical axes without shaft-holes have been found, some of which presumably belong to Battle Axe Culture artefacts. However, no clear indication of Battle Axe Culture settlement in Kemiönsaari was found until 1986, when small, well fired chamotte-tempered fragments of pottery were discovered at Söderby in Dragsfjärd among the finds of a Stone Age settlement site (TYA 363:4). The next finds connected with the Battle Axe Culture appeared in 1988, when ceramics of the culture were found at Storfinhofva in Dragsfjärd and at Galtarby in Västanfjärd (Fig. 13). The Storfinhofva finds consisted of a few quartz flakes and eight fragments of pottery, three of which (TYA 474:1, 2) are gray and weathered; the other five (TYA 474:2, 4, 5, 7) are brown, of denser clay material and contain chamotte. The latter ones resemble the Corded Ware of the Battle Axe Culture. The Storfinhofva finds were found rather high, approximately 35-40 metres above the present-day sea level, which would suggest that the settlement site was not situated at the shoreline. It would in fact appear that the settlement site is connected with a swamp to the north of it, which in the past was probably part of the present-day lake of Lemnästräsket. In test excavations at the Galtarby site fragments of at least one embossed vessel (TYA 478:20; Asplund 1997b: 238) were found in addition to fragments of comb-impressed pottery. According to the contour lines of the basic map, this settlement site was situated on a hillside that sloped gently northwards towards the bottom of a bay opening to the east.

A test excavation was also performed on the settlement site at Söderby in 1995. While the purpose was to collect material on Battle Axe Culture in particular, the few ceramic finds of the excavation are connected either with the Jäkärlä Group or with the period of the late Comb Ceramic Culture; in fact no traces of a Battle Axe Culture settlement were found. Since the fragments of pottery found earlier nevertheless have to be associated with the Battle Axe Culture, one interpretation may be that a Comb Ceramic settlement site was situated at Söderby which was visited by people who had adopted Battle Axe Culture elements – either during the original use of the site or after it was abandoned. A similar situation would appear to have occurred at the settlement site of Senatsberget in Hertsböle, Dragsfjärd, surveyed in 1996 under the direction of Marja Sipilä; at this site, in addition to ceramics belonging to the Jäkärlä Group or the late Comb Ceramic Culture, dense reddish fragments of pottery were also found that were interpreted as Battle Axe

Culture ceramics. Two different kinds of ceramics also appeared at Storfinhofva. Such observations are not uncommon in the settlement sites of the Comb Ceramic Culture on the mainland either (*e.g.* Carpelan 1973: 195; Huurre 1995: 74). For some reason Battle Axe Culture artefacts have often ended up in layers of Comb Ceramic settlement sites, either left behind by the population of the Comb Ceramic Culture or when another population has exploited a previously settled area. The relationship between these cultures is unclear. In Finland the Battle Axe Culture has traditionally been considered to have arisen as a result of immigration, but some arguments have also been put forward supporting theories of population continuity (Luoto 1987; Asplund 1995: 73-74; 1997b: 239; Lang 1998; 1999c: 328-330; 1999d: 364-367; *cf.* Künnap & Lang 2000: 59).

All in all, the Battle Axe Culture settlement sites of Kemiönsaari support the view that the population of the culture could also have inhabited the archipelago. Battle Axe Culture settlement sites in marine environments are sparse in general, but there is a noteworthy resemblance to the situation south of the Gulf of Finland, where a number of settlement sites and cemeteries have been found on the large islands of Estonia (Kriiska 2000: 70-71). Although the few known bone finds do not as yet provide reliable evidence of this, it is likely that fishing and possibly other marine hunting was practised from these archipelagic settlements. At the same time, however, we should keep in mind that the Kemiönsaari archipelago during the time of the Battle Axe Culture already had rather large land areas that would certainly have allowed cultivation and the keeping of livestock. As the settlement sites identified in the archipelago are situated on the largest islands it thus seems possible that the Battle Axe Culture may have practised the same main means of subsistence in the archipelago as well as on the mainland. The means of subsistence utilized remains uncertain. Varying views have been presented, as direct evidence is insufficient.

In studying the locations of Battle Axe Culture settlement sites in Dragsfjärd and Västanfjärd, no common denominator could be found that would have indicated the reasons behind the choices of location. The settlement site of Söderby most resembles the location familiar from the Comb Ceramic Culture, a hillside sloping south, but in this particular place the gentle slope may have been attractive, not as a good beaching spot, but for its shore meadow. The lakeside location of the Storfinhofva settlement site also differs from the Comb Ceramic coastal settlement sites. Furthermore, both the Storfinhofva and the Galtarby settlement sites are situated on hillsides sloping north, which is not considered a typical feature of Comb Ceramic settlement sites. The topography of the settlement sites would therefore appear in the archipelago to indicate a tradition divergent from the Comb Ceramic Culture or a different subsistence strategy too.

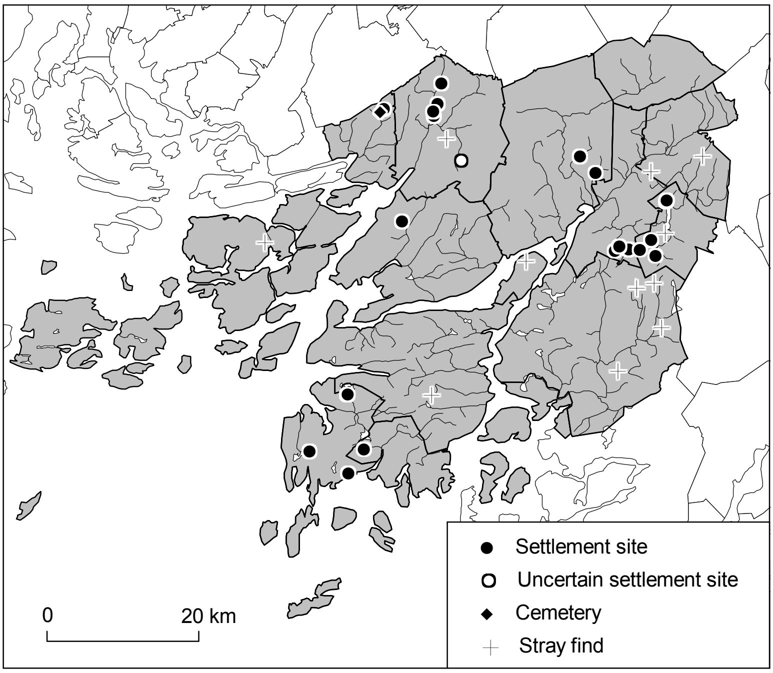


Fig. 14. Battle Axe Culture sites with known locations in the study area.

An evaluation of the material related to the Battle Axe Culture from the rest of the study area indicates no clear tendencies toward coastal settlement apart from the Kemiönsaari sites (Fig. 14). It must be remembered, however, that due to changes caused by shore-level displacement, some of the mainland sites have probably also been situated quite close to the seashore during their time of use. This has also been suggested regarding some Battle Axe Culture stray finds from Sauvo, all of which seem to have been found along the ancient shoreline (Luoto 1990b: 22, Kuva 6). In general, the distribution of sites shows a pattern roughly similar to the general distribution of Stone Age sites presented above; in other words, Battle Axe Culture sites have been found in areas where Stone Age sites in general have been found. This pattern probably has some significance related to the large scale topography of the area, *i.e.* the area of the Piikkiönlahti and

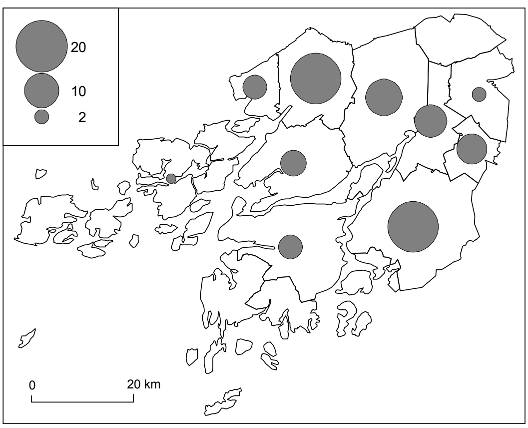


Fig. 15. Number of Battle Axe Culture stray finds according to municipalities.

Paimionlahti bays in the NW part of the study area, the Halikonlahti bay in the east and the large islands of Kemiönsaari in the south.

In closer detail the distribution of sites seems to be a product of the ways in which archaeological research has been conducted in the area. The distribution of Battle Axe Culture stray finds (Fig. 15) resembles the overall distribution of Stone Age stray finds presented earlier, and suggests that Perniö as well as Kemiö were areas utilized by people of the Battle Axe Culture, even though no assured settlement sites have been found so far. The stray finds taken into account (85 occurrences) were mostly battleaxes and a couple of shouldered axes. In connection with the examination of Battle Axe Culture stray finds, the distributions of finds of symmetrical (94 occurrences) and asymmetrical (94) stone axes were also compared, as four-sided symmetrical axes are often assigned to the Battle Axe Culture. The two types showed almost identical distributions. No further conclusions, however, could be drawn from this, as the calculation depends above all on how the axes have been described in the archival sources and, furthermore, symmetrical axes also occur in Comb Ceramic contexts.

3.2.4. The Kiukainen Culture

The Late Neolithic and Early Bronze Age Kiukainen Culture of the coastal area of southwestern Finland was distinguished as a separate culture phase in the beginning of the 20th century (Ailio 1909: 93). Settlement sites of the Kiukainen Culture have also been found in the Åland Islands (Meinander 1984c; Stenbäck 1998; 2003: 83, 92-93; *cf*. Lucenius 2004). On the Kemiönsaari island the first settlement sites of this phase were found in the 1940's at Jordbromalmen in the village of Kärra in Dragsfjärd and at Knipängsbacken in Söderlångvik. After that the next find of a Kiukainen Culture settlement site occurred at Nedergård in the village of Östermark in Kemiö in 1985. Nowadays there are also known settlement sites dating back to the same period in Hammarsboda in Dragsfjärd, in the village of Branten in Kemiö and in Österbacka in Östermark (Fig. 16).

In evaluating the survey results concerning Late Neolithic settlement sites in the comparative study area, it can be observed that only a relatively small number of sites have been identified (Fig. 17). One problem is that so few sites on the mainland coast can be identified on the basis of ceramics. As identification on the basis of elevation above sea level pertains only to coastal sites, there may be a bias regarding potential non-coastal settlements. In addition to the areas settled earlier, the Nauvo archipelago in the western part of the study area now shows up on the distribution map. Only one Kiukainen Culture stray find is known from this part of

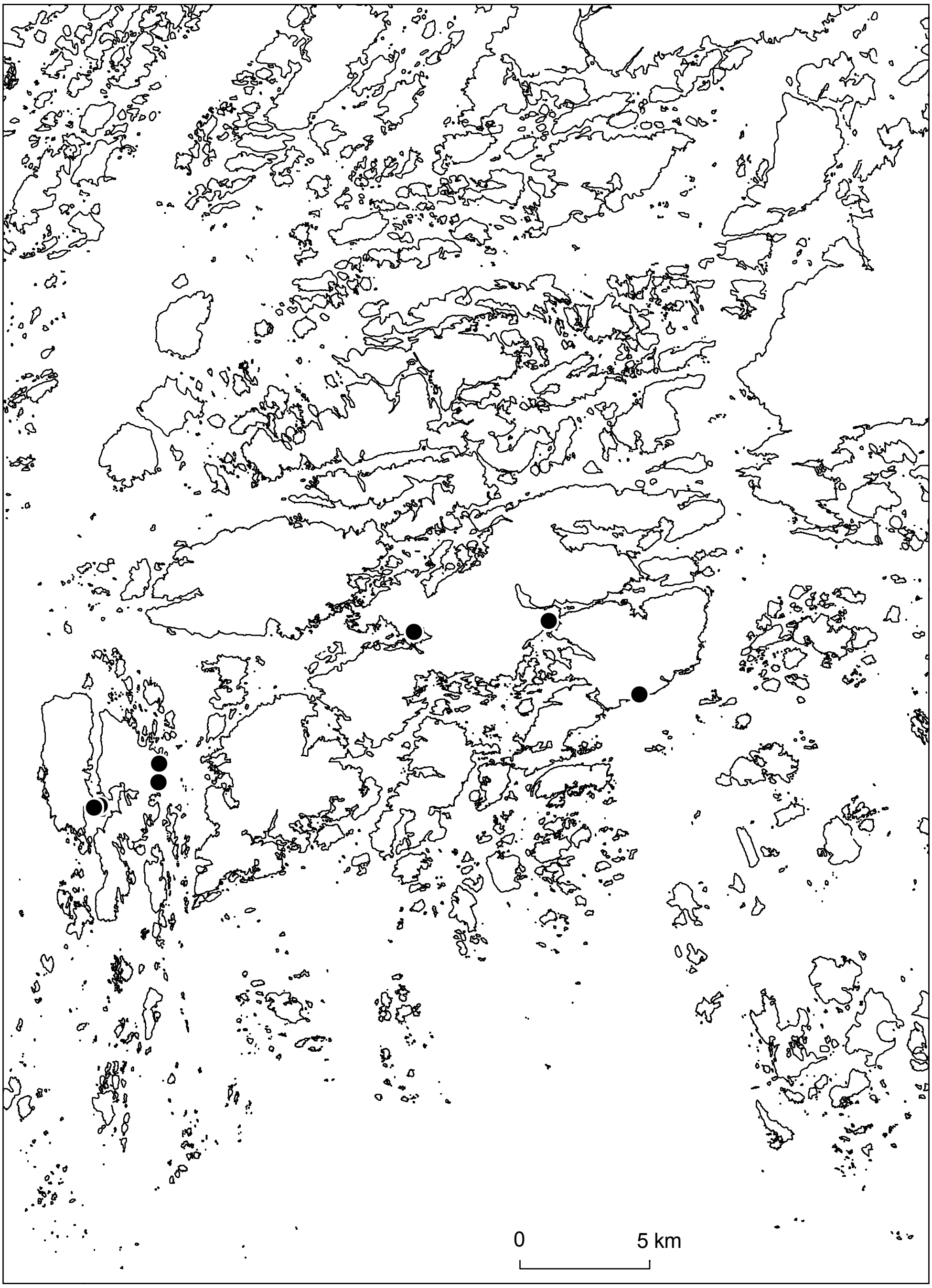


Fig. 16. Late Neolithic / Early Bronze Age settlement sites plotted against the 20 metre contour line, representing the sea level around 2000 BC.

the archipelago – a simple shaft-holed axe (KM 7995:15) from Parainen – but within the small area of Nauvo, Parainen and Rymättylä (outside the study area) there are no fewer than ten sites which might be classified as Late Neolithic settlements (*cf*. Asplund 2000: 31-35). These sites, at approximately 20-30 metre elevations, are hardly contemporaneous. It is also possible that they are not all proper settlement sites. However, together they form a geographically consistent group of sites indicating settlement during the very last stage of the Comb Ceramic Culture, the Kiukainen Culture or the Bronze Age. It is not possible to present more exact dates without closer investigation of the sites, except for the Koupo Rösbacken site in Parainen, with a radiocarbon date of 3630 ± 35 BP (Ua-34666), *i.e.* 2130-1890 cal BC, as well as the Simonby settlement site in Nauvo, where the find material (TYA 608:1-4; TYA 652:1-4) provides a basis for dating (Asplund 2000: 35-37). The stone items found at Simonby all represent forms without traits characteristic of a specific period, but the pottery has some features indicative of the age of the site. Some of the pottery fragments are porous and have a smooth surface, while others have a harder clay mixture without porosity and a slightly striated surface. The only decorated piece (TYA 652:4) shows a round pit impression. The finds from Simonby can be interpreted as belonging generally to the Kiukainen Culture, but chronologically they may equally well extend to the Bronze Age, as indicated by the striated ware.

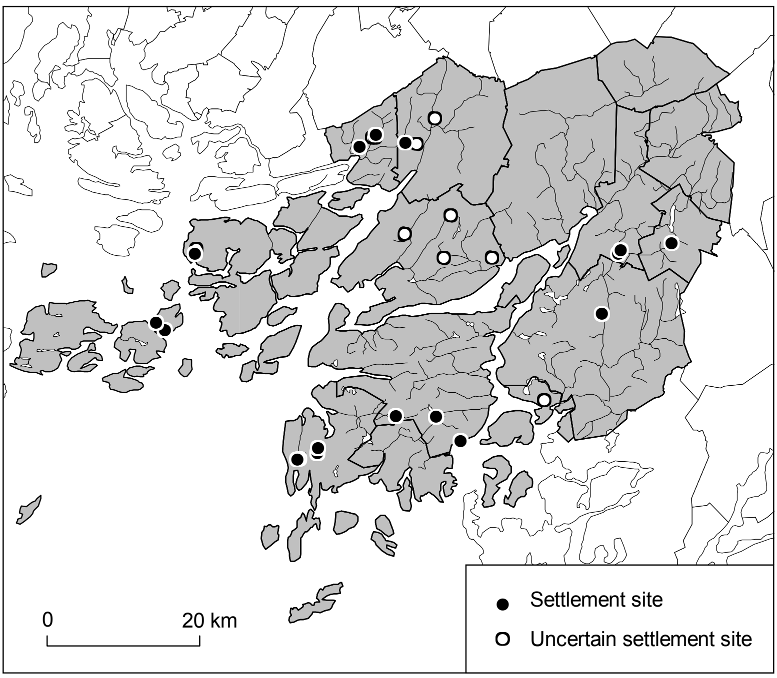


Fig. 17. Late Neolithic / Early Bronze Age settlement sites in the study area.

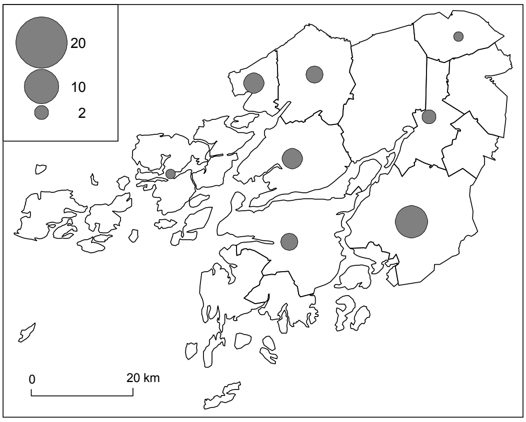


Fig. 18. Kiukainen Culture stray finds according to municipalities.

Preliminary information regarding a site called Storängen in Nauvo might also be mentioned, lying at an elevation less than 20 metres above the present-day sea level; the find material (KM 32005) consists of quartz- and stone flakes and a stone with an unfinished hole (Hellsten 1998). Despite the evidence of stone technology, the elevation suggests that this site belongs to the Bronze Age rather than the Stone Age.

Artefacts pertaining to the Kiukainen Culture include among other things simple shaft-holed axes, narrowbladed axes, and asymmetrical axes and chisels (Meinander 1954a: 76-103). Two simple shaft-holed axes have been found in the village of Östermark in Kemiö: one probably from the settlement site situated in Nedergård (KM 19747:2; Asplund 1997b: 241) and the other from the settlement site of Österbacka (KM 12702; Meinander 1954: Abb. 39-40; Asplund 1997b: 241). In addition, a typical Kiukainen Culture asymmetrical axe or chisel with a segmental cross-section (KM 17625) has appeared as a stray find in Pederså in Kemiö. On the comparative map showing the stray find distribution according to municipalities, simple shaft-hole axes, narrow bladed axes and Kiukainen type chisels have been assembled (Fig. 18). It should be noted, however, that some of the simple shaft-hole axes evidently belong to the Bronze Age (Meinander 1954a: 78-85; Kriiska 1998). The number of finds is not large, but it may suggest that the activity area of the Kiukainen Culture has nonetheless been the coastal zone, as Piikkiö, Paimio, Sauvo, Kemiö and Perniö show a slightly greater number of finds than municipalities closer to the inland.

The Kiukainen Culture is a somewhat problematic period in this study, as the settlement site materials seem to cover part of the Bronze Age (Meinander 1954a: 186; Siiriäinen 1969; 1974; Carpelan 1973: 196; 1982: 269-270). There is still no inner chronology of the Kiukainen Culture based on, for example, ceramics. There is, however, reason to believe that the youngest Kiukainen Culture phase is contemporary with the Early Bronze Age, which makes more detailed interpretations of settlement site chronology difficult. For this reason the Kiukainen Culture settlement is equally a problem of the Bronze Age.

Cairns in close connection with some of the Kiukainen Culture sites, such as Jordbromalmen and Hammarsboda in Dragsfjärd as well as Östermark in Kemiö, might suggest such continuity or contemparaneity between the Kiukainen

Culture and the Bronze Age (Asplund 1997b: 245-246), but there may also be other explanations. One is simply that cairns could have already been built during the Neolithic (*cf*. Okkonen 1998; 2003). Another interesting explanation is that cairns could have been built not in connection with settlement, but at places of general importance for the Bronze Age people in the archipelago. Thus the cairns on, or very close to, the culture layers of the Kiukainen Culture sites might not relate to cult places or funerals contemporary with the settlement sites, but to remembrance after the sites had been abandoned.

All in all, the purpose of this survey of Stone Age materials has been to demonstrate (within the chronological framework possible to apply) the continuity of utilisation and settlement of Kemiönsaari from the Mesolithic to the Late Neolithic. Kemiönsaari actually has one of the best materials for exhibiting areal (chorological) settlement continuity inside the study area. This is probably in part due to a generally marine-oriented economy in the study area during the Stone Age, which made the archipelago a favourable area for settlement. However, there are reasons to question marine hunting and gathering as the only means of subsistence from the Middle Neolithic onward,. At the time of the Kiukainen Culture further indications of agriculture occur, which will be dealt with in closer detail in a later chapter of this book. It seems, however, that this new feature of subsistence did not lead to any remarkable changes during the Stone Age. At least it did not affect the formation of the archaeological record to any noteworthy extent – settlement sites are the main identifiable elements in the cultural landscape of the whole of the Stone Age. Changes, however, followed soon afterwards.

3.3. The Bronze Age transformation of landscapes

3.3.1. The general setting

In the Bronze Age, Kemiönsaari together with the nearest municipalities formed an area of settlement, in which features of the western Finnish Bronze Age culture are seen in several cairns (Fig. 19) and in some bronze artefact finds. Cairns appear all along the coast northwest (as well as east) of the study area, but larger groupings of cairns are not found until Vakka-Suomi in the northern part of Finland Proper (*cf.* Tuovinen & Vuorinen 1992: 12). Kemiönsaari and the surrounding area may thus have been a comparably important settlement area in the Bronze Age. The population density may have been higher than the average, and utilisation of the area active. Another explanation could be that new cultural traits moved into this area more easily than into others.

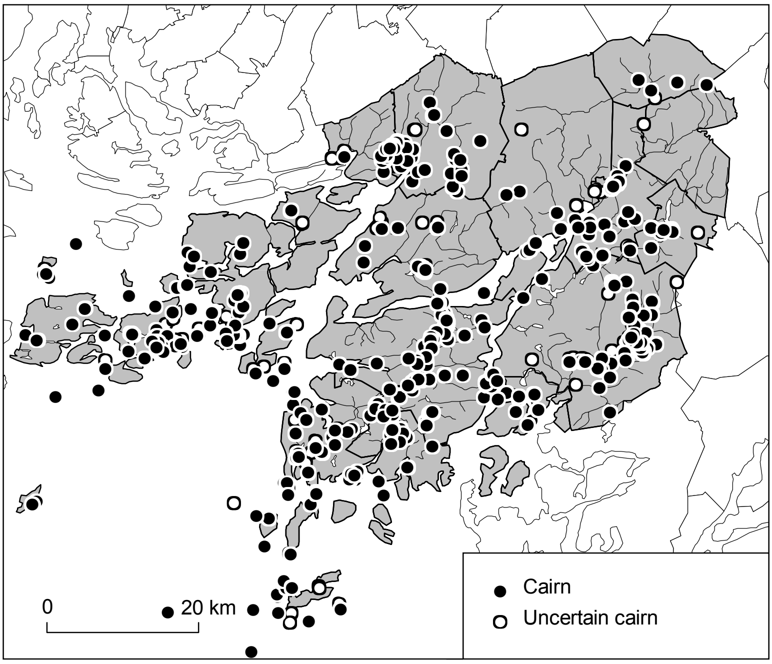


Fig. 19. The distribution of cairns in the study area. The assumption is that quite a few of these are from the Bronze Age.

Almost thirty Bronze Age bronze artefacts have been found within the study area, which is a comparably high number, considering that only about 150 have been found in the whole of Finland (Edgren 1993a: 128). The rarity of bronze artefacts reveals the peripheral position of Finland with respect to the central areas of the Scandinavian (as well as the eastern) Bronze Age culture. Another factor in the low number of finds is certainly the fact that broken artefacts were not thrown away, but were instead recast or traded for intact ones. Bronze was cast in Finland at least from the Late Bronze Age onwards, but finds providing evidence of this are rare. Apparently most of the western bronze artefacts were brought to Finland as finished products. Metal did not yet at this stage supplant the other tool materials. The use of stone technology continued and only few possessed bronze tools. Despite this, it is possible to question the view that all Bronze Age metal artefacts were luxuries. True luxury artefacts are rare, and one can surmise that, for example, bronze axes were used specifically as axes and not just as status symbols.

Finnish finds from the Early Bronze Age (Periods I-III) (Fig. 20) consist mainly of weapons or axes.[18] Kemiönsaari is no different: a dagger dating back to the

[18] Within the present study area no Period I bronze objects have been found. Such objects are rare in Finland also in general (*e.g.* Siiriäinen 1984: 54). With regard to the bronze artefacts, the Early Bronze Age therefore refers to the Perods II and III.

Period	Dating (cal BC)
I	1700-1500
II	1500-1300
III	1300-1100
IV	1100-900
V	900-700
VI	700-500

Fig 20. Bronze Age chronology, following the suggestion by Vandkilde et al. (1996: Fig. 24). In addition to these periods the term "Early Metal Period" is used in the study, referring to a period comprising both the Bronze Age and the Pre-Roman Iron Age, i.e. 1700-1 BC.

Early Bronze Age has been found in a cairn in Långnäs and a palstave in a cairn in Hammarsboda, both in Dragsfjärd. The period III dagger of Långnäs has a cast handle with spiral decorations on the knob (KM 2503 A:1; Hackman 1897; *cf.* Asplund 1997b: 247). It can be considered one of the finest single artefacts of the Finnish Bronze Age. As for the palstave of Hammarsboda (KM 1910; Björck 1883; *cf.* Asplund 1997b: 247), it belongs to a more common artefact type, of which there are thirteen or fourteen finds in Finland (Salo 1984a: 152; Edgren 1993b: 130). To these must be added at least one palstave that was mistakenly catalogued in the collections of the Museum of Perniö as an iron artefact (Fig. 21).

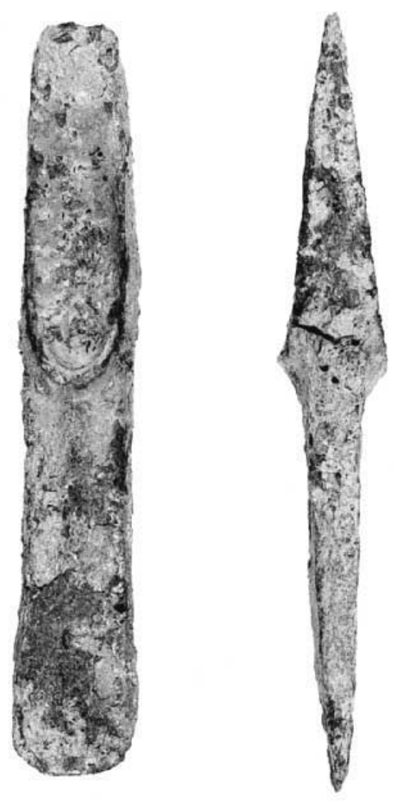


Fig. 21. Bronze axe (Perniön museo 3076).

Bronze artefacts of the Early Bronze Age have also been found in other municipalities of the study area – actually in such high numbers that the focus of the distribution in Finland would seem to be in this area (Meinander 1984b: Kuva 5; Salo 1984a: 165; *cf.* Lõugas 1985: Abb. 1). Of the clearly classified artefacts, thirteen are from this period, nine of which are axes (Fig. 22). Most of the finds are stray finds. Another group of Late Neolithic or Bronze Age artefacts with a similar general distribution, and mostly found in stray find contexts, are flint sickles (Fig. 23). Their distribution pattern, which is similar to that of Early Bronze Age metal objects, perhaps suggests a similar dating for the

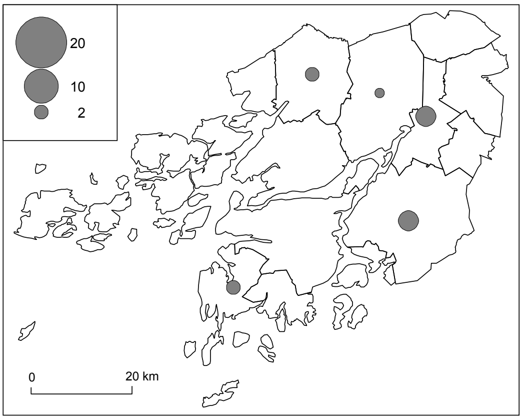


Fig. 22. Early Bronze Age metal objects in the study area.

Fig. 23. Two flint sickles from the collection at the local museum in Perniö (unnumbered and Perniön museo 46:1).

sickles too (Salo 1972).[19] Within the study area, thirteen sites have been counted, with a total of sixteen complete or nearly complete sickles and one fragment; none of them are from Kemiönsaari (Fig. 24). Some of the finds indicate that these objects were deposited in wetlands, probably as sacrifices. Such treatment of agricultural items may be one indication of the growing importance of cultivation at the time.

During the Late Bronze Age (Periods IV-VI) the focus of the distribution of metal in Finland moved from eastern Finland Proper to the lower reaches of the Kokemäenjoki and Eurajoki rivers in Satakunta, which would indicate a change in the processes of the spreading of metal. One possibility is that contacts in metal trading had now shifted from Southern Scandinavia to Central Sweden, where more and more bronze objects were beginning to be cast. On the other hand, it is not self evident that artefacts picture contacts with their area of manufacture directly, *i.e.* the different distribution patterns may also have other reasons.

19 A few flint sickles or sickle-like objects are known also from the eastern and northern parts of Finland. Such examples are a crescent-shaped object (KM 19239:709) from the Vaateranta site in Taipalsaari (Räty 1995: 168-169) and a sickle-like object from Oikarainen in Rovaniemi (Kotivuori 1996: 79-80).

One so-called Mälar-type axe, common in Central Sweden, has been found in Kemiö (KM 800; Björck 1883; *cf.* Asplund 1997b: 247). Its precise place of discovery is unknown. Furthermore, a fragment of the edge of another socketed axe has been found (Sagalunds Museum 1001). A broken Mälar-type axe has also been found in Västanfjärd (KM 11588). Some additional Late Bronze Age metal artefacts have been found in other parts of the study area (Fig. 25). Altogether ten typologically datable finds have been discovered, eight of them axes. Two of the finds – a spearhead probably belonging to the Ananjino culture, found in Perniö (KM 9138:2; Salmo 1980: Kuva 26) and one so-called Maaninka-type axe, found in Paimio (KM 10454; Kivikoski 1937a, Kuva 1; Meinander 1954b: Tafel 10:a) – are the only eastern Early Metal Period artefacts identified within the study area. Although small in number, the Bronze Age metal finds illustrate the continued utilisation of the study area, Kemiönsaari included. This is, of course, evident also with reference to the large number of cairns and some settlement sites in the area, but the chronological reliability of these is not always as good as that of the metal objects.

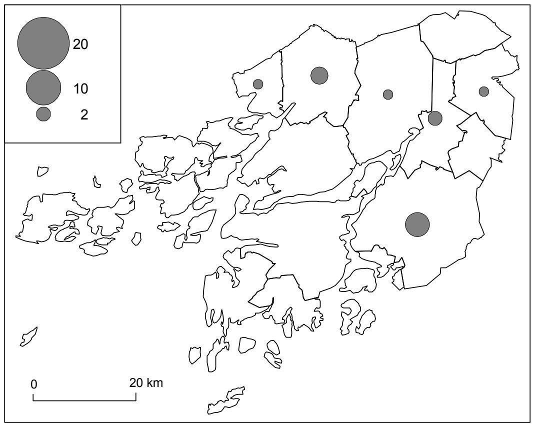


Fig. 24. Flint sickles in the study area.

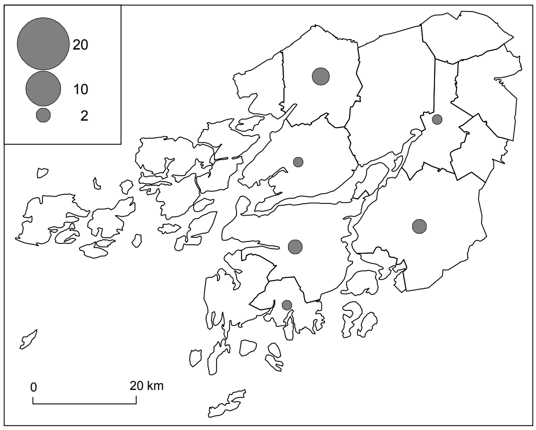


Fig. 25. Late Bronze Age metal objects in the study area.

3.3.2. Cairns

Contrary to Bronze Age metal artefacts, cairns – many of which in all probability datable to the period – are common in southwestern Finland. The total number of cairns in the coastal areas of Finland has been estimated to a number of at least 10,000 (Tuovinen 2002a: 66; *cf.* Salo 1992: 6), over 3,000 of which have been systematically surveyed (Tuovinen & Vuorinen 1992). However, not all of them belong to the Bronze Age; cairns were still built during the Iron Age and in some cases even during the Historical Period. Another question that has emerged especially in connection with investigations conducted in Ostrobothnia is whether the building of cairns actually started as early as the Stone Age (Okkonen 1998; 2003). In the light of a couple of such indications from other parts of Finland, the possibility of Late Neolithic dates cannot be excluded in the coastal area of southwestern Finland either.

A new opportunity for dating cairns was provided by AMS-dating made from burned bones. For example, some datings from inland cairns in central Finland has been made, the results ranging from the Late Stone Age to the Late Roman Iron Age (Taavitsainen 2003a; 2003b). The Late Neolithic dating 3570 ± 60 BP (GrA-18302), corresponding to the calibrated date 2130-2080 or 2040-1740 cal BC from Pyykkisaari in the municipality of Viitasaari is obviously the most interesting one (regardless of the fact that the dated bones are not human bones). This result questions the former theory that the cairns of the inland were a result of influences from the Bronze Age cairnbuilding tradition on the coast (*e.g.* Salo 1981: 224-226; *cf.* Edgren 1986: 21). From the point of view of the study at hand, one coastal cairn excavated by Henrik Jansson in Tammisaari (Sw. *Ekenäs*) in the province of Uusimaa (Sw. *Nyland*), east of the present study area, is even more interesting. This cairn yielded both quarts flakes and flint arrowheads of a type with straight base – artefacts that can be dated to the end of the Stone Age or the Early Bronze Age (Taavitsainen 2003a: 17; 2003b: 38-39; Jansson 2005: 67). These examples suggest that there might be reason to generally rethink the start of the cairnbuilding period and also consider the possibility of local cairn building traditions instead of categorically attributing the cairns to western Bronze Age influences. So far the indications of early cairn building are, however, too few to permit any conclusions on this regarding the study area. The only Stone Age (partly maybe Bronze Age) finds from a cairn within the present study area – pieces of pottery and bone fragments in a cairn excavated at the Jordbro site in Dragsfjärd – most probably belong to a cultural layer under the cairn (Asplund 1997b: 243; *cf*. Tuovinen 2002a: 173). It has been suggested that pieces of one striated pot differing from the Late Neolithic settlement site material may have belonged to the cairn (Meinander 1954a: 60; 1954b: 110-111). There is, however, no specific reason why this find would not belong to the same context as the other pieces of pottery, *i.e.* originating from the cultural layer underneath, indicating a possible site continuity into the Bronze Age. Whichever is the case, the bone finds are also most probably from the settlement site layer; this is supported by the fact that the bones are from seal (Tuovinen 2002a: 35-36).

Before 1988, a total of 250 cairns had been excavated in Finland, 114 of which have been dated one way or another; of these 57 % belong to the Bronze Age and the rest to the Iron Age (Vuorinen 2000a: 181). This suggests the Iron Age as an almost as important cairnbuilding period as the Bronze Age. This conclusion has also been reached by Tuovinen (2002a) regarding the cairns in the archipelago. Using several dating criteria – stratigraphic (involving artefact finds), cemetery chorological and group analogy (where a cairn morphologically resembles a previously dated cairn type) – he has been able to date 31 cairns within his research area. These can be divided into two groups – one Bronze Age group (*P*) of seven cairns and one Iron Age group (*R*) of 24 cairns. Comparing different variables of the cairns themselves as well as their surroundings revealed that distinct differences between the groups *P* and *R* are found in the stone cover of the cairn, the convexities of the burial place, and the height difference to the highest top (Tuovinen 2002a: 191-195). These variables divided the cairns into the proposed group in the ratio 8 (*P*) / 23 (*R*). One of the *P*-group cairns was originally dated otherwise, but could according to Tuovinen (2002a: 194) also belong to the earlier group.[20] When the group-consistent variables were used to divide the total number of cairns within the research area, 147 cairns were attached to group *P* and 218 cairns to group *R*. According to Tuovinen (2002a: 195), this shows that more than half of the cairns in the archipelago are of Iron Age character. A comparison with shore zone datings shows that only two of the *P*-group cairns must be younger than the Bronze Age; in the younger group 58 cairns occur on Iron Age or later shore-levels, 26 of which must be younger than 50 AD (Tuovinen 2002a: 195-199).

In the present study area there are 758 cairns, 118 of which have been registered as uncertain; the corresponding figures for the main municipalities of Kemiönsaari are 222 and 20. This is roughly in keeping with figures presented earlier (Tuovinen 1990a: 38; Tuovinen & Vuorinen 1992). Seventeen of the Kemiönsaari cairns have been investigated by archaeological excavations, twelve of them by Volter Högman already in 1886. Two cairn sites were investigated later in Söderby near the settlement site of Jordbro in Dragsfjärd in 1935, 1979 and 1988, but produced very few observations. In connection with the research conducted by Tuovinen five cairns in the archipelago were excavated, one of which – Östergård 2 in Dragsfjärd – on Kemiönsaari. In addition, two cairns were excavated in Makila in Kemiö in connection with this study. The Makila cairns have have provided Iron Age radiocarbon dates, and also the Östergård 2 cairn must (due to altitude) be later than the Bronze Age (Tuovinen 2002a: 100-101).

[20] This particular cairn is situated at the Makila Östergård settlement site in Kemiö, most probably dating from the Pre-Roman Iron Age. The site and the cairn are presented in chapter 3.5.3.

The only previously dated cairns on Kemiönsaari with Bronze Age dates are the aforementioned ones from Långnäs and Hammarsboda in Dragsfjärd in which bronze objects have been found. Both date to the Early Bronze Age. In connection with this study one AMS-dating was made from burned human bone (KM 10108:1; Tuovinen 2002a: 40, 173) from the cairn excavated 1935 in Söderby in Dragsfjärd. The result 3000 ± 35 BP (GrA-22355) gives the calibrated ranges 1380-1120 cal BC, roughly corresponding to the end of Period II or Period III of the Bronze Age. This means that the Söderby cairn is about the same age as the two cairns dated by the bronze artefacts. The dating also corresponds to the only previously radiocarbon dated cairn in the southwestern archipelago – the Trollberget cairn in Houtskari (Sw. *Houtskär*), outside the study area. The charcoal dated in the Trollberget case gave the result 2990 ± 140 BP (Hel-1143; Jungner & Sonninen 1983: 72), *i.e.* 1550-800 cal BC. The burial at Trollberget has been considered one of the oldest cremations in Finland (Tuovinen 2002a: 181).[21]

The Early Bronze Age dating result obtained at Söderby is somewhat surprising as the cairn seems to lack features usually connected with Early Bronze Age cairns. It was, for example, rather small and situated on a slope in relatively low terrain. The elevation of 24 metres above sea level (Tuovinen 2002a: 40) is, however, quite enough to allow an Early Bronze Age date. According to the excavation report, the cairn was damaged before the excavation, but road workers reported that the cairn had been very low – just slightly above the ground – before it was broken. The excavator, Ella Kivikoski, estimated the diameter to be about 4 metres (*cf.* Tuovinen 2002a: 40). In Tuovinen's (2002a: 308) division, the cairn has ended up in group *R*, *i.e.* the Iron Age group, showing the big posterior probability of 0.99 for belonging to this group. This indicates that there may be problems regarding the system of classification, *i.e.* cairns in group *R* may actually date to the Bronze Age. On the other hand, the cairn should probably have been left outside the calculation, as the knowledge of the original stone cover and shape of the cairn is vague.

[21] To these datings one further corresponding date from human bone from an inland cairn in Pyhäsaari in the rural municipality of Jyväskylä (Taavitsainen 2003a; 2003b) can be added. The result 3010 ± 60 BP (GrA-18301) gives the calibrated ranges 1410-1040 cal BC. This dating further underlines the (late) Period II or Period III datings related to cremation. It may also indicate that cremation in cairns is coincident inland and on the coast. The oldest Finnish cremation burial found so far is, however, from a grave below ground. The grave excavated at Hangaskangas, near the town of Oulu, contained a Neolithic bronze dagger, four stone arrowheads with straight base, bone arrowheads etc. and has been dated to 1940-1730 cal BC (Okkonen 2003: 231; Ikäheimo *et al.* 2004: 5-8). Even older cremated bones have been found at the Vaateranta site in Taipalsaari, dated to the Typical Comb Ceramic Period. These bones may also be related to the use of fire in mortuary ritual (*cf.* Katiskoski 2004: 118).

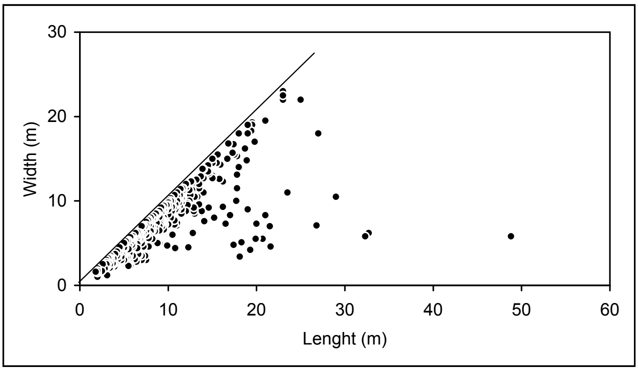


Fig. 26. Relationship between length and width of 356 cairns in the study area.

Most cairns within the study area have a round or elliptical form (Fig. 26). In addition, cairns whose length is considerably greater than their width are known from the southern part of Dragsfjärd. Such long-cairns, with a length at least three times their width, also occur in Nauvo and Parainen (Tuovinen 1990a: 40; 2002a: 158-161; *cf.* Asplund 2000: 40-41). Corresponding forms are also known from the shores of the Gulf of Bothnia (Okkonen 1998: 45-47, 81-83; 2003: 120-121) and the coast of Uusimaa (Jansson 2005: 67). All of the long-cairn sites in Ostrobothnia were situated close to the shore-line about 1800-1400 cal BC, *i.e.* in the end of the Neolithic or the Early Bronze Age, whereas round cairns occur more frequently on younger shore-lines; there are, however, a couple of round cairns too on similar elevations as the long-cairns, *i.e.* potentially as old (Okkonen 2003: 111-112; 120; 237). The dating according to the relative length of the cairn is still rather problematic as there are also indications of long cairns dating to the Pre-Roman Iron Age (Tuovinen 1980; 2002a: 159). No inclusive reason for why some cairns have an oblong form has been given. One suggestion is, that some cairns were made longer by successive extensions (Salo 1981: 171-172).

One exceptional structure within the study area is a stone setting at Koupo Rösbacken in Parainen, which according to a preliminary mapping seems to form a construction dozens of metres long connected with a cairn (Nyberg 1985: 34-35). Nowadays, the stones are overgrown by vegetation, making it difficult to interpret the construction in closer detail. A test trench dug through the construction in 2007 revealed that the width of the low stone setting was about 3.5 metres (Fig. 27). Underneath the bottommost stones a few tiny fragments of burned bone (TYA 843:49-55) were found. The radiocarbon date obtained for the bones is 1220 ± 30 BP (Ua 34665), which gives the calibrated result 690-890 cal AD. The construction has in this study been classified as an Iron Age cairn as this appears to be the most

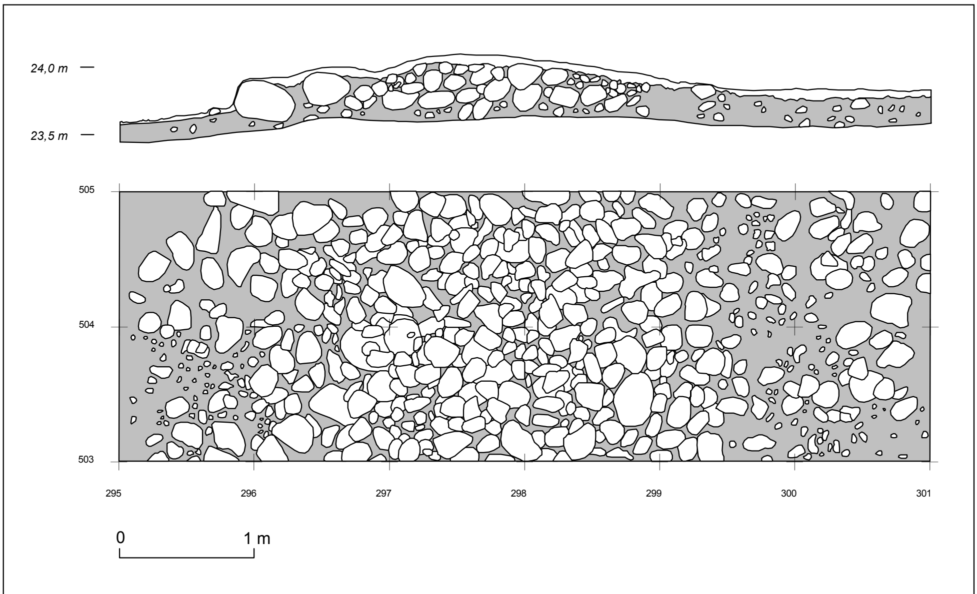


Fig. 27. Test trench through a long stone setting at Koupo Rösbacken in Parainen. Cross section and surface.

likely interpretation so far (although stratigraphically the stone setting could, in principle, be younger than the dating). This does not necessarily mean that the construction should be compared with the above mentioned long-cairns. In fact, good parallels for the exceptionally long stone setting at Koupo, running across a slightly sloping terrain and partly built of comparably small stones, are missing. The relationship (physical and chronological as well as mental) with other cairns registered on the same hill is so far indistinct. If the long stone setting runs directly towards the biggest cairn at the site, as indicated on previous maps, this can hardly be a coincidence. Regardless of the dating of the big cairn, the Iron Age stone setting could be seen as associated with the cairn, maybe making a symbolical link to the (probably earlier built) monument.

The fact that cairns have been rebuilt or extended is occasionally revealed by inner structures. Stone circles, such as, for example, those found in a cairn excavated by Volter Högman in Ytterkulla in Dragsfjärd (Cleve 1942: 15), probably mark the original border of the cairn before later extensions. Secondary stone coffins and bone accumulations may also serve as evidence of the rebuilding of cairns. Sometimes also the vicinity of the cairns has been shaped. This is something often ignored. Smaller stone formations in connection with cairns have been interpreted as the remains of small cairns or accumulations arising from the demolition of cairns. An example within the study area is Ilmusmäki in Salo, where a formation identified as a small cairn (Hirviluoto 1991: 222; Tuovinen & Vuorinen 1992: 87) is in fact the remains of a short stone-paved lane in front of a large cairn. Another example is the case of Iron Age cairns excavated in Makila in Kemiö (chapter 3.5.3), where it actually seems that more emphasis has been put on the preparation of the site of the cairn than on the actual monument. Such constructions indicate that it was not the content of the cairn alone but also the place around the cairn that was of importance. Probably cairns were not erected just to hold a burial, but to mark a site that had other meanings and functions as well.

3.3.3. Graves or not?

Bronze Age cairns can, at least to some extent, be regarded as graves, considering that many of them undoubtedly contain remains from burials. Defining and identifying a "grave" in archaeology is, however, not unproblematic (*e.g*. Kaliff & Oestigaard 2004). When the practice of erecting cairns was introduced, burial customs were probably still similar to those of the Stone Age. They may have included inhumation burials dug into the ground, or some other form of interment leaving no trace of the body. In some of the presumably oldest cairns coffins made from stone blocks have been found; these maybe contained burials, although no bones have been preserved. Such structures were also found in the Kemiönsaari cairns investigated by Högman. For example in the famous 'dagger grave' at Långnäs there was a tapering elliptical arrangement of stones, in which the dagger was found; a simple coffin-like stone arrangement also appeared in a cairn in Tjuda in Kemiö (Cleve 1942: 12, 15). During the Bronze Age the use of fire as an element in the burial ritual became more common. Unlike unburnt bones, cremated bone fragments tend to be well preserved. The linkage between actual burials and cairn building is stressed by the fact that burnt bone has been found in no less than 80 % of the cairns excavated (Vuorinen 2000a: 182).

In Tuovinen's (2002a) study on the southwestern Finnish coastal cairns they have been regarded explicitly as burial monuments as can be concluded already from the headline of the book: "The Burial Cairns and the Landscape …". Tuovinen (2002a: 77) uses the term 'burial cairn' regarding stone settings that have contained human remains, or regarding stone- and boulder formations resembling them externally.[22] The interpretation is supplemented by a general discussion on mortuary rituals, providing indicia for the use of burial monuments made of stone

[22] The field archaeological criteria used in the surveys were based on elimination of stone heaps that can be explained as occurring due to natural processes (mainly shore effects) or other human activities than burying (Tuovinen 1993: 38-40; 2002a: 77-80; Vuorinen 2000a: 180-181).

(Tuovinen 2002a: 61-66). Some interesting topics of this discussion are, for example, how the grave could be regarded not only as a remainder of the deceased, but as a symbol of temporal continuity, and how the permanence of a grave built of stone may have preserved the cultural meaning of the grave site. The grave or grave site is furthermore seen in the context of its surrounding landscape (Tuovinen 2002a: 67-74; 2005a: 14-15); this is of importance as the cairns are, according to Tuovinen, typically situated in close relation to "milieu dominants", establishing a link between the meanings attached to the burial cairn and the symbolic content of the landscape. Meanings extending the pure function of a grave have also been stressed by Okkonen (2003) regarding the Osthrobothnian cairns. According to him, cairns may – regardless of them originally being used for covering a burial – have had many functions and meanings. The cairn monuments were erected mainly for the society of the living and the meanings of the cairn may have changed through time and in different social contexts (Okkonen 2003: 126-127, 237). Cairns can thus not be seen simply as graves. Okkonen (2003: 126-127) also points out the problem of identifying cairns as burial monuments. For example, the Osthrobothnian long cairns have so far not yielded any proof of them being graves.

In a discussion of the relationship between cairns and Bronze Age burial ritual, it is essential to point out two significant factors: first of all, there are too few cairns to allow the conclusion that everyone was buried in this way, and secondly, the cairns evidently contain only some of the bones from the funeral pyre. With regard to estimations of the size of the population reflected by the cairns, it can be supposed that the Bronze Age cairn building period may have lasted approximately a thousand years and that the cairns could have included, for example, five individuals on average – according to observations from excavations, generally fewer. If we apply a 40‰ death rate in the calculation, which is the figure generally used in population estimates of prehistoric societies (*e.g.* Ambrosiani 1964: 204; 1973; *cf.* Lang 1995b), the total population of the communities that buried their dead in cairns in the whole of coastal Finland would have been 375-1250 people (when using the aforementioned total numbers of cairns). These numbers seem rather low, considering that the calculation must be regarded as giving a theoretical maximum. In addition to the mortality rate the calculation is greatly affected by the estimated number of burials per cairn; this number is most uncertain, as archaeological evidence of multiple burials is very limited. The number of destroyed or undiscovered cairns (*cf.* Harjula 2000) would increase the calculated size of the community, but on the other hand, the period over which the cairns were erected extended into the Iron Age, which would make the burying period much longer than the estimate applied in the calculation. Thus it can be concluded either that the Bronze Age coastal population was surprisingly small, or – more likely – that only part of the population is reflected by the cremated bones found in cairns. The rest may have been buried in Stone Age fashion, maybe even cremated, but deposited in a way leaving no archaeological evidence. There were certainly also local differences, meaning that in certain areas cairn building and rituals related to the cairns were more dominant than in others.

It is more difficult to explain why only some of the bones of the deceased are found in the cairns (*cf.* Kaliff 1997: 86, 90). This is one fact that challenges the idea of Bronze Age cairns being simply graves. One possible explanation is that this is due to natural processes operating during cremation and after the burial. Another possibility is that this was deliberate. Only some of the bones were placed in the cairn and the rest were deposited in some unknown way. If this is the case, the deposition of bones in the cairn was merely one part of a multifaceted ritual, with other meanings than the primary burial of a deceased person (Bolin 1999: 63, 86).

In a number of cultures that practise cremation, the burning of the dead has been considered as a way of freeing the soul or spirit from the body (Kaliff 1997: 81-83; Kaliff & Oestigaard 2004: 93). It is possible that a similar belief may have already existed during the Stone Age and Early Bronze Age before the introduction of cremation, the idea then being that the spirit had departed when the body had decomposed or had been separated from the bones. Cremation was another way of reaching the same state. Freeing the spirit was most likely the very core of the burial ritual. In that sense the deposition of a few of the bones of certain individuals in cairns was secondary. This does not imply that the cairn ritual was unimportant, on the contrary, but it probably had a meaning beyond the common burial ritual and the cairns a function other than being simply shrines to house burials. We may rather assume that it was the erection of the monuments that was essential. It was the interest in the place or landscape of the cairns that was significant. The construction of cairns and the deposition of some bones in them was a manifestation of the kin group's or tribe's symbolic control over places and territories. The cairns were thus related to control and manipulation of the landscape. They were primarily built for the living – not for the deceased. This does not exclude the idea that the cairns and their surroundings, through the bones of the ancestors, became places for communication between the living and the dead, between the known world and that beyond.

3.3.4. Cairn size

One way of describing cairn size is to use a theoretical figure for volume, obtained by multiplying the dimensions of the length, width and height of the cairn. This figure, adequate for comparisons, naturally does not give the actual volume of the cairn but the volume of the smallest rectangular body inside which the cairn will fit.[23] When the material is shown as a diagram, some outliers (due perhaps to incorrect measurement data) can be seen, but otherwise the distribution illustrates the fact that there are numerous cairns that are markedly larger than average (Fig. 28). A group of cairns with a 'volume' of over 500 m^3 was chosen for more detailed analysis.

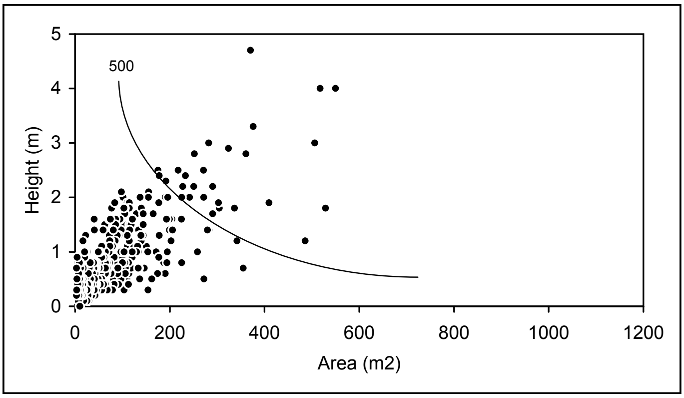


Fig. 28. Relationship between area (length x width) and height, dividing cairns according to a theoretical figure for volume. The dividing curve for cairns with a 'volume' over 500 m^2 has been added.

The size of cairns has previously been discussed in Finland mainly in relation to chronology and social structure. Large cairns are often considered older than small ones, an assumption which gains support from the comparison of the size of excavated cairns dated to the Bronze Age versus the Iron Age (Tuovinen 1990a: 60; Vuorinen 2000a: 182). In the chronological division by Tuovinen (2002a: 194), the mean values of the area of the stone cover differs; cairns in group *P* are larger than in group *R*. Usually large cairns are above all connected with the Early Bronze Age,

23 Tuovinen (2002a: 185) has pointed out that volume may be an inaccurate measure for cairn size as its numeric value is greatly dependent on the height of the stone setting; instead he has used the product of length and width, i.e. a figure related to the area of the cairn. This is, of course, not unproblematic either; a flat stonesetting can give the same sizefigure as a cairn made of several layers of stones.

but there are (outside the study area) also examples of large cairns erected later, during the Late Bronze Age. In Norrland in Sweden there are in fact indications of a dating as late as the Roman Iron Age (Bolin 1999: 83-84). On the other hand, the aforementioned Söderby dating from Dragsfjärd indicates that not all cairns erected during the Early Bronze Age were big. Cairn size is therefore a chronological indication merely statistically, reliable only on average.

Large cairns have also been regarded as expressions of the higher status and power of certain individuals or families in the Bronze Age society. These ideas are based on the assumption that the cairns are burial sites representing certain individuals or kinship groups. An equally plausible idea would be that cairns have to do with important places rather than important people. We can speculate whether the bones in the cairns may actually represent the whole community or kin groups of the builders of the cairn rather than particular individuals or families. In Sweden, large cairns have also been included in the discussion concerning centre and periphery in the Bronze Age. The occurrence of extensive cairns has been one criterion for identifying central areas (Wigren 1987). The large Finnish cairns might straightforwardly be interpreted in a similar way. Actually this is an analogy drawn from our contemporary society, where investment in the shaping of the landscape mainly occurs in towns or other settlement concentrations. Furthermore, the occurrence of large cairns is not necessarily related to an exceptionally large community or labour force; during the historical era, individual farmers have produced clearance cairns and other forms of stone heaps very comparable with Bronze Age cairns (Ambrosiani 1987: 9).

In southwestern Finland, large cairns generally occur in areas characterised by the occurrence of smaller graves as well. In the archipelago big cairns mostly occur on large islands and typically there are other, often large cairns in the immediate vicinity (Tuovinen 2002a: 157). The possible connection with nearby settlements remains unclear. A comparison of the locations of all Late-Neolithic and Bronze Age sites in the study area with the locations of cairns shows no obvious correlation. This might be partly due to the weak chronology of both settlement sites and cairns, preventing more detailed comparisons. The few sites datable to the Late Bronze Age actually indicate a closer relationship with cairns than the rest of the settlement site material. Not even in the Late Bronze Age cases, however, is there always a contact between settlements and cairn clusters. Within a couple of kilometres from the northernmost settlement site at Toispuolojannummi in Paimio only three small cairns are present. Some of the large cairns, on the other hand, are situated in the vicinity of known settlement sites, but not all of them. If large cairns – or cairns in general – signify something, it is probably not the settlement site itself. It is more likely that the importance of some other aspect of the place is indicated. Furthermore, cairn size must depend to a considerable degree on the amount of suitable stone material available in the vicinity. Cairn size is a function of the importance of the place, access to raw material, availability of labour, and time.

3.3.5. The cairn in the landscape

Apart from being a difficult question in general, the relationship between cairns and settlement sites has in earlier research been further distorted due to interpretations regarding the character of Bronze Age Scandinavian immigration to the Finnish coast. According to one view the local population would in some areas have rejected the Scandinavian immigrants as well as the cairn ritual. Part of the immigration and settling (as well as cairn building) would thus at first have been directed towards areas not utilised by the local (Finnish) people represented by the settlement sites of the Late Stone Age Kiukainen Culture (*e.g.* Salo & Söyrinki-Harmo 2001: 69). This interpretation suggests that there would be no link between some of the identified Late Stone Age and Early Bronze Age settlement sites and the first Bronze Age cairns. In other words, some settlement sites would be related to Late Stone Age and Early Bronze Age people rejecting the cairn ritual whereas there would possibly be other sites settled by the cairn builders. The Turku area (outside the present study area) as well as Paimio have been mentioned as examples of areas where cairns are not found in the vicinity of the Bronze Age settlement sites due to the rejection of the new influences (Salo 1984a: 170; 1984d: 184). This is, however, not a convincing explanation as cairns occur some kilometres away and no other settlement remains related to the supposed builders of the cairns have been found. A much simpler and more believable explanation would be that the cairns were built by the same people settling on the Kiukainen Culture and Bronze Age sites we know of. There could be other reasons than rejection why cairns were not necessarily built close to the settlement sites.

According to a common explanation, the monuments (apart from being related to status definition) have also functioned as markers related to ownership of land and to proprietorship rights in areas of exploitation (Salo 1981: 125-131; 1984a: 133-137; *cf*. Tuovinen 1985: 72-73; 2002a: 247). Thus, cairns could have been built far away from settlement sites in areas where proprietorship was not self evident and not always close to the settlement itself, where such a signalling of proprietorship would not have been necessary (Asplund 1997a: 42-43). According to this interpretation, cairns could in many cases be situated far from settlements, symbolically connecting people from the settlements with areas and places of importance. Areas with many cairns would thus indicate places or areas of special significance – interpretable in terms of activity areas or border zones (*cf*. Asplund 2000: 50, 84) – not excluding the possible existence of settlement sites close by, but stressing an indirect relationship between the location of cairns and the locations of settlement.[24] This idea – or more specifically the notion that the cairns would as a rule have been constructed in the wilderness – has been criticised by Tuovinen (2002a: 249-250). He has, for example, pointed out that there are several examples of settlement sites that are close to or even surrounded by cairns.

One common notion regarding cairns is the underlining of the eternity of the cairn site, the construction of a cairn maybe signifying that the builders were eternally bound to the place or landscape. The site can be regarded as continuous also in a more tangible sense: the finishing of a cairn did not end the use of the cairn or the area surrounding the cairn. On the contrary, it probably initiated the process of ritualisation of the location. The erection of the cairn accentuated the importance of the site, which later became visited on many occasions – from generation to generation (Tuovinen 2002a: 66) – never going out of use (Okkonen 2003: 237). These places were probably often visited and used for rituals; the cairns were tended and "activated" (Bolin 1999: 55-68), and were sometimes also enlarged or supplemented by the erection of other cairns close by. Archaeologically, the continuity of the cairns can be seen in the form of extensions which were added and in secondary accumulations of bone. Although the basic idea about the cairn site as eternal and continuous is most reasonable, there might be reason in the future to rethink continuity regarding long-term time spans. What was, for example, during the Late Iron Age the attitude towards Bronze Age cairns and cairn building in general? Does Iron Age cairn building really represent an unbroken continuity from the Bronze Age, or could Iron Age cairn building in some cases be a revitalisation or copying of older cairns – a reaction towards, or rediscovery of, the old monuments?

During the first important period of cairn building, the Bronze Age, it really seems that the conception of the world emphasized different meanings to different places. Regardless of whether the cairns are placed on a reconstruction of the Late Neolithic / Early Bronze Age shoreline (Fig. 29) or compared with the Late Bronze Age / Pre-Roman Iron Age shoreline (Fig. 30) one can see that they emphasise

24 The fact that the location of cairns does not show the location of settlement has been stressed also by Anders Carlsson (2001: 29-30), with special reference to the situation on the island Gotland in Sweden. There the cairns are situated on the coastline, while other sites are evenly distributed throughout the island; according to Carlsson the location of the cairns must be explained in some other way, partly taking into account routes of communication.

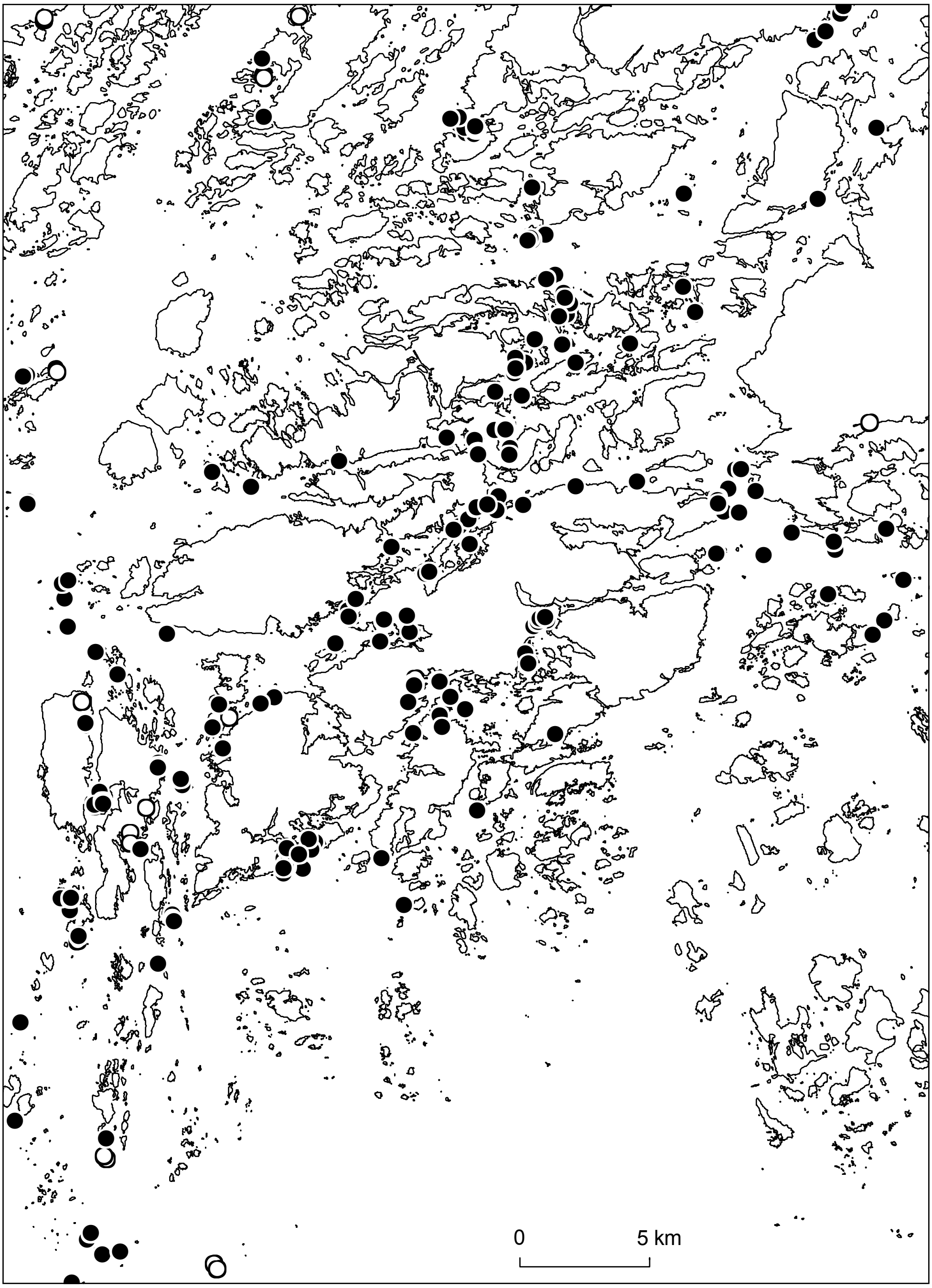


Fig. 29. Location of (all) cairns (uncertain cases presented as circles) plotted against the 20 metre contour line, representing the sea level at around 2000 BC. Some cairns are related to a SSW-NNE passage through Kemiönsaari.

particular locations – "milieu dominants" if using the terminology applied by Tuovinen (2002a). There is a clear tendency towards marking islands, promontories and bays – landmarks for seafaring people. Wigren (1987: 109-125), working with material from Sörmland in eastern Sweden, has considered the possibility that Bronze Age cairns were connected with travelling routes – especially sea routes – and that they may also have functioned as orientation markers. This is probably an overly physical and simplified view of the function of cairns. Cairns were certainly erected along travelling routes as well as border zones and activity areas, but it is doubtful whether they were visible from the sea. This has actually been studied and proved wrong by Tuovinen (2002a: 248-250). According to him, there is a general overestimation of the visibility of the cairns – they cannot have been used for marking out waterways, nor as signals to an outsider approaching from land. Thus, the marking of special places in the terrain had a symbolic meaning. The conception of the world of Bronze Age people was related to these places, and the cairns affixed human beings to the landscape and into the world. In addition to the cairn sites being situated in places topographically distinguishable in the landscape, the choice of location could also involve ideas of these places being liminal places or boundary zones where mountain met with water or where mountain met with sky (Thedéen 2004: 33-41).

In the study by Tuovinen (2002a; *cf.* 2005b) a difference in the location of cairns of different age has been suggested – not only regarding the topography, but also regarding the view from the cairn site. Using viewshed analysis on elevation models Tuovinen (2002a: 202-243) has been able to show that cairns in the Bronze Age group *P* were more directed towards land (the area of visible sea being only 5-14 times larger than that of visible land) whereas cairns in the Iron Age group *R* were directed towards the sea (the area of visible sea being 3-39 times larger than that of visible land). Tuovinen (2002a: 243-244) has considered land and sea as possible symbolic representations of subsistence strategies, the archipelago landscape thus becoming a sort of taskscape; the cairns of group *P* might therefore relate to the desired success of cattle and farming, while the landscape of cairns of group *R* may be due to reduced risks within agriculture. These interpretations, based on the statistical treatment of the material, seem mostly plausible. As the result means that cairns in group *R* indicate a more marine milieu than the Bronze Age cairns, the importance of a marine economy may well have been significant for the location of some of the Iron Age cairns. Regarding the Bronze Age cairns, on the other hand, the amount of visible land (regardless of the difference when compared with that of group *R*) is also rather small, *i.e.* the cairns are nonetheless situated in a milieu where the marine element dominates. It would thus seem quite possible to stress the marine element also regarding the Bronze Age cairns.

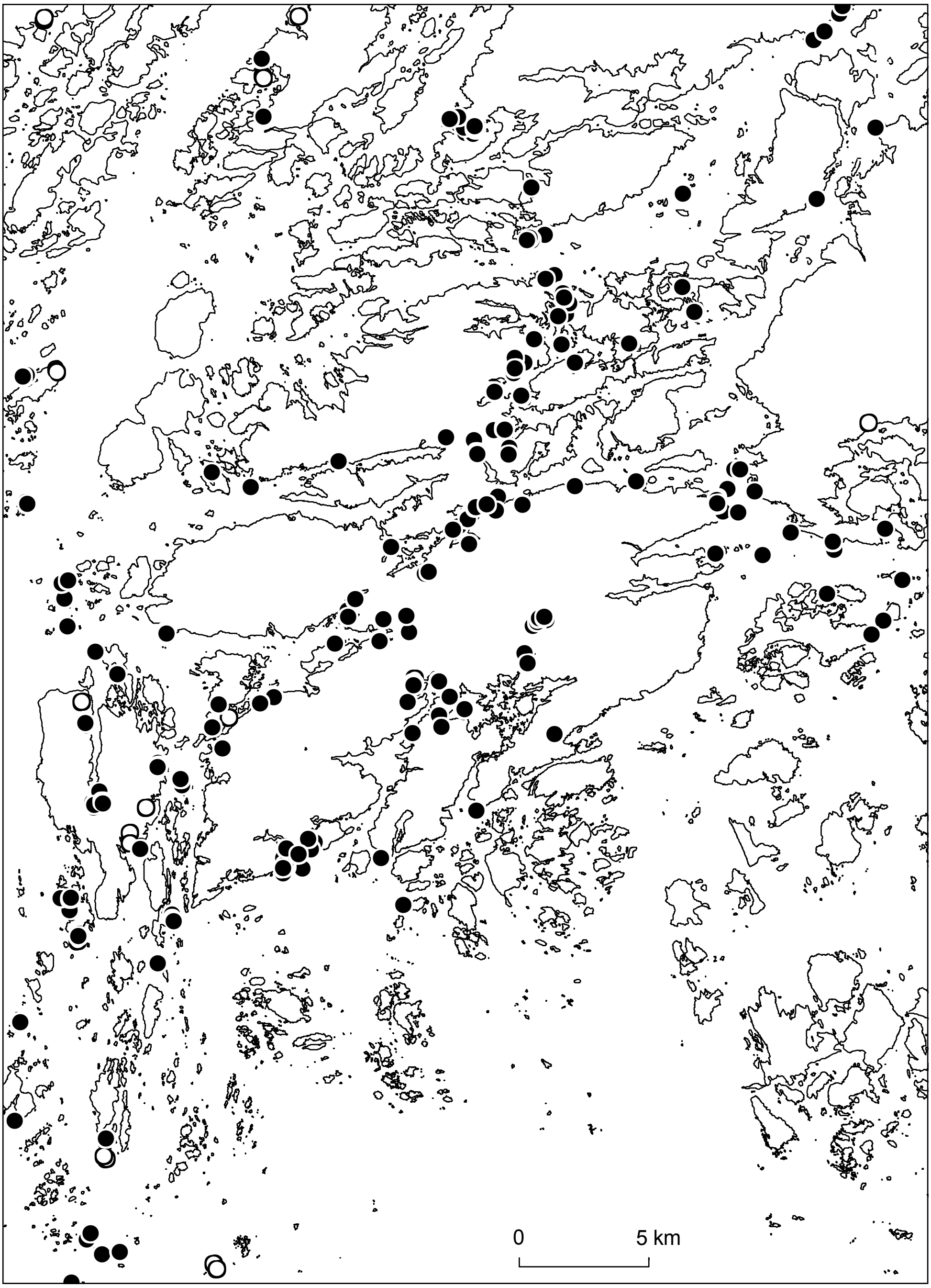


Fig. 30. Location of (all) cairns (uncertain cases presented as circles) plotted against the 15 metre contour line, representing the sea level at around 500 BC. The former passage through the main island was at this level closed due to land uplift.

Whatever the interpretation for the location of the cairns it is evident within the research area that attitudes towards space and places must have changed during the Bronze Age. This may partly have been due to a changing conception of the world, as remote areas became known in connection with the bronze trade and new contacts brought foreign influences to the Finnish coast. It is in no way evident that cairn building reflects above all a religious change or an increase in social stratification, as has often been suggested. New religious practices can perhaps be traced during the Bronze Age with the introduction of cremation, or in the Late Neolithic and Bronze Age when flint sickles and bronze objects began to be sacrificed. On the other hand, we have no knowledge as to whether or not some stone artefacts from the previous periods were sacrificed in the same manner. Furthermore, changes in religious practices did not necessarily involve fundamental changes in beliefs.

There is also reason to be critical concerning the overall interpretation of cairns as belonging only to a leading elite of the society. This has been examined also by Tuovinen (2002a: 251-252) who is critical of interpretations based on "conceptual constructions of territoriality and manifestations of patriarchal power", *i.e.* he is questioning the cairns both as territorial markers and as representations of a stratified society. According to him, the cairns are remains of a mortuary culture and should be approached primarily from a religious point of view – the Metal Age communities he sees as fairly local and egalitarian.[25] Whether the cairns actually are indicative of social stratification is really a good question. Within the study area only the Långnäs dagger from Dragsfjärd, found in a grave structure in a large cairn, seems to support the idea of an elite using bronze objects for status definition being buried in cairns to manifest their power and position in society. The rest of the material is not especially indicative of a stratified society. Bronze axes cannot automatically be described as status objects just because they are rare archaeological finds, and cairns with small amounts of deposited bones do not necessarily represent actual burial monuments built for particular individuals.

The primary reason for building cairns may have been the strengthening of the connection between cairn builders and place by creating eternal signs of this connection. One interesting possibility suggested by Tuovinen (2002a: 252) is

[25] It is interesting to note how (in a somewhat different, but still Metal Period context) Lang (1999a; 2000a: 24-26, 316) has also pointed out, with reference to Eliade (1987) that "ancient man was first of all, *Homo religiosus*". At the same time, however, Lang interprets the role of territorial strategies and proprietorship rights as highly important regarding the erection of monuments and in the general organization of the cultural landscape. It is quite likely that both religious and social relationships may be intertwined in the construction of monuments.

thinking of the landscape as "ancestral transformation", where ancestral action was fixed all the time into the landscape; instead of merely signing proprietorship of land the builders may not have thought in terms of possessing land or sea, but as being "integral and dedicated to the land and the sea". Attractive as this sounds, it is difficult to agree with. Although the material indications of obvious social stratification are limited, this does not exclude the possibility of a general increase of social complexity in some other sense. The introduction of farming and intensified trade during the Late Neolithic and the Bronze Age probably promoted the change of attitudes towards land and resources. The idea of the relationship between humans and landscapes could thus just as well have been the opposite. The former idea of human beings dedicated to land and sea may have begun to change towards an idea of land and sea belonging to people, *i.e.* land ownership or territorial dominion. The gradually increasing impact of farming may have been most significant, leading to changes in attitudes towards the landscape, as human beings began to shape their environment to a greater degree than before. In a society where the marine element still was very significant, the Bronze Age choice of places for communicating both with the world of the living and with the world beyond still seems logical. The sea was not only a provider of subsistence and an element for mobility within the known world – probably it was also an important element in the cosmology.

3.3.6. Bronze Age settlement sites

Bronze Age settlement sites in the area of the western Bronze Age culture of Finland have been considered difficult to investigate. One reason is the previously mentioned gradual transition from the Kiukainen Culture to the Bronze Age, which makes it difficult to identify settlement sites from the Early Bronze Age. As for the Late Bronze Age, the difficulties mainly have to do with the rarity of datable material on settlement sites. Ceramics from the Late Bronze Age are identifiable but rare. Among the reasons for the smaller amount of datable ceramics found in excavations compared to the Stone Age could be the small number and size of identifiable forms and decorational features, as well as a decrease in the use of pottery, so that fewer pieces of pottery were also broken at the settlement sites. In the following, many sites are defined by the occurrence of certain ceramic types; these will be more closely described and discussed in Chapter 5 of this book.

The most important studies relating to the Bronze Age on Kemiönsaari have taken place in Hammarsboda in Dragsfjärd (Fig. 31). The area is known above all for its impressive Bronze Age cairns, situated on a plateau rising from a surrounding area of fields. The cairns were first surveyed in 1886 by Högman, who also investigated one of the cairns; it revealed a stone circle and a coffin-like construction. Even earlier, in 1878, the Reverend Ludvig Wennerström had found the Early Bronze Age palstave (KM 1910; see chapter 3.3.1.) in another cairn. Hammarsboda regained the interest of archaeologists in the years 1989-90 when finds suggesting Stone Age and Bronze Age settlement sites were found in several places within a radius of half a kilometre from the cairns. The observations have so far been classified into five separate settlement sites or areas, two of which could be older than the rest, more likely dating back to the Late Comb Ceramic period than to the Kiukainen culture. The other sites are situated slightly lower and may date from the period of the Kiukainen Culture and the Bronze Age. In addition, two possible cairns have been observed on one of the settlement sites.

In 1991 the University of Turku carried out a small excavation on the site Hammarsboda 3 under the supervision of Tapani Tuovinen. Artefacts that would make dating possible (TYA 588) were few, but the decorational elements of the ceramics have been considered characteristic of Kiukainen Culture ceramics. A comparison of the distribution of finds in a field with elevation above present-

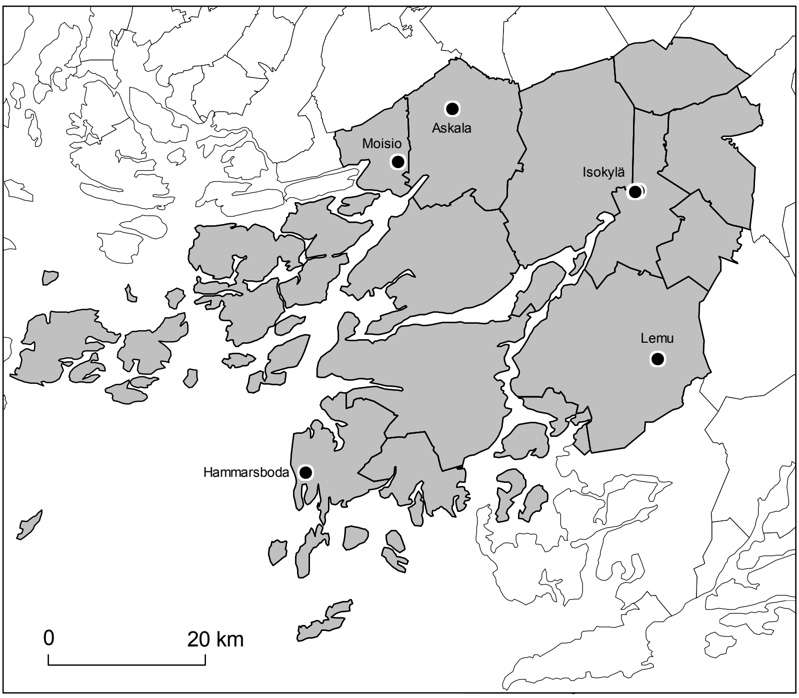


Fig. 31. Late Bronze Age settlement sites within the study area.

day sea level supports a Late Stone Age or Early Bronze Age dating (Tuovinen 2002a: 52). A new investigation was conducted in 1993 on the site Hammarsboda 2, with the aim of searching for material that could be connected with certainty with Bronze Age settlement (*cf*. Asplund 1997b: 252-253). The small-scale excavation was successful; among the finds (TYA 518:15-41; 575:9; 611:1-80) is a fragment of pottery that can be linked with the so-called Paimio type ceramics from the Bronze Age. The fragment (TYA 611:36) has a slightly striated outer surface and two rows of pit impressions as its sole decoration. Other fragments of pottery show pit impressions, comb impressions, twisted cord impressions and dotted line decorations as well as textile impressions – all features that may be connected with Kiukainen Culture ceramics.

In the area of comparison only seven other settlement sites dating back to this period have been registered – four of them from Isokylä in Salo. The best known of these sites are Ketohaka 1 and Ketohaka 2, excavated in connection with the Isokylä project by the University of Helsinki. Finds from the first-mentioned site include Bronze Age ceramics with round impressions as well as Early Iron Age Morby Ware (Uino 1986: 71, Fig. 3:53-54). Finds from the second site include fragments of a Bronze Age ceramic vessel decorated with wavy lines, and fragments that have been described as having "epineolithic" pit decorations on the brim (Uino 1986: 115, Fig. 4:23), most probably analogous with Morby Ware. This indicates site continuity at Ketohaka from the Late Bronze Age to the Pre-Roman period, a continuity that can be seen in materials and radiocarbon datings from several excavations in the Isokylä area.

A third Bronze Age site at Ketohaka is represented by a cultural layer containing ceramics with a striated surface as well as textile-impressed ware, found under a cairn excavated in 1915. In 1978 test excavations were performed on the same site. Hirviluoto (1991: 53) has determined some of the site's ceramics to be Kiukainen Culture ceramics. However, this dating is unclear; the published picture of old finds (Hackman 1917b: Fig. 14:2) shows Paimio type ceramics with decorations of pit impressions, belonging to the Bronze Age. A hearth that was revealed in excavation area K, which was opened later near the site, gave an Early Iron Age dating of 2110 ± 120 (Hel-1259), corresponding to the period 400 cal BC – 150 cal AD, and a separate cultural layer gave two dates between approximately 1330-1010 cal BC; the ceramics from this study area however resemble Paimio type ceramics as well (Uino 1986: 126, 129, 131, Fig. 5:5). Another cultural layer (belonging to the fourth Bronze Age site distinguished in Isokylä) was found beneath a cemetery at Ketomäki in Isokylä, excavated in 1916. Among the finds are striated ceramics decorated with pit impressions, fine thin walled ceramics, a few fragments of textile impressed ceramics, as well as ceramics decorated with "cat's paw" impressions (Hackman 1917b: Fig. 14:1; Schauman-Lönnqvist 1989: 56; *cf.* Hirviluoto 1991: 113, 216), the last mentioned shards most probably analogous with Morby Ware.[26]

In addition to the sites in Salo one Bronze Age settlement site has been identified in each of the municipalities of Piikkiö, Paimio and Perniö. The Toispuolojannummi site at Askala in Paimio is actually the eponymous site for ceramics of the Paimio type. In addition to the pottery there is also a bronze artefact find – a Period III fibula – from the Toispuolojannummi site (Vanhatalo 1994). At the Moisio Alistalo settlement site in Piikkiö a Bronze Age dating is suggested by some fragments of a vessel with a smooth surface (TYA 644:4), probably representing Lusatian-influenced Late Bronze Age pottery. Ceramics of the same type have also been found at the Lehmi-

Site	EBA	LBA	PRIA
Dragsfjärd, Kärra, Jordbro	+		
Dragsfjärd, Söderlångvik, Knipängsbacken	+		
Dragsfjärd, Ölmos, Hammarsboda 3	+		
Kemiö, Branten	+		
Kemiö, Östermark, Nedergård	+		
Muurla, Kirkonkylä, Jokiranta	+		
Nauvo, Simonby	+		
Salo, Pukkila, Myllypelto	+		
Salo, Pukkila, Pirtinpelto	+		
Dragsfjärd, Ölmos, Hammarsboda 2	+	+	
Paimio, Askala, Toispuolojannummi	+	+	
Salo, Isokylä, Ketohaka		+	
Perniö, Lemunkartano, Lehmihaka		+	+
Piikkiö, Moisio, Alistalo		+	+
Salo, Isokylä, Ketohaka 1		+	+
Salo, Isokylä, Ketohaka 2		+	+
Salo, Isokylä, Ketomäki		+	+
Salo, Pukkila, Sinivuori 1	?		?
Pertteli, Kaukola, Kankare	?		+
Halikko, Hirvikallio, Rikalanmäki (B)			+
Halikko, Hirvikallio, Rikalanmäki (SW)			?
Kemiö, Makila, Östergård			+
Muurla, Suoloppi, Kotikoivunnummi			+
Piikkiö, Huttala, Huttalanmäki			+
Piikkiö, Runko, Koskenhaka			?
Salo, Isokylä, Isomäen luoteisrinne			?
Salo, Isokylä, Klaavu			?
Salo, Isokylä, Vanutehtaanmäki			?
Västanfjärd, Tappo, Vesteräng			+

Fig. 32. Table of settlement sites with Late Neolithic or Early Bronze Age (EBA) as well as Late Bronze Age (LBA) and Pre-Roman (PRIA) materials.

26 According to Hirviluoto (1991: 69-70), Bronze Age ceramics have also been found at the Pukkila Sinivuori settlement site in Salo. The type of ceramics discovered, however, is not mentioned; in another connection the same site has been interpreted as belonging to the Pre-Roman Iron Age (Hirviluoto 1991: 75). The case is even more doubtful, since three flint arrowheads from Pukkila, described by Hirviluoto (1991: 37, 69) as Bronze Age arrowheads with straight base, do not represent the type in question. Another find from Vähäsilta in Karjaskylä, interpreted by Hirviluoto (1991: 70-71) as belonging to the Late Bronze Age Paimio type pottery, is not convincing either; the typical decoration is missing and the scratching of the surface described by Hirviluoto represents the surface treatment of common Iron Age ceramics rather than the intentional rough finish which can be seen on Bronze Age or Pre-Roman ceramics.

haka site at Lemu (Lemunkartano) in Perniö (Lähdesmäki 1983). At both of the last mentioned sites Morby Ware or pottery reminiscent of Morby Ware has also been found.

When we compare the occurrence of Late Neolithic or Early Bronze Age settlement site materials with those of the Late Bronze Age and the Pre-Roman Iron Age, it seems that no such long-term site continuity can be demonstrated as was suggested in the introduction to this study with regard to some settlement sites in the Turku region. Within the study area there is not a single site where Kiukainen culture ceramics as well as Late Bronze Age and Pre-Roman pottery have been found (Fig. 32). Only two sites show site continuity from the Late Neolithic or Early Bronze Age to the Late Bronze Age. Pre-Roman pottery, on the other hand, has been found on five of the Late Bronze Age sites, three of which are situated close together in the Isokylä area. It is difficult to draw any fundamental conclusion from this, except for the fact that topographical relocations of settlements within microregions have taken place during the long time-span of this comparison. Whether there actually was a greater break in settlement site continuity between the Early and Late Bronze Age than between the Late Bronze Age and the Pre-Roman Period is a question to which this still quite limited material does not provide an answer.

3.4. The Pre-Roman Iron Age

3.4.1 Introduction

One characteristic of the Pre-Roman Iron Age in Finland is that it is sparse on datable stray finds. This is the case also in the area of this study; no single finds have been recorded. In the light of settlement site materials it appears, however, that Kemiönsaari was settled similarly to the other parts of the study area still during the Pre-Roman Iron Age (Fig. 33). Two sites suggested to date to this particular period have been found – Tappo in Västanfjärd and Makila in Kemiö, both containing finds and other features indicating settlement in the area sometime between the end of Bronze Age (Fig. 34) and the beginning of the Iron Age AD (Fig. 35). As these are the youngest prehistoric settlement sites identified in the main area of interest, they must be regarded as quite important.

In the rest of the study area, Pre-Roman materials and dates have been obtained in 21 cases. In addition to common settlement sites, a couple of hill-sites as well as cemeteries are also present. Some of the settlement sites are marked as uncertain mainly due to the problem of dating striated ceramics reminiscent of Morby Ware; sites such as Runko Koskenhaka and Huttalanmäki in Piikkiö as well as a couple of

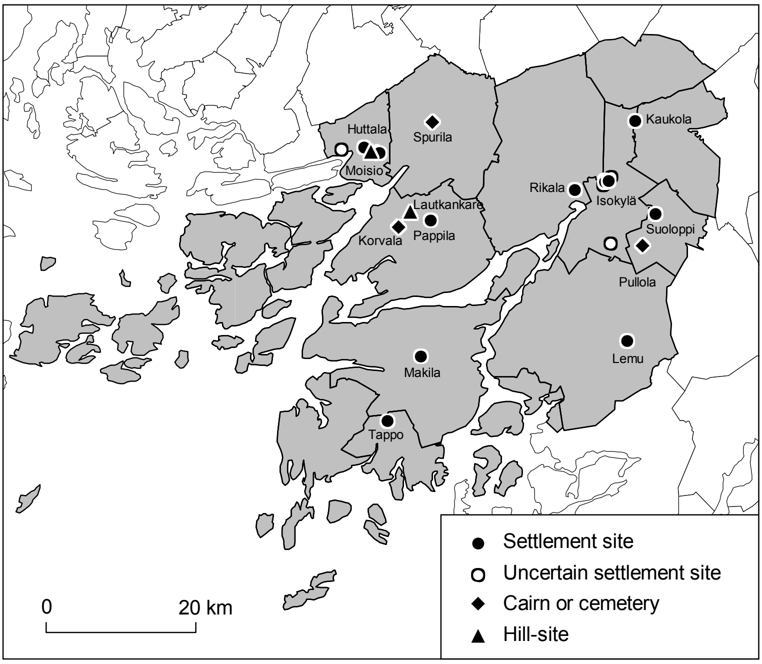


Fig. 33. Pre-Roman sites in the study area.

the Isokylä sites in Salo could equally well represent Roman Iron Age settlements. Sites in Pertteli and Muurla, on the other hand, might be older than the Pre-Roman Iron Age.

3.4.2. Pre-Roman sites of Kemiönsaari

3.4.2.1. Tappo

The first Early Iron Age settlement site of Kemiönsaari was discovered in 1988, when burnt clay was noticed on the edge of a small sandpit at Tappo in Västanfjärd. Impressions in the clay made it possible to conclude that it was burnt clay daub from a structure of interlacing twigs. Under closer examination a few fragments of prehistoric ceramics were found among the clay fragments. These observations led to a small-scale excavation of the site in 1989 (Asplund 1997b: 255-258). The excavation area of approximately seven square metres was located on the edge of the sandpit, on a spot where a large amount of burnt clay could be seen in the cut of the sandpit. On the north side of the excavation area a formation of largish stones was observed, which seemed to form a construction running in a NW-SE direction. The stones did not really seem to have been carefully set in place; rather, the formation might have been formed in connection with clearance. It was not

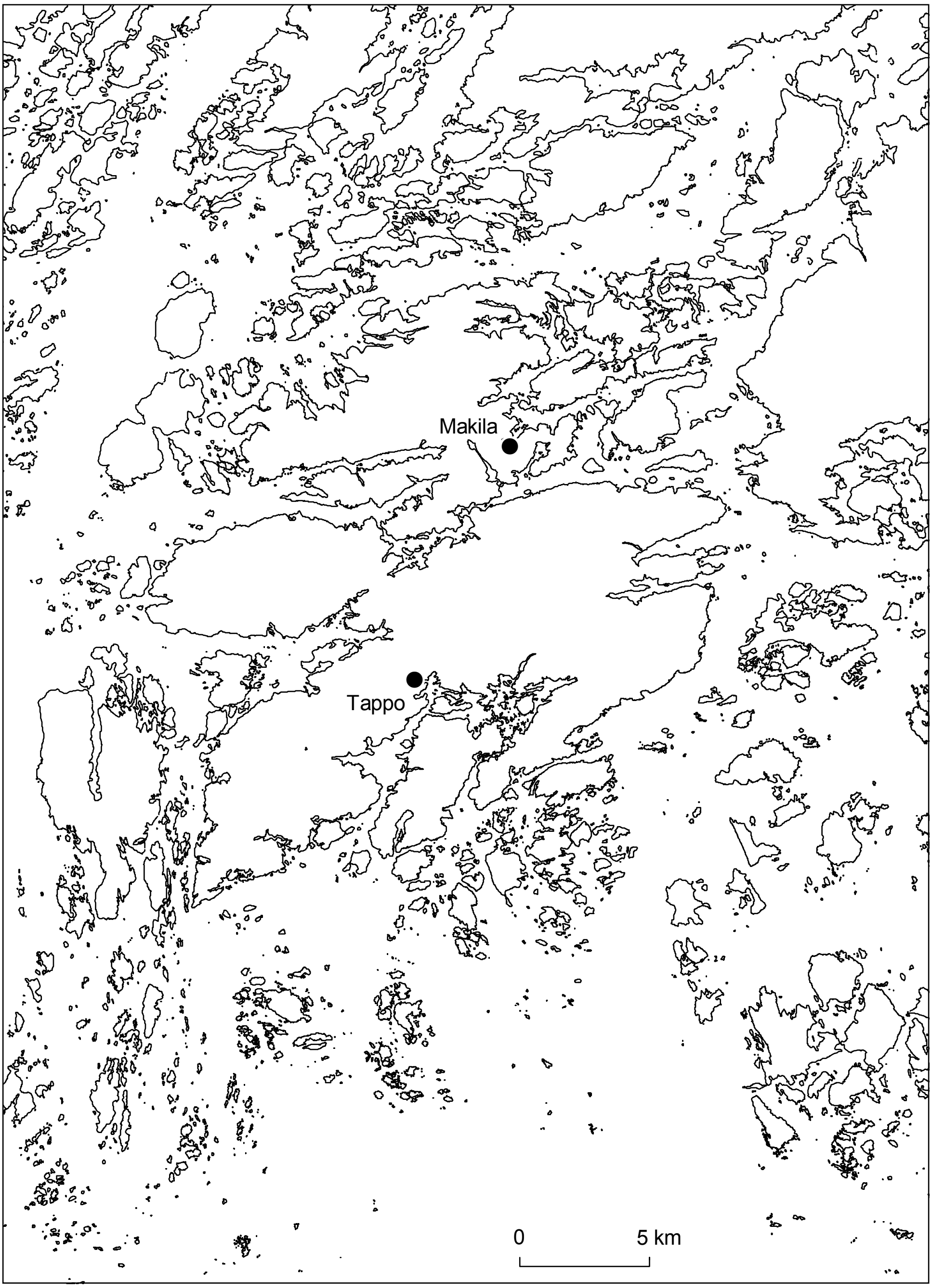


Fig. 34. Pre-Roman settlement sites of Kemiönsaari plotted against the 15-metre contour line, representing the sea level at approximately the Bronze Age / Iron Age transition.

Fig. 35. Pre-Roman settlement sites of Kemiönsaari plotted against the 10-metre contour line, representing the shoreline of the end of the Pre-Roman Iron Age or the Roman Iron Age.

possible to examine the distribution of stones more closely, which has to be taken into account in assessing the significance of the construction. During the excavation most consideration was given to the possibility that it was some kind of structure formed during the clearance of the main dwelling place or its surrounding (Fig. 36).

More information on the site was revealed in 1994, when the National Board of Antiquities performed a trial excavation in order to determine the extent of the settlement. Observations supported the earlier interpretations concerning the stone construction: a flat area was observed north of the excavation area of 1989, on the edge of which the above mentioned row of stones, approximately 13 metres long, was seen. In addition to the over-all test excavation of the area, what drew the attention of researchers were two additional stone structures. A test trench was dug on one of them. The structure contained some ceramics, but no other finds or patterns that would compel its interpretation as a grave or some other kind of specific construction. It is possible that this as well is a case of a clearance remain. The stone formations observed so far could actually all be parts of a whole created as a result of the same activity; all the documented stone constructions together form an indefinite formation running in a NW – SE direction.

A few finds, mostly ceramics, were retrieved from some of the test pits made in the area, but only near the 1989 excavation area was a coloured cultural layer

Fig. 36. Stone formation (probably a clearance heap) at Tappo.

revealed. The sandpit in the area had presumably destroyed a central part of the settlement site. According to local people there had been a dark layer with soot and burned stones visible on the side of the sandpit before the site was inspected. This possible hearth would have been situated between the excavation areas of 1989 and 1994, but it was gone before investigation started on the site. Although the area excavated in 1989 was small, 19.7 kilos of burnt clay were found. The clay contained impressions formed by twigs. Measurements of the clearest ones show that the diameter of the wood that was covered with clay was mainly between 10-15 millimetres (Asplund 1997b: 258). In addition, it was possible by means of segment measurements to determine one arched impression to have been formed by a pole of approximately 18 centimetres. The distribution of the clay or other observations in the investigated area did not allow an interpretation of the structure from which the clay may have originated, but apparently it came from a construction with wattle and daub walls. The clay contained one impression of a shore type of couch grass (*Elymus repens*).[27] In addition, the clay contained several small impressions of cockles (*Cardium*).[28] The impressions give indications of the littoral environment from which the clay was brought to the settlement site.

Worth noting is the almost total lack of stone artefacts in the main excavation area, except for two quartz flakes; this suggests a period when the significance of stone technology was already small. The test excavations likewise did not reveal more than a few quartz flakes. The most important finds may be two ball-shaped quern stones (Fig. 37), which can be

Fig. 37. Ball shaped querns (TYA 514:2,3) from the Tappo site.

27 Determined by Terttu Lempiäinen.

28 Determined by Ilpo Haahtela.

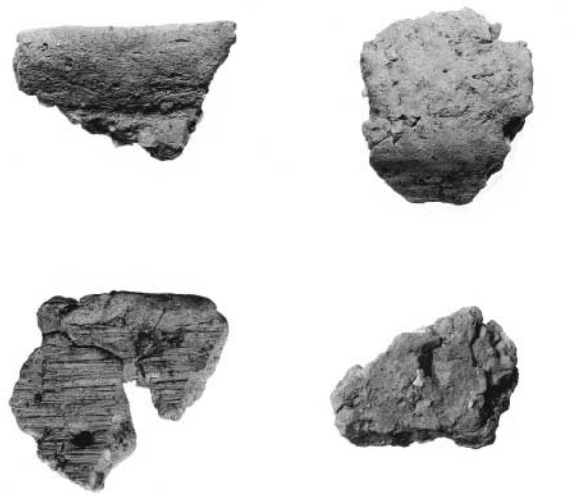


Fig. 38. Ceramics (TYA 514:26, 32, 42, 32) from the Tappo site.

considered as indications of cultivation. They were found at the bottom of the sandpit, where they had either slipped down or had been thrown during the sifting of the sand.

The ceramics material of Tappo is very fragmentary (Fig. 38), but represents epineolithic ceramics and includes fragments of two vessels decorated with cat's paw impressions or other similar impressions (TYA 514:32, 38, 42). This suggests a Pre-Roman dating for the settlement site, which is supported by a radiocarbon date from charcoal found in the excavation of 1989, the calibrated result of which is 400-160 BC (Fig. 39).

The settlement site of Tappo was not situated in the immediate vicinity of the shore. Its location would appear to have been affected by environmental requirements other than those of the Stone Age. The most natural explanation is that the settlement site was chosen from an area suitable for cultivation and animal husbandry. A new feature was also that the habitation created stone formations on the settlement site itself – during the clearing of the yard, cattle pen, or cultivated area. In addition to this it is likely that some of the cairns in the surrounding area were built by the people living at the site. Particularly noteworthy is a group of three cairns or stone settings, one of which has a high centre stone (Tuovinen 2002a: 52), situated approximately 150 metres SSW of the settlement site. The stone formations do not resemble Bronze Age cairns, rather bringing to mind younger cairns or cemeteries.[29]

The image created by the settlement site of Tappo resembles the general picture of Iron Age settlement forms and utilisation of the settled area. The settlement site – the farm – is situated on a hill, the slopes and surroundings of which were presumably cultivated. The shore, situated slightly further away, presented the possibility of utilising the shore meadows for grazing, and the sea offered a waterway and the

[29] Within the division of Tuovinen (2002a) at least one of these cairns would belong to group R. The posterior probabilities for the cairns belonging to group R are 0.48, 0.58 and 0.98 (Tuovinen 2002a: 314).

possibility of exploitation of the marine environment. Subsistence was most probably based on a mixed economy, in which sources of livelihood related to cultivation had increasing significance. Settlements were more stable and people probably lived in houses or huts containing wattle and daub structures. The cemetery or cult site of the family occupying the farm was situated within sight of the settlement.

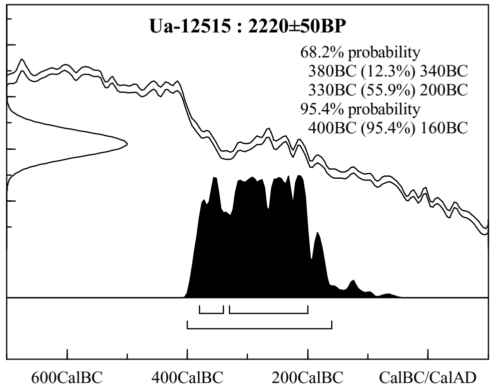


Fig. 39. Radiocarbon date from Tappo.

3.4.2.2. Makila

An indication that the Early Iron Age settlement of Tappo in Västanfjärd is not an unique phenomenon in the prehistoric settlement development of Kemiönsaari came when investigations could be conducted on another epineolithic settlement site at Makila in Kemiö (Asplund 1997b: 258-259). The site was discovered in 1989. That same year a phosphorus mapping was conducted, based on borings of soil samples, the aim of which was a preliminary mapping of settlement traces. A year later a trial excavation was carried out on the site. The result of the phosphorus mapping indicated two areas of heightened contents at the top of a hillock protruding into the field area of Makila – partly in the same area where finds suggesting a prehistoric settlement site were later discovered during a systematic test excavation. Test pits dug in the area yielded almost solely small fragments of pottery, all except one of which are without decoration. The only decorated piece is a small fragment (TYA 578:16), on which an indefinite impression is visible on the brim. Similar decorations occur on Morby Ware ceramics. Some other fragments have striated outer surfaces, also a feature that fits the picture of an Early Iron Age settlement site (Fig. 40).

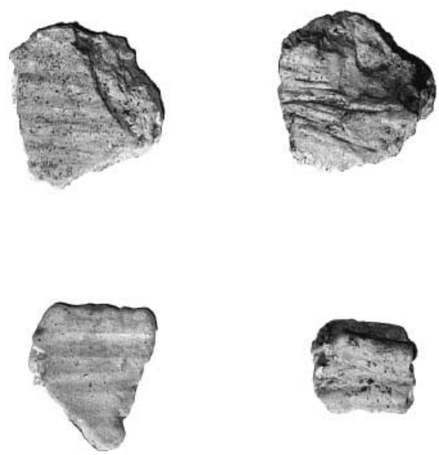


Fig. 40. Striated pottery fragments (TYA 550, TYA 578:6, 8, and 16) from Makila. The smallest piece is a decorated rim fragment.

In 1991 a second settlement site was observed by Tapani Tuovinen and Kurt Zilliacus approximately 150 metres from the first observations. The site was revealed by burnt clay daub found in the cut of a ditch, almost the same way the Tappo settlement site was discovered a couple of years earlier. Later a couple of pottery fragments (TYA 550; TYA 794:1), one of which striated, were found on this site as well. The settlement site may be approximately as old as the previously test-excavated site.

Within the settlement site of Makila investigated by the means of phosphorus sampling and test-excavation a cairn was observed. It is rather low and built on sandy soil, which would seem to make it different from typical Bronze Age cairns. This cairn has been discussed by Tuovinen (2002a: 182-183; 194). In his first evaluation of dated cairns it was regarded as dating from the Early Iron Age, basing the interpretation on the stratigraphic dating criterion, in this case the location of the cairn within the settlement site containing Morby Ware pottery (*cf*. Asplund 1997b: 258-259). When variables of the cairn were compared with those of the proposed Bronze Age (*P*) and Iron Age (*R*) groups the cairn ended up in group *P*. This divergence could according to Tuovinen (2002a: 194) be explained by the dating of Morby Ware, which could be earlier than the initially suggested dating, *i.e.* from the Bronze Age. The problem with this reasoning is, however, that Bronze Age dates of Morby Ware (*cf*. Edgren 1999b) are not convincing; radiocarbon dates cannot be used for dating the Bronze Age / Early Iron Age transition and no Bronze Age contact dates are available (Asplund 2004). It is true that the Makila site is not particularly well dated, but still the most probable date for the fragmentary material is the Pre-Roman Iron Age. The cairn could in principle be dated otherwise, but it would seem more likely that the cairn and the settlement site are (more or less) contemporary.[30] Other cairns occur in the surrounding area of the settlement site, the nearest one being situated approximately 300 metres away. This cairn is built on bedrock, but seems to have been rectangular in shape. The shape itself does not reliably date the cairn, but it could be one feature indicating a period later than the Bronze Age. Four-sided cairns have been discussed as a specific group by Tuovinen, who has concluded that the four-sided cairns in the archipelago probably are from the Iron Age (Tuovinen 2002a: 184). According to the other criteria used

[30] One way of fitting the cairn into group P could simply be stating that the cairn in principle could be older than the settlement site layer. There might have been some misunderstanding regarding the stratigraphy, as there is so far no evidence of the settlement site layer extending “immediately beneath the grave” (Tuovinen 2002a: 194). It is true that the grave appears to be situated within the area of settlement site finds but no excavation of the cairn or beneath the cairn has been undertaken.

by Tuovinen the four-sided Makila cairn would, however, belong to group *P*. The posterior probability of the cairn belonging to the Iron Age group *R* is as low as 0.24 (Tuovinen 2002a: 311).

The observations made in the Makila area complement the investigations conducted at Tappo. Features differing from Stone Age settlement patterns can be observed here as well. At the time of settlement, part of the low-lying field area of Makila, comprised of clayey soil, was probably a shore meadow that had recently arisen from the sea. The surrounding areas of the settlement site were probably suitable for cultivation and animal husbandry. Similarly to Tappo, cairns were situated near the settlement site. The typical structure and economy of Iron Age settlement seems to be reflected at Makila as well as in Tappo.

3.4.3. Pre-Roman mainland sites

3.4.3.1. Piikkiö

Observations suggesting an Early Iron Age settlement site have been made in test excavations in the area of Koskenhaka in Runko. The finds (KM 27057:1-27) include some ceramics with a striated surface that may be considered Pre-Roman or connected with the Roman Period cemetery in the area. Also the Huttalanmäki site (Luoto 1989: 44-52) may belong in part to the Roman Period. This is an Iron Age site, the finds of which (TYA 225:1-5; 253:1-150; 283:1-86) include striated ceramics as well as flakes indicating the use of stone technology at the site. At least one pottery fragment has decorations on the brim typical of Morby Ware. Jukka Luoto (2001: 21) has also mentioned the site in the connection of textile ceramics. The site furthermore contains a cemetery dating to the Finnish Crusade Period, the remains of a building, as well as stone baulks and a ditch marking the limits of the area. Several radiocarbon datings have been made, two of which, 2070 ± 110 BP (Hel-2255) and 1880 ± 90 BP (Hel-2080) (Luoto 2001: 21; *cf*. Jungner & Sonninen 1996: 11) probably are connected with the Early Iron Age occupation. The calibrated results are 400 cal BC – 150 cal AD and 60 cal BC – 390 cal AD. These dating results could match the dating of the striated (and textile impressed) pottery found, although the dated samples have not been taken in a context directly connected with the pottery.

In the area of the villages of Huttala, Moisio and Katari there is an interesting complex, which includes a hill-site (discussed in chapter 3.4.4.2.), a low cairn, and a settlement site. The surrounding of the cairn, situated about 500 metres from the hill-site, has been investigated with test excavations in order to test whether there was a settlement site on the same spot. Fragments of pottery with a striated surface (TYA 228:1-2), identified as Morby Ware, were found from a test pit dug on the side of the cairn, and interpreted as belonging to the cairn rather than a settlement site layer. There is, however, a settlement site close by. About 150 metres away is a sandpit, where three hearths and a refuse-pit-like structure with burnt bones have been found. During an excavation conducted in 1997, in addition to ceramics finds (KM 29086:1-5), three weakly discernible depressions were observed in the terrace-like area between the sandpit and a rock. These have not been further investigated. During several inspections and small excavations at the site stone flakes, burned bones and striated Morby Ware (*e.g.* TYA 369:2) have been retrieved as finds, as well as fragments of smooth surfaced pottery (TYA 644:4), which could be from a Late Bronze Age vessel. There is also a radiocarbon dating 2230 ± 100 (Hel-2571) available from charcoal in one of the hearths, corresponding to 550 cal BC - 50 cal AD.

3.4.3.2. Sauvo

In Sauvo a few Pre-Roman sites have also been revealed. One of them, Hautvuori, is a hill-site (described more closely in chapter 3.4.4.2). Another investigated site is the Korvala cemetery, where excavations were conducted for several years in the 1990's. In addition to these, inspections and surveys have revealed Early Metal Period finds at two sites – Kyynäräisen mökki in Pappila and Ullaskrooppi 2 in Ristiniemi. At the Kyynäräisen mökki site fireplaces, one of which described as a pit-hearth, have been revealed in a ditch along a road, together with undefined Metal Period pottery. In connection with the present study a radiocarbon dating was made from charcoal from the cultural layer, which gave the result 2245 ± 35 BP (Poz-14106), *i.e.* 400-200 cal BC. At Ullaskrooppi 2 only some pieces of striated pottery have been picked up in ditches made in connection with forestation. A more exact dating of this site is thus still lacking.

The important Korvala material consists of graves with stone constructions – several of which *tarand*- or coffin-like – containing metal objects like necklaces, bracelets, spearheads and socketed axes.[31] The excavations at Korvala where completed in 2001. During the several years of excavation 24 inhumation burials were excavated (Schauman-Lönnqvist 2004: 14; 2006). Edgren (1999b: 329) has pointed out that the leading ornament of the East Baltic and Finnish Early Roman

[31] The Estonian *tarand* concept is rather complicated as it has been used for very different types of grave structures, the main common denominator being that they contain more or less rectangular stone constructions. In single *tarand* graves, and even in cases where several cells are linked together in the typical *tarand* fashion, variation occurs as to the symmetry and consistency of the stone walls. Usually the constructions have been interpreted as burial monuments, but the most regular-shaped ones have also been suggested to be foundations for log-built mortuary houses (Mägi 2005).

Iron Age – the eye fibula – is missing from Korvala, thus indicating an early use of the cemetery. This is the same logic used earlier by Meinander (1969: 63; *cf*. Edgren 1996b: 89) concerning the dating of the Pikkulinnanmäki cemetery in Porvoo. The interpretation of the Korvala cemetery is in a way also related to the general interpretation of the introduction of cemeteries containing rectangular stone settings. During the last decades the dating of the Estonian *tarand* graves has changed, which also may affect the dating of related grave structures in Finland. Previously *tarand* graves were mainly dated to the Roman Iron Age, but later it has been made obvious that *tarand* graves existed already during the Pre-Roman Iron Age (Lang 1996). The early *tarand* graves of Finland have so far not been thoroughly discussed, with the exception of some comparisions in connection with a summary of the Estonian material (Lang 2006b: 69). It seems evident, however, that some cemeteries, one of which the Korvala site, can be regarded as extending back to the Pre-Roman Iron Age – maybe even to the first half of the period. These cemeteries are characterised by the occurrence of ring ornaments, like serial bracelets. The probability of a Pre-Roman date for serial bracelets in Finnish cemeteries has been discussed on several occasions (*e.g*. Meinander 1969: 65; Edgren 1996b: 88; 1999b: 329), latest in connection with a find from Sammallahdenmäki in Lappi (Raike & Haimila 2003: 25). Graves related to the *tarand* type excavated in eastern Sweden have also been dated to the Pre-Roman Period. One example mentioned by Ligi (1993: 14; *cf.* Ambrosiani 1985: 64) is a cemetery in Gärtuna in Södermanland, dated as early as the first half of the Pre-Roman Period. Here too serial bracelets have been found. It thus seems plausible that also the Korvala cemetery can be dated to the Pre-Roman Iron Age. Such a dating is also indicated by one radiocarbon dating made from unburned bone found in one of the graves, with the result 410-350 cal BC (Hela-741).[32] A Pre-Roman date for the Korvala site is further supported by a dating 600-400 cal BC (Hela-470) from burned human bone occurring in pits found close to the inhumation cemetery (Schauman-Lönnqvist 2004: 14; 2006: 52; *cf*. Purhonen *et al*. 2004: 136).

3.4.3.3. Paimio

Indicia of Pre-Roman settlement in Paimio have been found during excavations carried out in cemetery A in Spurila (*cf*. Asplund 1985: Fig. 1). The cemetery, situated on a hill, consists of a large field of stones, resembling a common cremation cemetery lying level on the ground, but containing also several separate structures.

32 A piece of wool from the same grave gave the result 70-250 cal AD (Hela-742), but has been regarded as contaminated (Schauman-Lönnqvist 2006: 52).

The oldest ornaments and weapons found are from the Early Iron Age, but the cemetery was still in use in the Viking Age. Among the finds is some Morby Ware (*e.g.* TYA 244:177), which could indicate early use of the cemetery or the existence of an Early Iron Age settlement site on the same spot or close by.[33] A possible settlement continuity extending beyond the Iron Age is suggested by two fragments of flint arrowheads (TYA 244:425) of Bronze Age type found in the cemetery. It is, however, just as possible that the arrowheads originate from somewhere else and have been put into the Iron Age cemetery as magical objects.

In addition to the occurrence of early pottery within the cemetery it is possible to discuss whether some of the metal finds from the cemetery could be dated back to the Pre-Roman Iron Age. Unfortunately the material – comprising, for example, some interesting Roman Period objects – is unpublished, with a few exceptions (Luoto & Asplund 1986). When discussing chronology, the grave construction interpreted as the oldest one (5) is of special interest. It seems that the first construction would have been erected on the highest point of the hill after filling a ditch-like groove in the bedrock with stones. After that, a stone construction was made, resembling a rectangular cell about one metre wide and over two metres long (Fig. 41). The walls of the construction were not fully preserved, which makes the interpretation of the symmetry and finish as well as the length of the construction somewhat uncertain. Best preserved were the sidewalls. Part of the bottom of the cell had been covered with pieces of flat sandstone. Some sandstone slabs had also been put upright against the sidewall. The size and finish of the construction could indicate that it was meant for an inhumation burial. At the time of excavation the construction (together with other constructions in its vicinity) was cowered by a layer of stone and earth, not more than a few tens of centimetres thick. The layer contained burned bones and was rich in finds, including (close to the rectangular structure) one eye fibula (TYA 244:397, 399), two shepherds crook pins made of bronze, pieces of neckrings and bracelets, finger-rings, pieces of bronze chains, glass beads etc. The whole layer seemed mixed, *i.e.* the finds are probably the result of several burials or depositions of objects on the same spot, the use of which according to the fibula started not later than in the Early Roman Iron Age.

Acquiring a more precise dating of the cell interpreted as the primary construction is problematic due to the accumulation of finds in the layer covering the cell. It is difficult to understand which artefacts may have been associated with the first burial or deposition. During the excavation, four finds were found at the bottom of the cell, close to the bedrock or on the sandstone slabs within the cell. These finds – a tiny socketed axe (TYA 244:301), a sickle-knife (TYA 244:303), a

33 Luoto (2001: 21) has mentioned Spurila also in connection with finds of textile ceramics.

Fig. 41. Stone constructions at the Spurila A cemetery in Paimio. Construction 5, the bottom of which partly covered with sandstone slabs, on the left.

small spearhead (TYA 244:309) and a bronze bracelet (TYA 244: 385) – were at that point interpreted as probably related to the first (inhumation) burial at the site. The iron objects (Fig. 42) are badly preserved, preventing the examining of details. The most interesting object is the sickle-knife, of a somewhat unusual form with a broad blade and straight edge, but still clearly a representative of the sickle-knifes typical for the Early Iron Age especially in Estonia. Even in a fragmentary state the Spurila sample evidently belongs to the early sickle-knife form 1, probably 1a (Laul & Tõnisson 1991), where the tang is a continuation of the blade and turns downward.[34] More recently the Estonian sickle-knives have been regarded as older than earlier expected, originating from the early Pre-Roman Iron Age, although staying in use until the Early Roman Iron Age (Lang 2000b: 122). An early dating – even back to the Pre-Roman Iron Age – would thus be a possibility also concerning the Spurila sickle-knife. The other iron objects would not disagree with such a dating either. If so, the cell-construction could be considered a kind of parallel to the constructions at the Korvala cemetery in Sauvo.

34 At the time of excavation the broken ends of the sickle-knife were found *in situ*. Only the end of the tang was missing (judging from the shortness of the preserved part). Unfortunately the loose pieces were lost during conservation. The pieces are mentioned in the documentation of the conservation process (Vanhalinna 2317) and they were also photographed prior to conservation. The location of these photos is, however, not known. At present, the form of the object is thus known only in the form of a sketch in the find catalogue.

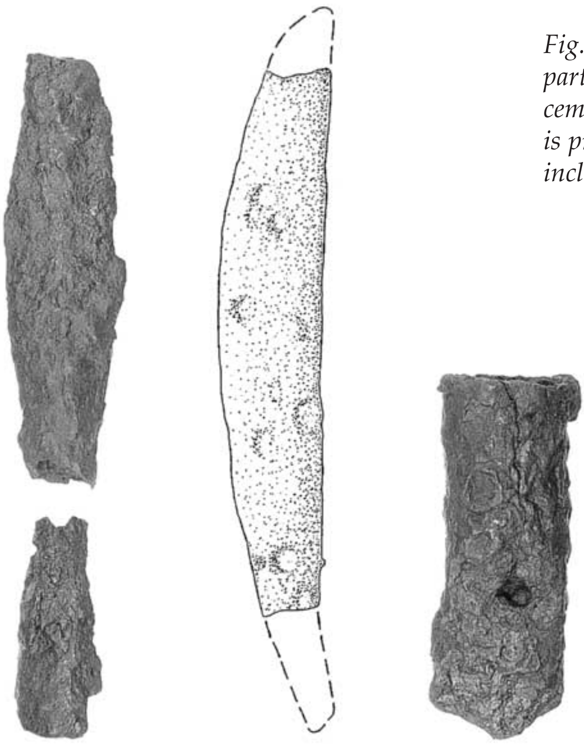


Fig. 42. Iron objects from the bottom part of structure 5 at the Spurila A cemetery in Paimio. The sickle-knife is presented in the form of a drawing included in the find catalogue.

Unfortunately the whole scenario falls apart if the bracelet (Fig. 43) is considered part of the combination of finds connected with the primary construction. The bracelet belongs to a group of band-shaped bracelets with rounded ends (Ge. *Bandförmigen Aarmringe mit runden Enden*) occurring frequently in, for example, southern Latvia and Lithuania, where they are traditionally dated to the Late Roman Iron Age, although thick and narrow samples (not comparable with the Spurila find) already occur in the second century AD (Moora 1929: Tafel XXI: 2-4; 1938: 375-381). The Spurila bracelet lacks the typical rim or furrows running from end to end of the bracelet, which are characteristic of this type, but is instead decorated with groups of ring-stamps, consisting of three rings in a row. Regardless of the difficulty of finding a parallel to this decoration pattern the bracelet must be dated according to the general dating of this group of bracelets to the Late Roman Iron Age. A combination of this type of bracelet together with the sickle-knife is thus unexpected. The bracelet is also most probably younger than the eye fibula

Fig 43. Late Roman Iron Age bracelet found within structure 5 at the Spurila A cemetery in Paimio.

found in the layer covering the cell. The eye fibula represents the youngest form of the so-called Prussian series (Moora 1938: 62-65; *cf*. Salo 1968: 91-92; Kivikoski 1973: 19, Tafel 1:2) usually dated no later than 200 AD.[35] This means that it is not possible to regard the bracelet as related to the primary use of the stone construction and, accordingly, there is also reason to questions the possibility of linking with certainty any other objects with the primary structure. The construction can only be regarded as a Pre-Roman or Roman Period construction, the original content of which has become disturbed during continued use of the same location during the Roman Period. The bracelet evidently does not belong to the primary set of objects, while the iron objects may or may not have been part of the original deposition. The combination of a weapon and a sickle-knife is quite possible – another plausible combination of a spearhead and a sickle-knife in fact occurs in the same cemetery (Fig. 44). These objects were found close together in an unclear context named structure 2. The objects were probably deposited together, but it is unclear whether structure 2 represents a construction related to a burial. The sickle-knife (TYA 244: 289) is of the type 1a (Laul & Tõnisson 1991) and the spearhead (TYA 244: 290) represents a general Early Iron Age type – II a3 according to Salo's (1968: Abb. 92; *cf*. Kivikoski 1973, Tafel 7: Abb. 47) classification.

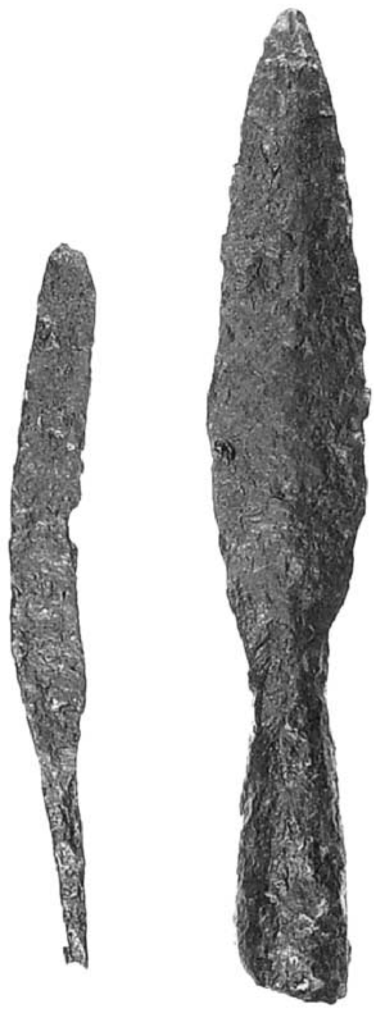


Fig. 44. Spearhead and sickleknife found close together in the Spurila A cemetery in Paimio.

In a discussion on the establishment of Iron Age settlement within the Spurila area also another of the altogether three Early Roman Iron Age cemeteries can be mentioned. This is the Spurila E cemetery (*cf*. Asplund 1985: Fig. 1) reliably dated

35 This type of fibula has a narrow upper part lacking ring decoration and a spiral made of flat tread.

to the second century BC at the latest, a dating, which is indicated by a sharply profiled brooch (Luoto 1985: 451, Fig. 4: AA). From this cemetery no epineolithic pottery has been reported, but there are a couple of early radiocarbon dates from a layer of charcoal interpreted as the remains of a pyre within the cemetery. The dates are 2110 ± 140 (Hel-1968; Luoto 1985: 454), corresponding to the calibrated date 500 cal BC - 250 cal AD and 2170 ± 60 BP (TKU-021; Pihlaja & Haihu 1991), corresponding to the calibrated date 390-50 cal BC. The ranges of the first date are too wide to make it really useful, but the other may suggest some kind of activity also at this site prior to the Roman Iron Age.

3.4.3.4. Halikko, Salo and Pertteli

In section B of the Iron Age Rikala complex in Halikko, Bronze Age or Early Iron Age ceramics have been reported from the excavation area III in 1978. One fragment (TYA 105:101) is said to have impressions resembling the so-called "Morby impression". In addition, the base level of a flat cremation cemetery excavated the same year yielded some brick-red – possibly secondarily burnt – striated ceramics, a few pieces of which seem to be decorated with indistinct impressions (TYA 105:308, 315). The pottery, reminiscent of Morby Ware, may indicate Early Iron Age use of the area, *i.e.* far earlier than indicated by the cemetery finds dated on the basis of artefacts to the Merovingian Period.

In the Salo Isokylä area, in addition to the Ketohaka and Ketomäki sites containing Morby Ware mentioned before, some other indications of Early Iron Age settlement have also been found. A cultural layer and two hearths were found in 1971 on the edge of a sandpit on the northwest slope of the Isomäki hill. The ceramics of the site are so-called "epineolithic" striated ceramics, which might be dated to the period before the Iron Age AD. However, according to Uino (1986: 133), a radiocarbon date of 1800 ± 110 (Hel-1186) from one of the hearths suggests that the site dates from the Roman Period. The probability ranges of the dating are wide, but the interpretation may be plausible as the dating corresponds to the calibrated age span 50-550 cal AD, the period 120-390 cal AD giving a 64.1 % probability.[36] Three other datings have been made from charcoal found in test excavations in the same area, the results of which are 1890 ± 90 (Hel-1624), 1850 ± 100 (Hel-1623) and 1690 ± 120 (Hel-1622) (Uino 1986: 133), i.e supporting an Iron Age AD dating for the site.

Also at Vanutehtaanmäki in Isokylä a couple of radiocarbon dates may suggest the existence of Early Iron Age settlement. One of these is the dating result 1820

[36] Uino (1986: 133) has mentioned the dating 50-280 AD.

± 90 BP (Hel-1761), corresponding to the calibrated time span 1-420 cal AD, from under a low cairn. This dating has been interpreted as possibly connected with a settlement site (Hirviluoto 1991: 212). Another radiocarbon dating from another cairn, the result of which 2270 ± 90 BP (Hel-1759), corresponding to the calibrated dates 800-650 or 550-50 cal BC, has been interpreted in a similar way. All in all, the Isokylä area is – due to intensive investigations carried out by the Salo project in the 1970's and 1980's – the best place within the study area where an areal (chorological) continuity (partly even topographic continuity) of settlement from the Bronze Age to the Early Iron Age can be discussed using both archaeological material and radiocarbon dates. The main impression is, that there is an unbroken continuity.

Somewhat further away to the north from the best-investigated sites in Isokylä there is one more site called Klaavu, where remains of a possible Early Iron Age settlement site has been registered. According to Hirviluoto (1991: 75-76, 205), striated ceramics and a sandstone disk have been found in a field, and the site is presented in connection with Pre-Roman settlement sites. In the same Pre-Roman connection also settlement site 1 of Sinivuori in Pukkila appears. At this site "epineolithic" ceramics have been found, some of which are textile-impressed (KM 6378:5). The finds also include "a fragment of a Scandinavian flint saw" (KM 10490:10), which most probably is a fragment of a flint sickle. Pieces of clay daub (KM 19740:1-7) have also been found on the site; this has been seen as indicative of a clay-overlaid wall of interlacing twigs, possibly from a Bronze Age or Early Iron Age building (Hirviluoto 1991: 75-76, 200). It is doubtful whether there is enough material for such a conclusion, but evidently also the Sinivuori site shows evidence of Early Metal Period settlement – whether it can be classified as Pre-Roman is, however, uncertain. It could as well be a Bronze Age site.

The northernmost site in the Salo area is the Kankare settlement site in Pertteli, situated right on the boundary between Salo and Pertteli. The site is on the Salo side also known under the name of Kynttelkoski. From this site there is a flint sickle stray find (KM 10014). During the survey of 1965 there were several quartz flakes to be seen in a sandy field and prehistoric ceramics were found at the edge of the field. The ceramics – unfortunately without any description in the literature – have been dated as Pre-Roman (Hirviluoto 1991: 68, 205).

3.4.3.5. Muurla and Perniö

A low stony mound partly intersected by a road and with a centre stone in the middle was noted during the survey of 1963 at Riihenmäki in the Pullola village in Muurla. The soil by the stone construction contained charcoal. Fragments of pottery were found around the centre stone, three of which (KM 15957:3) have "cat's paw" patterns. The pottery can most probably be identified as Morby Ware. All fragments apparently originate from the same vessel. In addition, some pieces of burnt bone (KM 15957:1) and a few small crumbs of rust (KM 15957:2) were found. In connection with the same survey, some quartz was found in a field at Kotikoivunnummi in Suoloppi; weathered ceramics, which seemed to have had textile impressions, were found at the edge of a sandpit in the same area. According to the landowner, his sisters had earlier found a fragment of ceramics in the same sandpit, which had "images of cat's paws" on it. If Morby Ware can be regarded as indicative of the Pre-Roman Iron Age, probably both the Riihenmäki and the Kotikoivunnummi sites suggest settlement in Muurla at the time – the Riihenmäki site probably representing a (burial) cairn. The Kotikoivunnummi site may, judging from the occurrence of quarts and textile-impressed ware, also have a slightly older settlement history.

The Lehmihaka site in the village of Lemunkartano in Perniö was already dealt with in connection with the Late Bronze Age. This is one of the sites suggesting site continuity from the Bronze Age to the Pre-Roman Iron Age, the Iron Age dating of which is indicated by ceramics reminiscent of Morby Ware (Lähdesmäki 1983: 100). The main part of the Lehmihaka pottery is extremely fragmentary and it is not possible to identify typical Morby Ware in the material. There are, however, features in the material, like impressions of indistinct form (*e.g.* TYA 158: 51) and the occurrence of impressions on top of the rim (*e.g.* TYA 207: 66), which probably indicate a site continuity including the transition into the Iron Age. This would be in accordance with the interpretation of the cairns at the site. These are mostly regarded as belonging to the Bronze Age, with the exception of the low cairns or stone settings 11 and 12, dated to the Bronze Age – Iron Age transition, and cairn 13, shaped like a low stone setting, which has been regarded as belonging to the Iron Age (Lähdesmäki 1987).[37]

[37] On top of and on the side of cairn 13 pieces of iron slag were found. They were regarded as probably younger than the cairn, but the possibility of the slag being related to the cairn (which included also a find interpreted as a small crucible) was also considered (Lähdesmäki 1987: 27-28). Later the slag was dated using pieces of charcoal in the slag. The result 90 ± 110 (Hel-2572; Jungner & Sonninen 1996: 77) confirms that the slag is recent.

3.4.4. Early Metal Period hill-sites

3.4.4.1. Fortifications or something else?

Hilltop sites, mostly referred to as hill-forts or fortified settlements, is a category of sites occurring in many areas around the Baltic, being quite common also in southwestern Finland, including the present study area. There are a total of 20 sites registered as hill-forts within the area, nine of which are marked as uncertain (Fig. 45). The uncertain cases must really be regarded as dubious as the classification is mostly based on topography or placenames whilst no constructions, nor any artefacts, have been confidently identified at these sites. The eleven cases regarded as assured all have stone constructions sealing off parts of the hill; some of them also have yielded archaeological finds. The main questions regarding the hilltop sites are related to the chronology and function of these sites: when where they used and for what?

According to Luoto (1984: 166; *cf*. 1980) there are three main phases of utilisation of hill-forts in Finland: 1) the Late Bronze Age and the earliest Iron Age (1000-400 BC), 2) the middle of the Iron Age (400-800 AD) and 3) the end of the Iron Age and

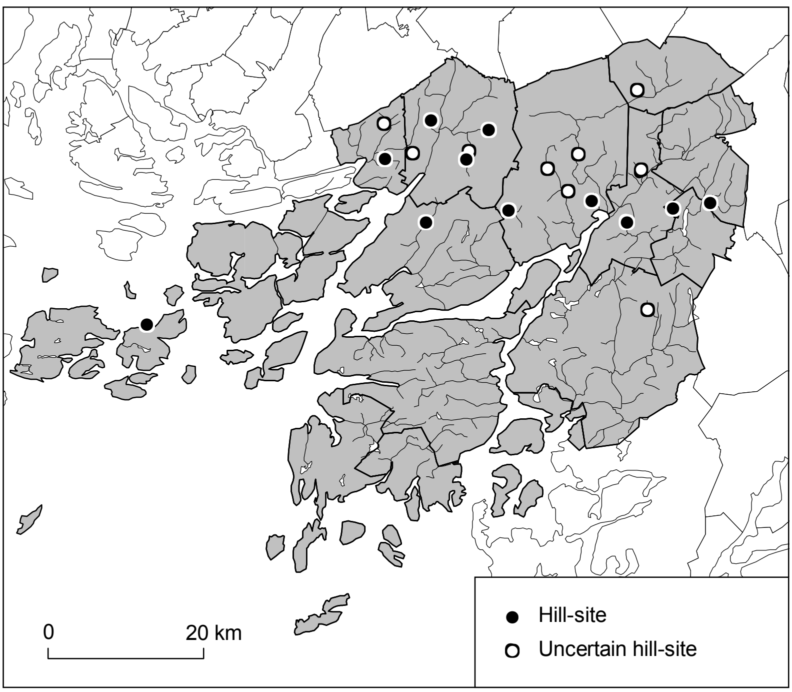


Fig. 45. Hill-sites – usually classified as hill-forts – within the study area.

the early Middle Ages (the 11th century until the 14th century).[38] This result refers especially to the investigations of the hill-fort Vanhalinna in Lieto (outside the study area), but also to a comparison of all hill-forts in Finland and Eastern Karelia. Later Taavitsainen (1990; 1999b), basing his research on partly the same material, has presented a different view. According to him, hill-forts in Finland came into use during the Crusade Period and remained in use throughout the early Middle Ages and in some cases even later. He notifies, however, that also an Early Metal Period stage of occupation can be found on some hill-forts. Regarding the time-span of special interest for this study the initial period of use of hill-sites is the most interesting, as the choice of sites and activities performed at them may comprise important information about Early Metal Period society. This has for example been pointed out by Olausson (1995), working with a material from the eastern part of Central Sweden. He has connected the development and use of Early Metal Period hill-sites with political geography, suggesting hill-sites as one possibility of identifying social organization and different socio-political groups.

One problem regarding the interpretation of the early hill-sites in Finland is that reliable datings are available from so few of them. One established case is the Hautvuori hill-site in Laitila (outside the study area), sealed of on one side by a low stone construction, where textile impressed pottery has been found (Appelgren 1891: 44-48, Kuva 27; *cf*. Luoto 1980: 63; 1984: 156, 161). When C. F. Meinander (1954b: 184-185) dealt with the site, he interpreted the stone construction as younger than the pottery. According to him the pottery could be dated to the Bronze Age and the

[38] The most problematic of these periods is the middle one. According to Luoto (1984: 164; 1990a: 62-66), there is evidence of a markedly increase in activities related to hill-forts in both Sweden, the East-Baltic area as well as Finland during the Migration Period when at the same time – the end of the sixth century AD – hill-forts were taken into use in the southern part of the Baltic and in the whole area of the Western Slavs. In addition to the Vanhalinna hill-fort, Luoto (1984: 163; 1999) mentions two Finnish sites – Rapola in Sääksmäki and Kauttua in Eura – dating to this period, both of which are dated on the basis of only one artefact. The finds datable to the period in question are a fragment of a spearhead (ango) (KM 12405: 1) from Rapola and a fragment of a battle knife (sceax) (KM 11638:5) from Kauttua. Both of the finds are slightly younger than the proper Migration Period, i.e. they belong to the Merovingian Period. In addition to these two cases Taavitsainen (1990: 127-128, 140-141) has listed Merovingian Period finds from other sites as well, however rejecting all the dates due to conflicts with local settlement history and natural-scientific datings, interpreting single old artifacts – including those from Vanhalinna – as scrap metal collected for reuse. In the case of Rapola Taavitsainen (1999b: 139-143; *cf.* Luoto 1999) has suggested a dating in accordance with three radiocarbon dates to the Middle Ages. The quantity of use of hill-sites in Finland during the Migration and Merovingian Period is thus uncertain. In addition to the problematic single artefacts found on some hill-sites there are, however, a couple of radiocarbon dated cases – Nakolinna in Paimio (Luoto 1990a) and Rikala in Halikko (see below) supporting such datings.

stone construction to the Late Iron Age. The late dating of the stone construction is not supported by any finds at the site, just by a general idea of hill-forts with stonewalls belonging to the Late Iron Age. This is a problem concerning all of the early hilltop sites in Finland as the stone constructions themselves are difficult to date; some early activities on hilltop sites can be identified, but whether these activities were directly related to building stone fences sealing off the hills is not certain. On the other hand the idea of findless hill-sites with stone fences belonging only to the Late Iron Age or the Middle Ages is just as unfounded; in principle there is as a good possibility that many "hill-forts" actually could belong to an earlier period.

In addition to the Hautvuori hill-fort, Luoto (2003) has discussed the nearby Kirkenlinna hill-fort and a stone construction at Vähä-Kuuvanvuori (both in Laitila) with reference to a possible Early Metal Period dating. The Kirkenlinna site (*cf*. Appelgren 1891: 42-44, Kuva 22) is similar to Hautvuori in the sense that also here a stone construction is sealing off part of the hill, but no finds supporting an early dating have been found. As the only finds are pieces of burned clay the site cannot at present add much to the discussion on chronology. More interesting is the Vähä-Kuuvanvuori case. At this low hill an enclosure has been erected without any obvious reason. Archaeological and archaeometrical investigations in the 1990's did not reveal any evidence of habitation in the form of artefacts, cultural layers or increased phosporus contents. The only artefact that might be connected with the use of the site is a fragmentary stoneaxe (KM 18913) of Bronze Age type found earlier as a stray find on top of the hill. Due to the relatively low elevation a Bronze Age dating for the site is, however, not likely. With reference to the occurrence of the same type of stone axes still in the Early Iron Age Luoto (2003: 177-178; *cf*. Salo 1981: 291) has regarded the Pre-Roman Iron Age as the earliest possible date for the site. He has also compared Vähä-Kuuvanvuori with a low hill-site containing an enclosure at Saarnummi in Kodisjoki, where cairns of Early Metal Period character are found close by. Luoto suggests that this site together with Vähä-Kuuvanvuori indicates the occurrence of such enclosures as early as the Bronze Age or the Early Iron Age.

The main hill-site showing clear evidence of utilisation during the Early Metal Period is the Vanhalinna hill-fort in Lieto. At Vanhalinna the Late Bronze Age is well represented in the form of ceramics, but traces of Early Iron Age settlement have been regarded as absent. The lack of typical Morby Ware has been interpreted as an indication of no habitation after about 500 BC (Luoto 1980: 62; 1984: 151). On the other hand the coarse tempered striated vessels the rims of which have been decorated with impressions of indistinct form (type VEC) have rightfully been interpreted as related to Morby Ware (Luoto 1984: 110, 226) and could, in principle, date from the Early Iron Age. Another type of pottery most probably datable to the Pre-Roman Iron Age is a single piece of a vessel decorated with comb-like impressions (type VDA), interpreted by Luoto (1984: 109, 160, 226) as Typical Comb Ware. The same type of pottery occurs in Estonia, where it is dated to the Pre-Roman Iron Age (Taavitsainen 1990: 140, 240; *cf*. Lang 1996: Tahvel XLIV: 9, Joon. 12:3, 52, 288-289; 2006a: 129-130; Kriiska & Tvauri 2002: 131). Another find that might belong to the Early Iron Age is a shepherds crook pin, previously dated to 550-750 AD, with the reservation that it might be somewhat earlier (Luoto 1984: 71, 201). This find resembles Estonian pins dated to the Pre-Roman Iron Age (Lang 1996: Tahvel X: 5-6, Tahvel XLIV: 3, 55, 288-289) and might, as suggested earlier by Taavitsainen (1990: 140), date to this period.

In addition to the cases mentioned above there are three sites within the study area, which have been dated to the Early Metal Period, namely the Huttala hill-fort in Piikkiö, Lautkankare in Sauvo, and Rikala Linnamäki in Halikko. These sites will be presented in closer detail below. Furthermore "epineolithic" ceramics have been found at Hiukkasaari in Vammala (Luoto 2004), Linnosaari in Valkeakoski and probably also at Linnasaari in Tiuri, Räisälä (Taavitsainen 1990: 228, 240; Carpelan 1997). Worth noting are also finds of Stone Age artefacts and related material which cannot be given a precise dating that have been found at several other hill-sites (Taavitsainen 1982; 1990: 127, 132; *cf*. Lahelma & Sipilä 2004: 13-14). The Hiukkasaari, Linnosaari and Linnasaari cases are islands, where the early finds are not necessarily related to the islands being used as fortifications or in some other way similar to the use of proper hill-sites. The latter ones, on the other hand, may hint to some interest in hill-sites as early as the Stone Age. Another kind of such an interest could be the rockpaintings located on steep hillslopes and on hills with special shapes. There does not, however, seem to be any apparent connection between hill-forts and rock paintings (even if they may occur together). As the Stone Age material remains obscure, it seems that the first hill-sites in the form discussed here – with or without wallstructures – came into use during the Early Metal Period.

The interpretation of different types of hill-sites has been discussed especially in Sweden. One way of approaching the problem has been rejection of the general explanation of all sites as hill-forts (often used with a simplistic division into settled forts and refuge forts) and starting from the assumption that the "forts" are first of all enclosures, the enclosed space of which could have had different purposes, not all of which necessarily related to fortifying (Johansen & Pettersson 1993: 32-35, 80-81; Olausson 1995; Johansen 1997: 115-117; Wall 2002; 2003). Some archaeologists have totally abandoned the idea of Bronze Age 'hill-forts' being fortifications, and also 'hill-forts' of the Iron Age have been considered likely to have other functions (*e.g.* Carlsson 2005: 168). Late Bronze Age and Early Iron Age hill-sites have, for example, been discussed as "henged mountains" (Sw. *hägnade berg*), which are not fortifications but parts of the ritual landscape of the Early Metal Period and the Early Iron Age (Olausson 1995; Wall 2002; 2003; *cf.* Carlsson 2001: 57-60).[39]

The variety of hill-sites has been exemplified by Michael Olausson (1995) within Uppland in central Sweden, where proper hill-forts, different kinds of enclosures as well as hilltop settlements were introduced in the Early Metal Period. These enclosure sites do not represent only one category of sites; many of them have been of mainly symbolic/ideological character and in only a few cases of a more practical and functional nature. The sites in Uppland occur during both the Late Bronze Age and the Early Iron Age, but it seems that different types of hill-sites characterize the Early Iron Age from the Late Bronze Age. No proper hill-forts dated to the Pre-Roman Period occur in the area; only some datings from the centuries before and after the birth of Christ are available (Olausson 1995: 156). Bank enclosure sites (Sw. *vallanläggningar*) are a category partly divergent from the hill-forts, dating from the Pre-Roman Iron Age up to the Early Roman Iron Age when they seem to have been abandoned. Some of the bank enclosure sites may have had fortification functions while others having ramparts of noticeably smaller dimensions – some of which are more like rows of stones than real banks or ramparts – obviously acted only as symbolic/ideological boundaries (Olausson 1995: Fig. 5:4, 156-157, 237).[40] Similar structures have been investigated in Södertörn in eastern Central Sweden by Wall (2002; 2003). In the Södertörn case there are some sites dated to the Early Metal Period, but the main focus of Wall's study is on the Late Roman Iron Age

[39] One suggestion is that the ritual use of these hills and enclosures could have included the conception that the mountains housed the souls of the dead (Johansen 1997: 134, 145; Carlsson 2001: 60; 2005: 168). A more general interpretation is that the mountains were "holy", liminal places – mythically sanctioned boundary zones, where transitional phases in social relations between people and groups could have been handled (Wall 2003). Iron Age (especially the Roman Iron Age and Migration Period) henged hill-sites, on the other hand, have also been discussed in relation to ancient Scandinavian mythology, where the henged hills could have acted as cultic places with enclosures separating the world of the living from the worlds of the gods and giants (Carlsson 2005).

[40] The idea of stone constructions on hill-sites being merely symbolic boundaries has not been much expressed in the Finnish research. One important exception is the suggestion by Luoto (1999; 2003: 176-179; 2004: 92-98) that some of the Finnish hill-forts would belong to the category of 'temple forts' (Fi. *temppelilinna*), *i.e*. having a function as sanctuaries or sacrificial sites. According to this view finds occurring on some hill-forts could be interpreted as offerings rather than items deposited in a functional context. Luoto (2003: 178) has furthermore suggested (with reference to the Vähä-Kuuvanvuori and Saarnummi cases) that these henged hills could be a modification of the idea of stone circles found in Bronze Age cairns and as such comparable also with the cells of *tarand* type cemeteries.

and the Merovingian Period. Indications of a Pre-Roman and Early Roman period of fortifications occur also on the Swedish island Gotland, but the excavated sites and dated materials are sparse (Cassel 1998: 141-144). These early enclosured sites are situated on flat ground, whereas proper "hill-forts" seem to belong to a period starting with the Late Roman Iron Age.[41]

Several forms of hill-sites or enclosured sites on flat ground have also been distinquished in the East Baltic area (Lithuania, Latvia and Estonia), including fortified settlements, hilltop settlements, ring forts and promontory hill forts. The earliest sites are found in the southern part of the area, where they came into use as early as the end of the second millennium BC, whereas in Estonia such sites start to occur in the Late Bronze Age (Lang 2007a: 41, 88; 2007b). Several sites have also been in use during the Pre-Roman Iron Age (as well as during the Late Iron Age). More exact datings are often difficult to achieve as, for example, ceramic finds may be datable only to the Pre-Roman Iron Age or the Early Metal Period in general. In Estonia it seems that late Pre-Roman Iron Age dates are more frequent than those from the earlier half of the period. One exception is the Võnnumägi hill at Keava, where radiocarbon dates indicate its use during the 4th or 3rd century BC (Lang *et al*. 2005b). The use of many fortified sites seems to cease after the Pre-Roman Iron Age. This is the case in Estonia and parts of Latvia, while Roman Iron Age dates have been obtained from Lithuania (as well as from sites in the part of eastern Latvia) (Lang 2007a: 157-158). The Estonian date-pattern applies in general also to the Finnish material, *i.e.* the indications of early use of hill-sites roughly correspond to the Late Bronze Age and the Pre-Roman Iron Age.[42]

3.4.4.2. Piikkiö, Paimio and Sauvo

The only ascertained hill-site in Piikkiö is the Huttala "hill-fort" (Linnavuori), a steep mountain, one slope of which is sealed off by a stone fence (Appelgren 1891: 54-55; Luoto 1984: 156; 1989: 29-30, 54-55). The stone construction is damaged, but it seems to have consisted of rather few stones, more like a boundary marker than a fundament for a barricade (Fig. 46). The stone construction marks the outer border of a lower plateau, the inner border of which is formed by the natural shape of

[41] Enclosured sites – ring forts – comparable to those on Gotland also occur in the western part of Estonia. Based on pottery finds datings to the Early Iron Age in general, or more specifically to between the end of the Pre-Roman Iron Age and the end of the Roman Iron Age have been suggested (Konsa *et al.* 2006).

[42] There is one radiocarbon date indicating the use of hill-sites during the (Late) Roman Iron Age. It was obtained from a potsherd found at Vanhalinna in Lieto. The dating was made from crust in connection with another study and is so far unpublished.

the slope rising to the top-plateau of the mountain. This is the typical location of constructions on henged mountains described by Wall (2003: 126-129). Whereas most henged mountains do not have cultural layers Huttala is different as test excavations have demonstrated that there is coloured soil and finds preserved in the topsoil of the lower plateau as well as in cavities on the upper plateau. Excavations conducted in the 1980's revealed Iron Age ceramics and iron slag (TYA 226:1-20). The ceramics have few datable features, but one piece is datable to the end of the Iron Age while one piece belongs to a pot with a striated surface (Luoto 1989: 55). One radiocarbon date from charcoal found near the stone construction gave the result 1990 ± 130 (Hel-1970). The wide probability ranges of the date are problematic; calibration gives the result 400 cal BC – 350 cal AD, with a 65.8 % probability for the period 180 cal BC – 140 cal AD. If the Late Roman Iron Age is ruled out, the date could match the dating of the striated pottery. The relationship between the radiocarbon date, the pottery, the stone construction and the activities performed at the site still remain difficult to explain. The radiocarbon date and the pottery indicate Early Iron Age activity at the site, but it is not possible to date for certain the other features to this period. With reference to the dating of the henged

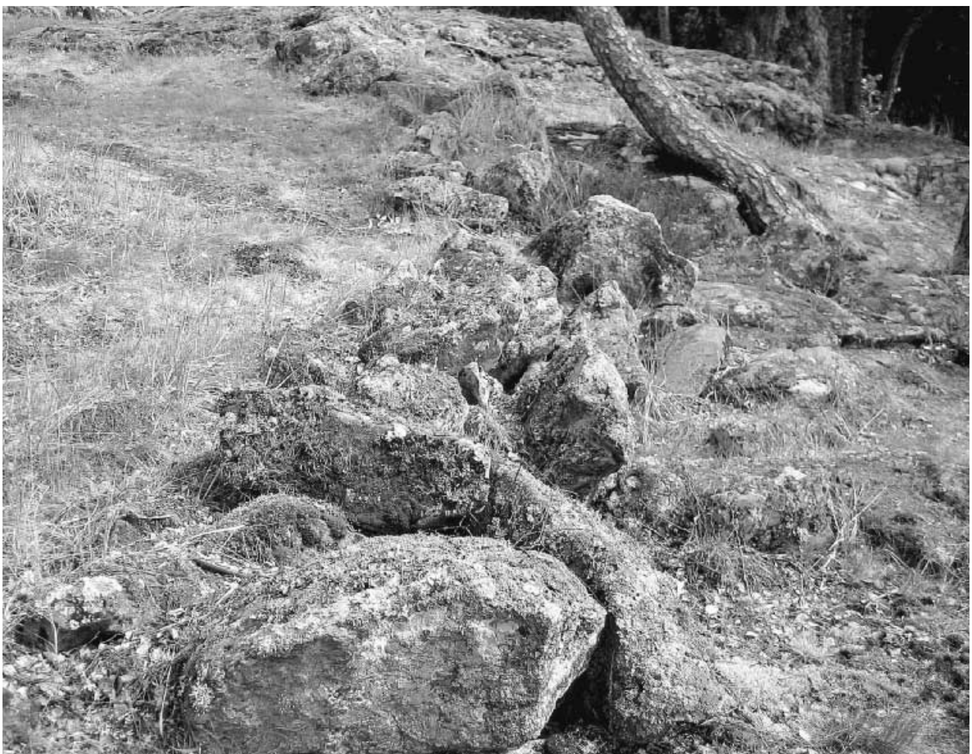


Fig. 46. Stone construction at the Huttala hill-site in Piikkiö.

mountains in eastern Sweden there is, however, good reason to suppose that also the stone construction could be of the same age.

In Paimio there are three hill-sites where stone constructions have been discovered. Excavations have been performed on one of them, the hill-site Nakolinna (Appelgren 1891: 55-57; Erkola 1973: 60-61; Luoto 1990a). At this site the top of the mountain is almost encircled by a low stone construction. In 1979 some test pits and a trench across the stone wall were excavated. No finds were revealed, but charcoal found beneath the stones of the wall was radiocarbon dated. The result was 1540 ± 110 BP (Hel-2729; Luoto 1990a: 54), *i.e.* 250-690 cal AD, with a 68.2 % probability for the period 420-640 cal AD.[43] Linking the charcoal with the stone construction is of course not unproblematic. The radiocarbon date obtained is, however, so far the only available dating for the site.

Another hill-site is the Ruokolinna hill in the village of Sattela, where the remains of a stone construction have been reported on the northeast, east and south sides side of the hill (Appelgren 1891; 58; Ikäheimo 1982: 68). The nature of the site remains unclear as no excavations have been made and there has even been some confusion concerning the character of the stone constructions (*cf*. Erkola 1973: 61). Much more interesting is the third of the hill-sites in Paimio, the Rekottila "hill-fort" (Linnamäki) (Appelgren 1891: 58-59; *cf*. Erkola 1973: 61). The Rekottila site is situated on the highest part of a steep mountain. The highest area is sealed off by a few stone settings, the biggest of which is situated in a big notch on the hillside. On the opposite side of the mountain there are three cairns, two of which were excavated in 1885. The opened cairns contained no objects, but their general character is that of cairns generally dated to the Bronze Age. The Rekottila complex furthermore includes a probable rockpainting, situated on a concave slope of the hill underneath the stone constructions of the "hill-fort". At present it is not possible to date the site accurately, but the idea that the cairns are from the Bronze Age and the hill-fort from the Iron Age is no more likely than the possibility that all components of the complex are contemporaneous. This may in fact be one site indicating early use of henged mountains within the study area.

A more credible Early Metal Period dating has been obtained from the Lautakankare "hill-fort" (Linnamäki) in Sauvo (Luoto 1990b: 36-44; cf. 1980: 63; 1984: 155-156). At the Lautakankare hill-top, between outcrops of bedrock, there is a large depression, sealed off by a short stone wall. Excavations performed at this spot as well as at a location down the hillslope have revealed cultural layers

[43] Luoto (1990a: 54) has discussed the result of calibration with somewhat different numbers, the end result being the interpretation that the erection of the stone construction most probably took place during the Migration Period.

containing smooth-walled as well as striated and textile-impressed ceramics, burned clay, a few flakes (flint, quarz, and porphyrite) some pieces of burned bone etc. Five pottery fragments (TYA 139:41) have shallow impressions on the brim. In addition, textile-impressed and striated ceramics with so-called "cat's paw" impressions have been found (Luoto 1990b: 38-39; *cf.* TYA 139:40, 59). These pottery finds – at least partly classifiable as Morby Ware – indicate a Pre-Roman dating for the early stage of use of the site (*cf*. Luoto 1984: 161; 1990b). Other finds, like smooth-walled pottery decorated with cord impressions, indicate Late Iron Age activities, at least on the lower location downhill. The Early Metal Period finds have been interpreted as indicative of a settlement site. According to one view, Lautkankare is an example of an early settlement, the location of which has been chosen with the increased possibility of defence in mind. Luoto (1990b) has regarded such sites (including Vanhalinna and Huttala) as settlement sites with the role of centres with regard to defence and economy.

3.4.4.3. Halikko, Salo, Pertteli and Muurla

The Pöylä "hill-fort" (Linnanmäki) in Halikko is one of the less well known hill-sites within the study area. It is enclosed by a ca. 90 metre long, partly intermittent henge (Hirviluoto 1992: 77-78). No information on the dating of the structures is available. The site, located outside the area of Iron Age cemeteries of the Halikko area, resembles the idea of a henged mountain described above more than a proper hill-fort.

A quite different site is the Rikala "hill-fort" (Linnamäki) in Halikko, which is probably the most recognized of all the hill-sites within the study area. This is mostly due to the site being part of the Rikala complex, which includes (among other features) a Merovingian Period cremation cemetery and a famous Late Iron Age (mainly Crusade Period) inhumation cemetery rich in finds, but also indications of Pre-Roman settlement. Already long before the inhumation cemetery was found in the 1950's, local tradition combined Rikala with richness (Fi. *rikas*) and even the idea of the area having had a townlike character was presented (*e.g.* Appelgren 1891: 63-64). Later Rikala was regarded as a Late Iron Age trade centre and the site of a chief, who according to one view acted as the leader of the whole Halikko area (Hirviluoto 1992: 125). Thus, the function of the hill-site – watching and protecting the Rikala area – has been seen in the light of Rikala as a whole. The hill-site has been known for centuries due also to the quite massive stone construction at the site, about 180 metres long, running along the southern and southeastern edges of the top plateau of the mountain.

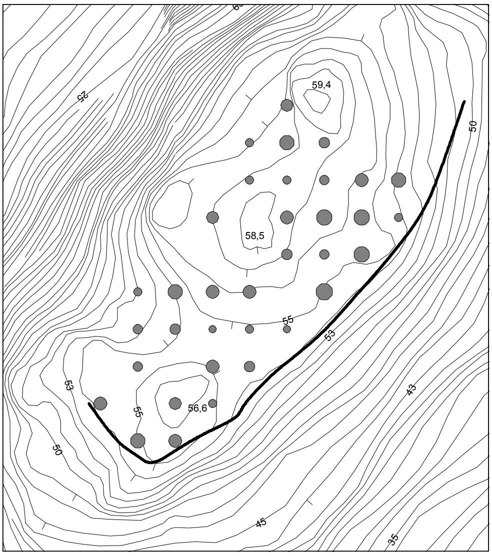


Fig 47. The result of phosphorus mapping at the Rikala hill-site. The sample interval is ten metres. The larger the dot the bigger the concentration of phosphorus. The stone construction is marked with a line.

The possibility of cultural layers being preserved at the hill-site has earlier been indicated by a couple of pieces of Iron Age pottery (KM 16750; TYA 157:1-2) found close to the stone construction. The question of whether other traces of activities can be found at the site was explored further in 2001 using phosphorus mapping (Asplund 2003). Soil samples were taken with a narrow borer, which gave some possibilities to also visually detect unnatural colourings or disturbed layers in the soil. At a few sampling points possible cultural layers could actually be seen. The phosphorus content was relatively high in many samples, but the standard deviation is rather low when all samples are compared and no single anomaly restricted to only a specific area of the site could be located (Fig. 47). This could in principle indicate a generally high concentration due to local circumstances or due to the technique of analysis, but in this case it is more likely that the high phosphorus content is related to human impact, *i.e.* activities that are reflected in several parts of the investigated area. This is indicated by the observations of possible cultural layers in the bored samples, unnatural moundlike formations visible just inside the stone construction as well as the archaeological finds obtained during a minor excavation performed the year after the phosphorus survey (*cf.* Asplund 2007).[44]

[44] In addition to phosphorus content some of the Linnamäki samples were analysed regarding their contents of potassium, calcium, copper, lead, magnesium, manganese, sodium, iron and zinc. The average concentrations of calcium, iron and lead were found to be bigger than background concentrations in natural soils on the average – the high iron content might, however, be due to non-cultural geochemical processes (Laine 2003: 50-51). It could also be noted, that almost all of the investigated elements showed concentrations lower than comparative results from Iron Age and medieval settlement site samples. On the other hand the highest amount of lead, iron and copper occurred within the same sample, which indicates a probable anthropogenic impact rather than a coincidence; in the same manner another single sample contained the highest concentrations of manganese, zinc and calcium (Laine 2003: 28, 32).

The excavation area was chosen according to the information obtained in the survey. A testpit one square metre wide was investigated close to some of the sample spots where the highest concentrations of phosphorus as well as one indication of unnatural soil layers had been previously detected. At the excavated spot there was a layer with the maximum depth of about 25 cm where artefacts and a little soot and charcoal had accumulated. The finds (TYA 817:1-40) consist mainly of pottery, 68 pieces in all. The main part of the pottery is of a general Iron Age / medieval type and belongs to two vessels, one of which coarse (Fig. 48), the other having a slightly smoothed surface. In addition to this, there are single pieces from a few other vessels. The only decorated piece (TYA 817:24) is a fragment with a couple of lines, probably forming a zigzag line close to the rim. This fragment can unfortunately not be dated – it probably belongs to the Late Iron Age, but somewhat similar wavy lines may occur also on Late Bronze Age vessels. Instead, the most interesting pieces of pottery are two small fragments with a textile-impressed surface (Fig. 49). Although small in size, these fragments can be quite reliably dated to the Early Metal Period.

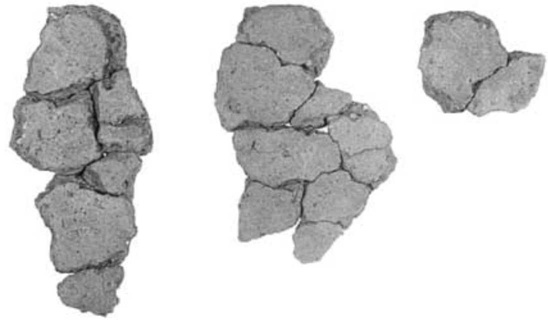


Fig. 48. Iron Age / medieval type pottery (TYA 817) from the Rikala hill-site.

Another attempt to date the site was made using radiocarbon dating. This was done using the crust on one piece of pottery (TYA 817:1) and one charcoal sample (TYA 817:40) gathered from the excavated layer. The result obtained from the potsherd was 1395 ± 35 (Poz-3576), *i.e.* 560-700 cal AD and that of the charcoal sample 1160 ± 40 (Poz-3577), *i.e.* 770-980 cal AD. The dated samples are clearly of different age; the former dates to the Merovingian Period and the latter to the Viking Age. The Merovingian Period crust dating must be regarded as quite reliable and as an indication of the use of the site during this period, whereas the Viking Age date obtained from charcoal should be viewed more critically. It is clear, however, that the charcoal was formed at the site later than the Merovingian Period. When summing up the information from the small investigation at Rikala, it has been

Fig. 49. Fragments of textile-impressed ware (TYA 817:18, 21) from the Rikala hill-site.

made clear that there are cultural layers at the site, evidently containing much pottery. Whether this is due to actual dwelling at the site is uncertain.[45] What is obvious is that this hill-site shows both a Bronze Age or Early Iron Age period of activity as well as a later Iron Age period of use. In this respect it resembles the previously presented Huttala and Lautkankare sites within the study area.

The remaining hill-sites in the eastern part of the study area remain more obscure. In Salo the hill-site of Hakastaro evidently belongs to the Historical Period, judging from the use of mortar in the wall construction (Appelgren 1891: 67-71; *cf*. Luoto 1984: 155; Hirviluoto 1991: 182-184). In Pertteli the Pöytiö "hill-fort" (Linnamäki) is a small, steep hill, partly enclosed by the remains of a stone henge (Appelgren 1891: 72). The site has not been investigated further. The same goes for the Järvinen "hill-fort" (Linnamäki) in Muurla (Appelgren 1891: 71-72; *cf*. Koivisto & Saariluoma 1957: 24). This is a quite big, steep mountain, where short (about 10 metres at the longest) stone constructions have been assembled in a few cavities (canyons) on the upper part of the hillsides. Due to the large size of the mountain in combination with the modest constructions it is hard to think of the site as a place where stone constructions have been erected with the aim of fortification.[46]

3.4.4.4. The archipelago area

Within the archipelago zone of the study area hill-sites of the types portrayed above have not been registered – with one exception, the island Bårnholm in Nauvo, described as an ancient fort as early as 1674 (Appelgren 1891: 7; Nordman 1937; Tuovinen 1990a: 71-73; *cf*. Dahlström 1995: 96-101).[47] At this steep rocky island a ca. 20 metre-long stone rampart with a one metre wide opening can be seen on the upper slope and traces of a possible other hedge further downhill. On the top of

45 Two soil samples were taken from the excavation area for palaeoethnobotanical analysis. The samples, analysed by Terttu Lempiäinen, did not, however, contain any macrofossils that could be connected with the prehistoric use of the site.

46 Among the hill-sites regarded as uncertain within the study area, the Veitakkala site in Salo could be mentioned, as archaeologists have had different interpretations of the importance of the site. In the 19th century possible remains of ramparts were registered (Appelgren 1891: 65-67), but after that obvious constructions have not been confirmed at the site. There is, however, a cairn at the site, which was excavated in the 19th century. In the cairn an Early Bronze Age dagger (Appelgren 1891: Kuva 33) was found as well as a knife made of iron. The knife is not necessary prehistoric (Schauman-Lönnqvist 1989: 72). Despite the problematic material the site is included in Luoto's (1990a: 48) list of sites matching the criteria for hill-forts in Finland Proper. Hirviluoto (1991: 181) has even regarded it as a typical Iron Age fortification. This is too straightforward an interpretation, as even the first descriptions of the site in the 19th century were vague.

47 The name also occurs in the form Bornholm.

the island there is a swampy depression that gathers rainwater. With reference to this waterfilled cavity C. A. Nordman (1937: 27-28) has connected the name of the island with the German word *Born* with the meaning of a well or, more generally, drinking water. The name would thus probably belong to the Middle Ages, when the German influence in Finland was at its greatest. In oral tradition the site has been explained as a refuge site during the time when Danes were present on the Finnish coast (Appelgren 1891: 7; *cf*. Tuovinen 1990a: 72). When referring to chronology this could mean the Middle Ages or the 16th century. Also the possibility of the site being a hideout used during the 18th century wars against the Russians has been suggested in local tradition (Dahlström 1995: 99). The mentioning of the site as an ancient fort already in the 17th century attests, however, that such a late use of the site must have been secondary. Archaeologists have regarded a dating to the Historical Period as plausible *(e.g*. Tallgren 1931: 158), but it is as possible that the history of Bårnholm is older (Tuovinen 1990a: 72). As the stone construction is situated quite high above water there is even the theoretical possibility that the main stone construction would date from the Early Iron Age. If this had been the case, the island would, however, at that time have had much less of its present day character of a monumental high mountain. On the other hand, some of the mainland hill-sites discussed in an Early Metal Period context have, at their initial time of use, been situated close to water, too.

The only equivalent site in the archipelago is the island of Borgholm in Iniö (outside the study area) (Appelgren 1891: 7-8; Tuovinen 1990a: 74-78; Tuovinen *et al*. 1992). The highest point of this island rises about 28 metres above sea level. On the lower slopes there are several stone constructions, forming about 450 metres of stonewalls altogether (Tuovinen 1990a: 32). Also on this island there is a swampy area where water accumulates. Due to the low elevation (ca. 8 metres above sea level at the lowest) the stone constructions cannot be older than the Late Iron Age. As this site (like Bårnholm) was regarded ancient already in 1674, the dating of the site should be somewhere between 800 and 1600 AD (Tuovinen 1990a: 74; Tuovinen *et al*. 1992: 30).

Both Bårnholm and Borgholm have been regarded as refuge sites where local people would have sought shelter in times of danger (Tuovinen 1990a: 71; Tuovinen *et al*. 1992: 39). So far there are no finds from either of the sites. Only two possible areas of anomalous phosphorus concentrations registered at Borgholm (Tuovinen *et al*. 1992) say anything of the use of these places. One question to ask is, whether not also these two hill-sites in the archipelago could have functioned as something other than fortifications – like probably many of the hill-sites on the mainland. At least it is improbable that the sites would have functioned as refuge forts for people living in the villages on the bigger islands. Gathering on these small spots would have been a difficult and dangerous process requiring boats, offering a poor hiding place and providing no straightforward way of retreat in case of actual combat at the site.[48] Possibly these sites were of a more symbolic nature, *i.e.* hills ritually marked or sealed off by a stone enclosure. If this is the case, Borgholm in Iniö is quite an important site, as it would indicate the erection of such sites as late as the Late Iron Age or the Historical Period.

3.4.5. Continuity or change?

Returning to the question of the overall settlement development and the problem of continuity, the function of the hill-sites has to be set aside for a moment. Despite the problematic question of continuity within sites, it is obvious that there is a general areal continuity of Pre-Roman settlement within the study area. Once again the material covering half of a millennium is embarrassingly sparse, but we may note the general large-scale similarity of distribution of sites compared with earlier stages. The western Piikkiönlahti and Paimionlahti area is still distinguishable, as is the Halikonlahti area in the east and the Kemiönsaari area in the south. What may be indicative of a change is that the Kemiönsaari settlement sites are not situated in the southernmost Dragsfjärd area as before but further inland, along long narrow bays or straits in Västanfjärd and Kemiö. No indications of settlement sites have so far been found in the more archipelagic areas of Nauvo and Parainen either. What may be happening is that the Pre-Roman sites more than before are related to agriculture and their location determined to a greater degree by the demands of a farming economy. Not only on Kemiönsaari but also on the mainland no truly coastal or marine-oriented sites can be identified, although all of them are situated within access to water, along rivers, bays etc.

Cairns were most probably still built during the Pre-Roman Iron Age in a much greater number than has been identified in the study area. From a few sites (outside the study area) Early Iron Age cairns are known in archipelago contexts (see chapter 6.6.3), but in general cairns dated to this period have not been found in positions comparable to the Bronze Age cairns, in rocky landscapes often far distant from settlement sites. The Pre-Roman cairns in Piikkiö and Muurla are found in other types of landscapes (like the cairns possibly datable to this period located in the vicinity of Pre-Roman settlement sites on Kemiönsaari). The material is too

48 The general idea of hill-forts being used as refuge sites (even when situated in more suitable topographic locations on the mainland) has been criticized by Taavitsainen (1990: 136-137; 1999b: 147).

small to draw any overall conclusion, but the cairn, as a symbol of contact between human beings and the land, may have been moving closer to settlement sites. The constellation of settlement, cleared fields and the place of the dead ancestors was perhaps emerging as the triad in relation to which Early Iron Age people defined their place in the world.

The hill-sites Huttalanmäki, Lautkankare and Rikala suggest an interest in a form of places not seen in the research area prior to this. The emergence of such sites cannot be exactly dated, but both Huttalanmäki and Lautkankare indicate the use of the sites in the Pre-Roman Iron Age. At Rikala such a dating would fit the fragments of textile-impressed ceramics found, but a slightly earlier dating is possible. Whether these sites actually were enclosed by stone constructions already at that point is not certain, but it seems plausible, like the idea that some of the other, findless, hill-sites in the area may have been fenced during the Early Metal Period. The emergence of this type of site may be indicative of some changes in society at this time. If the three sites containing cultural layers were to be interpreted as actually settled, it would indicate an interest in staying at (or at least having access to) a defensive or monumental location. If the sites are of a more symbolic nature they could still be seen as indicative of some level of social complexity – maybe places for some to access and some not, or places at which to gather on certain occasions. These sites might actually speak of social complexity more than the building of large cairns during the Bronze Age. What must especially be pointed out is also the location of these sites. The ones with cultural layers occur in areas on the mainland later to be characterized by the occurrence of Iron Age cemeteries. With the exception of Bårnholm (and Borgholm outside the study area) all hill-sites with stone constructions are situated on the mainland.

3.5. Iron Age material in the Kemiönsaari archipelago

3.5.1. Stray finds and cairns

The Iron Age AD on Kemiönsaari is characterised by a scarcity of observations of settlement or activity in the area. All in all there are only a few finds, many of which are uncertain. The earliest mention is in Volter Högman's report on the investigations in Kemiönsaari in 1886, in which there is a description of a possible cup-marked stone in the village of Berga in Kemiö. In southwestern Finland large boulders or exposures of rock containing cup-like depressions are rather common and tend to occur in connection with Iron Age sites. The dating of this type of remains is difficult due to one not being able to date the cup-marks themselves, but only to being able to compare the distribution with that of other types of sites. In Estonia, where cup-marked stones occur in even greater numbers than in Finland, the best correlation is actually found with Pre-Roman Iron Age sites. There the custom of making cup-marks by and large came to an end already in the Early Roman Iron Age, although prevailing longer in some peripheries (Tvauri 1997: 41). In Finland it is usually the Iron Age AD (even the Late Iron Age) that is drawn attention to. It cannot be excluded, however, that the custom of making cup-marks in some areas could have spread already earlier.[49] The cup-marked stones have generally been interpreted as sacrificial sites related to cemeteries or fields. In the Turku area a connection has been suggested between cup-marked stones, land ownership and the marking of boundaries, like boundaries of single farms as well as newly reclaimed outlying fields or other activity areas in boundary zones (Lehtonen 2000: 67, 78-79; Saloranta 2000: 23-25). The stone at Berga contained 15 depressions, but has unfortunately since disappeared, making it impossible to make sure whether it was a genuine cup-marked stone. The stone was located in the yard of Vestergård, from whence it is said to have been rolled into the water by children in the 1920's. This account is not particularly consistent with a cup-marked stone, as they are usually exposures of rock or large immovable boulders.

Another vague and unconfirmed statement by Tallgren (1931: 86) declares that Iron Age settlement may have existed in Dragsfjärd and in the Norrlammala village in Västanfjärd. The site referred to in Västanfjärd consisted of earth mounds and was situated near the Engström cottage in Västanvik (Tallgren 1931: 199). The site is mentioned also in a survey report from 1933 (*cf.* Cleve 1942: 24), but it has since then not been investigated further.

Fig 50. A fire-striking stone (KM 30444) from Helgeboda in Kemiö.

The only Iron Age find in the present-day municipality of Kemiö that can be considered certain is an elliptical fire-striking stone found at Helgeboda in Kemiö (KM 30444; Asplund 1997b:

49 In Sweden cup-marks most often occur in connection with Bronze Age rock carvings, but they may have been introduced as early as the Early Neolithic as they are found also on some megaliths (*e.g.* Burenhult 1983: 204-214).

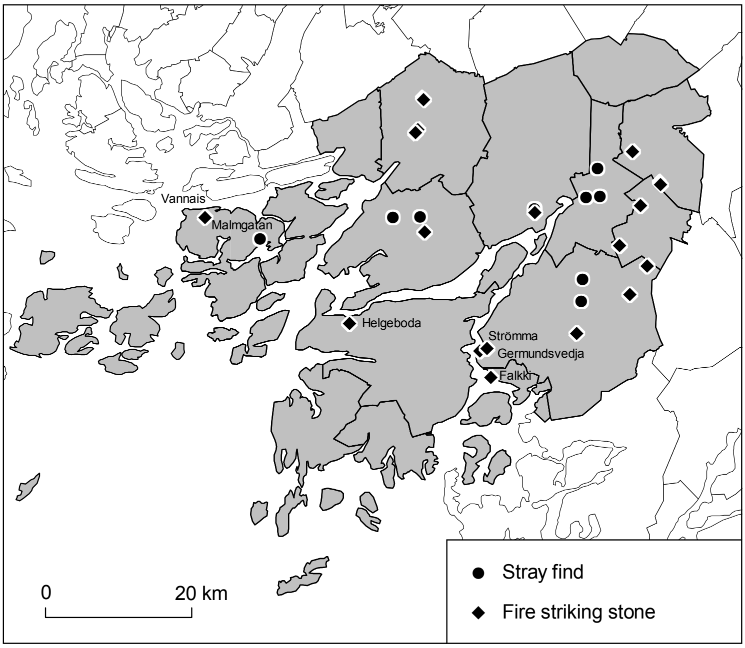


Fig. 51. Distribution of stray find sites with known location containing finds datable to AD 0-800.

262) (Fig. 50). Two similar ones have been found in the villages of Germundsvedja (KM 20323) and Strömma (KM 23042) in Perniö and one (KM 33309) in Falkki in Särkisalo, very close to Kemiönsaari (Fig. 51). Elliptical fire-striking stones were in use from the Early Roman Iron Age to the Merovingian Period, the main period of use being the Late Roman Iron Age and the Migration Period (Cleve 1943: 150-151; Salo 1968: 169; 1970; 77-78; Kivikoski 1973: Abb. 186-189; Pellinen 1999: 27) (Fig. 52).

Equivalents of the Finnish elliptical fire-striking stones are found in Scandinavia, where they are common (Hackman 1905: 241-252; Rydh 1921). Approximately 500 of these stones are known in Finland. They have mostly been found separate from other Iron Age finds and also often in areas in which there are no Iron Age cemeteries. The high number suggests that they were not lost but consciously sacrificed. The primary function of the stones most likely was the making of fire: an iron object was struck upon the stone, thus producing a spark that caught on tinder; it could then be built into a flame. Since no particular shape of the stone is necessary to produce a spark, their intentional and uniform shaping has to be connected with their symbolic meaning. The form, reminiscent of the female genitalia, suggests that these stones carried a fertility symbolism of some kind. As the spark given and the fire lit must have been elements in this symbolism, the worship of the god of thunder, lightning and fire, Ukko (Fi.) or Tor (Sw.), has been suggested as one explanation for the ritual significance of the fire-striking stones (Salo 1990a;

Period	Dating (BC/AD)
Pre-Roman Iron Age	500-1
Early Roman Iron Age	1-200
Late Roman Iron Age	200-400
Migration Period	400-550/600
Merovingian Period	550/600-800
Viking Age	800-1050
Crusade Period	1050-1200

Fig 52. Iron Age chronology of south-western Finland. In the study the Early Iron Age refers to the Pre-Roman and Roman Iron Age, the Middle Iron Age to the Migration and Merovingian Periods and the Late Iron Age to the Viking Age and the Crusade Period.[50]

1990b). The fire-clearance and utilisation of burn-beaten outland fields could have been one context in which the deposition of these stones took place (Meinander 1950: 134-136; Taavitsainen 1990: 67).

Another Iron Age find possibly relating to Kemiö is a sword (KM 7011) said to have been found in the village of Kila (Fig. 53). The sword in question is a Viking Age X-type sword, added to the collection of the National Museum of Finland in 1916. An inspection conducted in the village of Kila in the same year proved knowledge of the place of discovery to be very uncertain; the owner of the house reported as the place of discovery said that a bayonet had been found there, but knew nothing of a sword find (Asplund & Vuorela 1989: 68; Asplund 1997b: 261).

It is interesting to note that the number of Iron Age finds is slightly higher in the archipelago of Dragsfjärd than in other parts of Kemiönsaari. Although the sites are not numerous even in this area, all observations seem to indicate a rise in the significance of the area in the Late Iron Age. The first finds included a small pendant-like whetstone, found in a cairn on Stora Ängeskär in 1924 (Tuovinen 1990a: 62; 2002a: Fig 51). Similar whetstones have been found in Viking Age cemeteries in Sweden and in the Åland Islands. In addition, there are three cairns on Ängeskär and the adjacent Kaldholmen that are situated at such a low elevation, that they

50 The chronology is in agreement with established Finnish Iron Age chronology (*e.g.* Edgren 1993: 19; Huurre 1995: 117). There has been a discussion on whether the archaeologically defined end of the Finnish Viking Age and the start of the Crusade Pariod actually should be dated 1025 AD (Sarvas 1971: 50; 1972: 59). The dating – based on typical Crusade Period ornaments found together with imitations of Byzantine coins from the reign of Basil II (976-1025) and accepted by many archaeologists (*e.g.* Asplund 1997: 261) – has later been criticised. The coins, which the dating is based on, have remained in circulation for a long time and thus there is no reason to shift the period boundary (Talvio 2004). The end of the Crusade Period in southwestern Finland, on the other hand, has traditionally been dated 1150 AD. There is, however, evidence of pagan mortuary rites as late as around 1200 AD (Sarvas 1971: 52; 1972; Katiskoski 1992: 84-87) – a dating thus better suitable as the archaeological period boundary. Within the Finnish chronology, the Middle Ages begins after the Crusade Period. Whenever the concept 'early Middle Ages' has been used in this book it refers to the Finnish chronology where the period is defined as 1150-1323 AD (*e.g.* Vahtola 1988) or, more generally, 1200-1300 AD (Hiekkanen 2003: 252).

must date to the Iron Age at the earliest (Tuovinen 1990: 61-62: 2000a: 25). There are also cairns situated at similar low elevations on other islands in the surrounding areas of Hiittinen.

Further evidence of Iron Age activity in the archipelagic area of Dragsfjärd are certain pottery finds near Krogarudden at the cape of Purunpää (Edgren 1997b). Fragments of three or four ceramic vessels have been raised from the sea, one of which is nearly whole and has decorations of wavy lines on its upper part. The form and decorations in particular of the last-mentioned vessel are reminiscent of so-called Baltic Ware (Sw. *Östersjökeramik*), Wendish or western Slavic ceramics, which became common in the southern Baltic Sea area at the turn of the Iron Age and the Middle Ages. The Purunpää vessels were most likely used between the 11th and the 13th century (Kallberg 1990; Edgren 1997b: 31). Fragments of a vessel pertaining to the same age and cultural sphere have also been found at the trading site of Kyrksundet (Edgren 1995c: 53; 1997b: 31-32).

At Krogarudden itself, used as a harbour in the 17th and 18th century (Dahlström 1995: 31-48; Asplund 2001b) one small fragment of pottery (KM 30443) has been retrieved, which would appear to be from a rough-surfaced vessel fired at a low temperature. This fragment too is more likely to be connected with the ceramic technology of the end of the Iron Age or the Middle Ages than with 17th century pottery-making techniques (Asplund 1996: 9; Asplund 1997b: 269). Although this single fragment has only minor value as evidence, it may be an additional

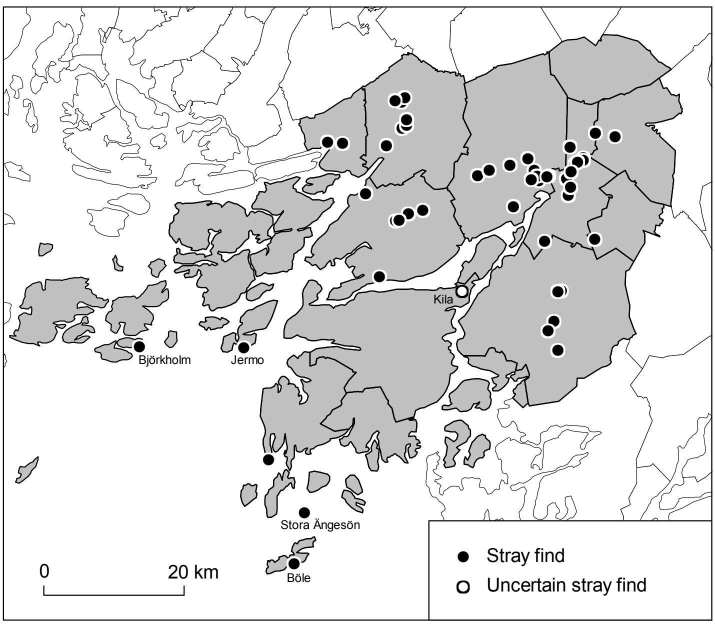


Fig. 53. Distribution of stray find sites with known location containing finds datable to AD 800-1200.

indication that Purunpää too was significant as a harbour as early as the Middle Ages. Another find difficult to interpret, which may reveal something about the Late Iron Age in the archipelago, is a fragment of a rune stone found at Stora Ängesön in Dragsfjärd. The inscription is probably from the late 11th century, but when and how the fragment was deposited at the site is not known (Åhlén *et al.* 1997; Åhlén *et al.* 1998; *cf.* Edgren 1999a: 19-21).

The most important Late Iron Age site is Kyrksundet in the Hiittinen archipelago in southern Dragsfjärd, where a trading site has been investigated. Close to this site, at the village of Böle, one Viking Age axe (KM 2503A:3) has also been found. Axes of this C-type occurred in Finland as early as the end of the Merovingian Period, but the form of the Böle axe is considered to be related to Viking Age axes of this type (Wuolijoki 1972: 5-7).

3.5.2. The Kyrksundet trading site

Between the two main islands in the Hiittinen archipelago, Hiittinen and Rosala, an island called Kyrkön, "Church Island", was earlier situated. Nowadays Kyrkön is part of the island of Hiittinen. As indicated by the name, the church and graveyard of the archipelago parish of Hiittinen (nowadays part of Dragsfjärd municipality) was situated here, until the site of the church was moved to the village of Hiittinen in 1637. The old church island and the island of Rosala are separated by a narrow strait called Kyrksundet – "Church Strait" – known as a toponym since the 14th century. The first occurrences of the name are found in two letters signed at the site by King Magnus Eriksson in 1347. The name, however, had a broader meaning than the strait alone; the whole parish of Hiittinen was formerly known as Kyrkosundsskär, "Church Strait Islands". It is still possible to sail through Kyrksundet strait. It leads between the large islands towards the village of Hiittinen in the southeast. Although the strait is a sort of shortcut, its importance must earlier have been related to its position as a sheltered resting and beaching spot. So far most of the archaeological finds concerning the use of the strait have come from its gently rising northern shore. This is also where the aforementioned old graveyard and remains of a chapel are located.

Kyrksundet has interested archaeologists and historians as an old location of a chapel, and also because it has been seen as connected with a site called Örsund along a sailing route described in a Danish itinerary (*e.g.* Gallén 1993). The first archaeological excavations in the Kyrksundet area were carried out by C. O. Nordman in 1938-39, when he investigated the remains of the chapel's foundations and certain areas within the churchyard (Nordman 1940). According to Nordman's interpretation, the oldest burials are from the 13th century. Although there is no archaeological evidence from the chapel area to suggest such an early dating, Nordman is probably correct. Archaeological support for Nordman's view on the notable age of the chapel is provided by recent observations in the areas surrounding the chapel.

Kyrksundet re-emerged as a focus of interest in 1991, when an archipelagic survey conducted by the University of Turku led to the discovery of a number of Viking Age bronze artefacts found in the Kyrksundet area.[51] Most of these were broken pieces of jewellery, evidently scrap metal that has been cut into pieces for re-casting. The first finds also included a bronze bar and an unfinished belt buckle. The University of Turku conducted preliminary investigations at the Kyrksundet site that same year, while the National Board of Antiquities started more extensive test excavations of the area in 1992 under the supervision of Torsten Edgren. Among other things a phosphorus mapping of the area was performed, the result of which indicated a zone of high phosphorus content, probably following the old shoreline, which would indicate activity along the ancient shore. A test excavation was performed in the area in the same year. After this the investigations in Kyrksundet continued for a couple of weeks every summer from 1993-1997. The purpose of the excavations was to clarify the nature of the Kyrksundet site in the vicinity of the earlier finds and in the chapel area, where the question at first was what possibilities of investigation remained after the rather extensive excavations of Nordman.

The first Iron Age finds in Kyrksundet were interpreted as having come from a cemetery, but very soon the idea of a possible Late Iron Age trading site was suggested. At the time the archaeological material may not yet have been sufficient to support such an interpretation; as the amount of material has increased, however, the argument has become valid. Although the finds from the site are revolutionary in the sense that this is the first prehistoric trading site investigated in Finland, they were not totally unexpected. Tallgren (1931: 116) noted already in the 1930's that Late Iron Age finds might be expected at Hiittinen because of the medieval trade route passing through the area.

The results of the investigations show that the nature and distribution of the finds in the area of Kyrksundet do not correspond to what could be expected of a normal settlement, but rather indicate a more specialised use of the area. The significance of trade is most directly suggested by the presence of weights, thirty of which have been found in the area; by coins, including five fragmentary Islamic dirhams from the 9th and 10th centuries, as well as several European coins or their fragments from

[51] A local resident using a metal detector discovered the first artefacts. After that the area was surveyed more closely. One idea presented in the first reports was that the site would be visible due to distinct divergences in present day vegetation (Fagerström 2003: 50). This has not been confirmed. Except the constructions at the medieval graveyard all indications of an archaeological site have been obtained by prospecting and excavations in the area.

the end of the 10th century and the 11th century; and by keys, of which three have been found (Edgren 1995c: 54-55; 1996a; 1997a; 1999a; Talvio 2002: 206; *cf.* Edgren 1995a; 1995b).[52] Finds related to bronze casting also fit the idea of a trading site. In addition to intact jewellery, parts of jewellery deliberately cut into pieces have also been found, as well as bronze bars, an unfinished bronze belt buckle, the bronze peg of the conduit of a casting mould, bronze slag, and a splashing of bronze that had fallen into the sand (Edgren 1995c: 56). It would therefore seem obvious that bronze casting occasionally took place on the site.

The central question has to do with the intensity of use of the Kyrksundet trading site, in other words whether there was a permanent settlement on the site and whether its activity was regular or occasional. Thus far, nothing has emerged that would suggest permanent settlement. Observations of cultural layers, refuse and structures are so sparse that they are considerably more consistent with the theory of occasional visits. The absence of permanent settlement is also suggested by the results of macrofossil studies, as no species of plant related with certainty to human activity have been found. One interpretation of this is that use of the trading site was seasonal (Edgren 1995c, 57; 1996a, 20; Asplund 1997b: 262-266). During the sailing season Kyrksundet may have had large numbers of people who came from the mainland to trade with people travelling along the Gulf of Finland, but in winter the trading site was probably deserted.

Edgren (1999a: 17-18), in one discussion of the use of Kyrksundet, has proposed a theory according to which more stable settlement gradually formed along the sailing route. This would have led to a cemetery being set up, at the same place at which a medieval chapel was later built. This could have been the start of a later increasing Swedish colonization. Edgren's (1999a) theory seems plausible in principle, but so far it is unattested. The presumed permanent settlement in the area of Hiittinen would not, according to investigations conducted at Kyrksundet, have been situated there. It would have been somewhere else, either outside the areas investigated at Kyrksundet, or in other parts of the islands of Hiittinen and Rosala. The idea of permanent settlement related to the site has been repeated by Tuovinen (2002a: 265; 2005a: 10), who has interpreted the site as permanently settled all year round towards the end of the period from the 9th to the 11th centuries, at the latest.

There are good possibilities for dating the trading site of Kyrksundet on the basis of artefact finds, since there are plenty of datable metal objects. Some of the finds may have come from robbed graves and be secondary at their present site, but the

[52] One of the dirhams is an ´Abbāsid, which has been dated as early as the end of the 8th century (Edgren 1999a: 13-14). According to the latest view by Talvio (Talvio 2002: 76-79, 84-87, 206), it was minted before 815, which makes it slightly younger, but it still belongs to the early dirhams found in Finland.

composition of the find material does not support the idea that all early finds can be explained in this way. In particular the high number of 10th and 11th century artefact forms (Edgren 1995c: 56; 1996a: 20) suggests that trading began in Kyrksundet in the Viking Age. This ties in well with the observation that at the time trading was becoming more common both in the Baltic Sea region and along the Russian rivers. The increased activity of Scandinavians towards the east is visible in the finds of Kyrksundet as Scandinavian artefact forms, but some Finnish and Estonian types are also present in the material.

The significance of Kyrksundet in the Middle Ages becomes apparent from the fact that the chapel and graveyard were established here, and were not moved into the villages of Hiittinen or Rosala until modern times. Medieval activity in Kyrksundet, however, is not quite as apparent from the archaeological finds, although round brooches, a knife handle, an iron key, a bronze mounting of a book, and cross-bow arrowheads do reveal that the site was not completely deserted (Edgren 1995c: 62; 1996a: 17). Although the strait, the status of which was accentuated by the chapel and the churchyard, evidently maintained its significance as a sheltered place for boats to put in, the significance of Kyrksundet as a trading site probably decreased at the end of the Iron Age or the beginning of the Middle Ages.

The possible existence of a pre-Christian cemetery has been considered in interpretations of Kyrksundet. An attempt was made in 1991 to prove the presence of such a cemetery in the easternmost part of the area, but so far no evidence has been found to support this theory. The idea of a possible pagan cemetery was also presented earlier by Nordman (1940), in connection with the occurrence of burnt bones near the foundations of the chapel. The idea of a chapel being established on an old cemetery is not altogether impossible. In the investigations of 1993 it was confirmed that burnt bones (KM 27813:122; Edgren 1995c: 51) do in fact occur at the location of the remains of the chapel, but there are no other finds from the area supporting the cemetery theory. The other possible explanation by Nordman for the burnt bones was that they derived from a burnt-down bone house. Other explanations can be applied as well, such as the possibility that bones from heathen graves could have been brought to the graveyard by Christian relatives (*e.g.* Taavitsainen 1992: 8-9).

3.5.3. Excavations in Makila

After the discovery and test excavation of the Pre-Roman settlement sites in Makila in Kemiö, some further investigations in the area were planned and undertaken. In addition to minor surveys of the field areas, attention was given to cairns situated on a hill called Majberget, approximately 800 metres north of the Makila settlement sites. The lower slopes of the hill are wooded but the top consists for the most part of a rock surface. The highest point of the rock is near the 55 metre contour line. Four

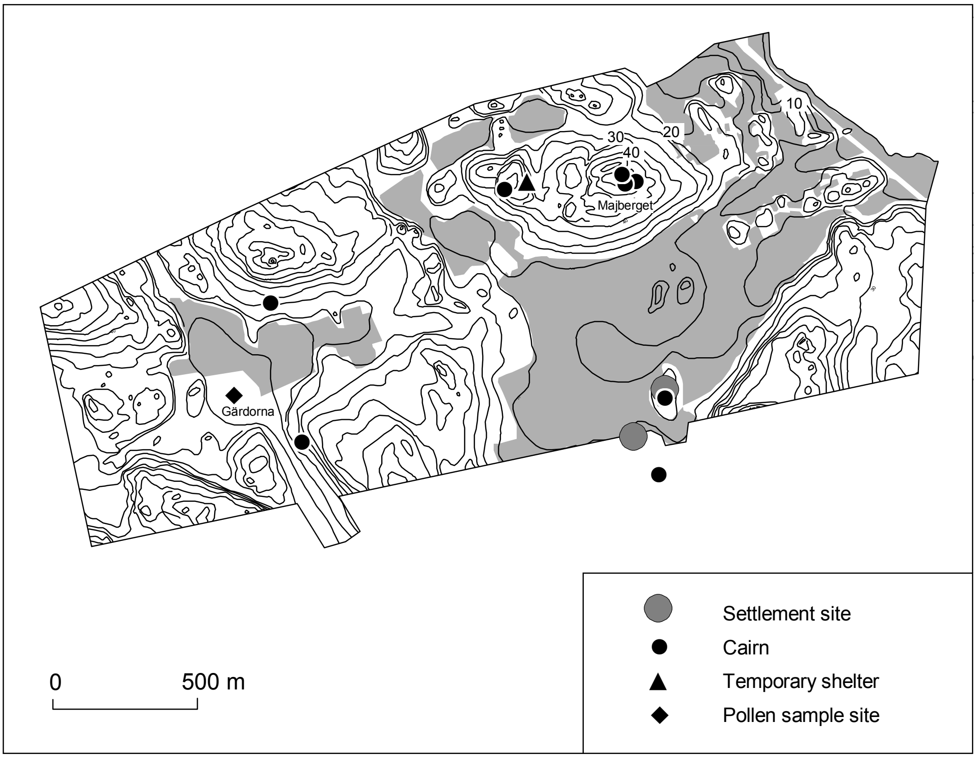


Fig. 54. Archaeological sites in the village of Makila. Present-day fields are shaded.

stone constructions classified as cairns are situated on the hill; one on the western part of the hill and three on the eastern part, which is highest (Fig. 54). The cairn in the western part resembles a typical Bronze Age cairn. The three cairns in the eastern part of Majberget are smaller and possibly partially damaged. Two of these have been subjects of excavation, the easternmost in 1997 and the one in the middle in 2001.

The easternmost cairn, which was partly covered by low vegetation, was the first one chosen for investigation. Before the start of excavation the cairn appeared to be badly damaged. In the area presumed to be the actual cairn a low stone construction protruded between moss and heaths, but separate stones were visible over a wide area. After the cairn was exposed it was observed that the stone construction was low, built on a rock surface, and approximately 6-7 metres in diameter (Fig. 55). It might just as well be referred to as a stone setting as a proper cairn. Although the construction had clearly been damaged in some parts, the final impression was that the low construction might well reflect the shape of the original cairn. The southern part of the construction was partly built into a cleft in the rock, which was approximately one metre in breadth and at its deepest point more than half a metre deeper than the cairn. To the east the cleft grew shallower, forming a ledge southeast of the cairn and eastwards. As the cleft became shallower in the eastern part of the construction, the stones filling it grew smaller. These stones outside the actual cairn form their own construction, which is probably connected with the shaping of the surroundings of the cairn during its building. Stones were used to fill the cleft in the rock and to level off the ledge it forms on the southeast and east sides of the cairn. The actual cairn may not originally have extended to the cleft.

The only observable structural detail in the cairn itself was a row of three or four bigger stones inside the cairn. Three stones of the row were interpreted as being in their original places. They were very close to the surface of the rock and it appeared as if they had all been intentionally placed with the smooth side facing in the same direction. The fourth stone was possibly in its original place, but there was slightly more soil under it than under the three others. The excavated soil within the cairn contained a large amount of small-sized crushed stone – weathered rock or coarse sand. Inside the cairn and in the stone formations outside it there were random stone splinters, some of which seemed burnt but did not have any noticeable brittleness caused by fire. No charcoal or soot was noticed in the soil either. Under the stones interpreted as being *in situ* a thin layer of crushed or weathered gravel

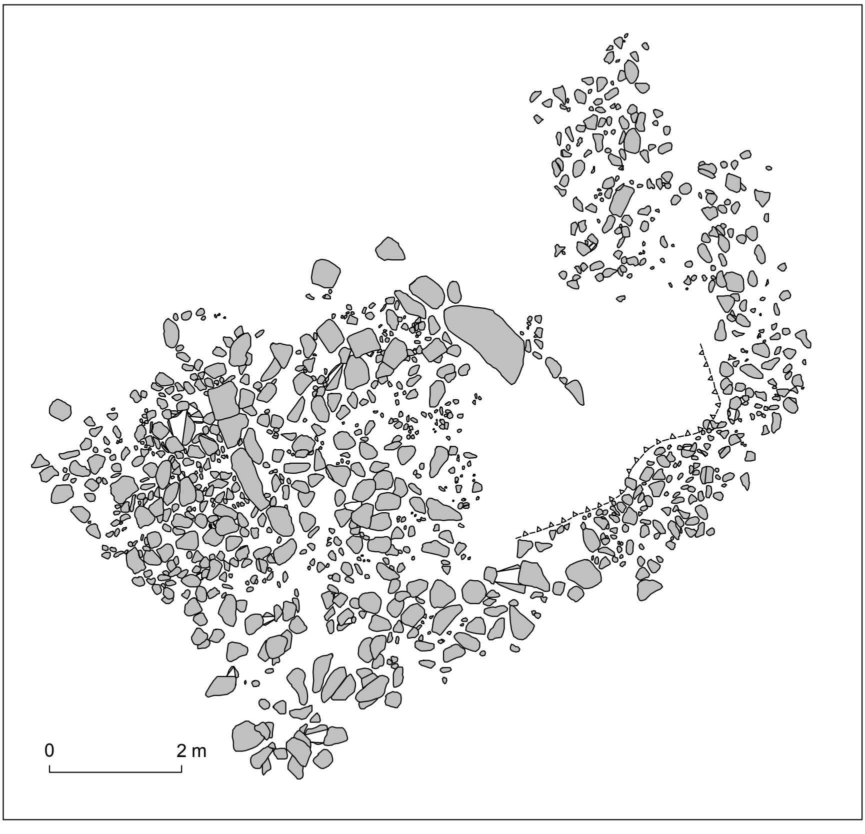


Fig. 55. Cairn and additional stone setting at Majberget in Makila. Original drawing by Riikka Saarinen and Tanja Ratilainen, digitised by Reetta Kivistö.

of granite composition (quartz, feldspar, hornblende) was found.[53] Under the light-coloured sand against the rock there was a thin layer of dark soil containing humus – probably remains of the small amount of soil and vegetation on the surface of the rock before the cairn was built. Under two of the stones, on top of the coarse light-coloured sand – *i.e.* between the stones and the sand or in the upper part of the sand layer – there were some tiny bits of charcoal (TYA 645:11-12). The charcoal had apparently ended up there before the stones were placed. A radiocarbon dating performed on the charcoal gave the age 1115 ± 35 BP (GrA-14115), the calibrated result of which is 780-790, 820-850, and 860-1020 cal AD, the probability of the date 860-1020 cal AD being 92.7 %. This result was at first a surprise as it indicated that the cairn does not belong to the Bronze Age or Early Iron Age settlement phase, but is connected with Viking Age or later activity in the area.

The activity in connection with which the charcoal was produced and ended up under the stones is so far conjectural. Nothing suggesting cremation was found in the cairn and there were just a few other traces of burning. As no artefacts were found in the cairn the whole meaning of the construction is difficult to understand. At the time of excavation the light-coloured layer of gravel was interpreted as intentionally spread on the ground before the erection of the cairn. Later similar weathered material was also observed under ordinary stones outside the cairns. This means that the material could have been formed by weathering also within the cairn. Thus the idea of connecting the gravel with some ritual during the erection of the cairn is unsure. There are, however, other cases within the study area in which the base of a cairn seems to have been covered with sand. There is no certain knowledge of this custom being related to any particular period. It can, however, be noted that gravel and soil were apparently spread on the base of the Late Iron Age cairns at Nötö in Nauvo (Tuovinen 1990a: 56; 2002a: 88, 91). Similar to Majberget, material from weathering was also found between and under the stones. Another comparison with the Majberget cairn is provided by cairn 2 at Kokkila in Halikko (actually situated quite close to Kemiönsaari). The area of this cairn was approximately 4 x 4 metres and the height only 0.15 metres, *i.e.* more like a low stone setting than a proper cairn. It had an indefinite borderline, and beneath the stone layer in fine white sand there was charcoal, a few burnt bones, a bronze strap divider (KM 2435:4; Hirviluoto 1992: 69) and parts of a bone comb. Next to a larger stone, burnt bone and an iron knife (KM 2435:7) were found in soil mixed with charcoal. Furthermore, parts of a bone comb were found in white sand underneath. The strap divider has been dated with reference to Kivikoski (1973: 119, Tafel 103:892) to the 11th century (Hirviluoto 1992: 68). The chronology

[53] Analysed by Matti Rossi.

of strap dividers is, however, not unambiguous and thus a slightly later date is also possible, as in the case of the so-called Gotlandic belt accessories (*cf.* Sarvas 1971: 57; 1972: 37-39).[54]

Although the function of this Majberget cairn is uncertain, the *terminus post quem* dating to the Viking Age makes it rather interesting and important. Together with, for example, the Kokkila cairn described above and the cases discussed by Tuovinen (*e.g.* 1990a; 2004) it could indicate the Late Iron Age (the Viking Age in particular) as a period of cairn building within the study area. This idea had further confirmation (as did the dating of the first cairn excavated) when the second cairn at Majberget was investigated.

Like in the case of the first cairn the second one also had earlier been regarded as demolished. When the cairn was cleared of vegetation it became apparent that this cairn, too, most probably is not so heavily damaged as previously thought, but represents a type of construction, where stones have been used to fill cavities and level off ledges in the bedrock. Due to this, stones are spread over a large area outside the centre of the construction – in this case more stones actually seem to have been used for the forming of the surrounding than used in the middle of the construction, where maybe only a low stone setting has been situated (Fig. 56). Similar constructions around cairns have not been discussed in other cases, but it seems that examples of such could be found. A cairn with a strange form, maybe comparable to the Majberget cairns has, for example, been excavated by Tuovinen on the island of Lilla Kuusis in Nauvo. The cairn was described as a flat stone setting, some of the stones of which have probably slid down along the surface as they were found "where the surface is slightly grooved" (Tuovinen 2002a: 98-100). The filling of cavities and grooves in the rock can be seen also in the cairn excavated by Tuovinen (2002a: 101-104) at Ängesnäs bergen in Nauvo. Neither of these cairns yielded any finds.

The same can be said about the second cairn at Majberget, where half of the central area of the construction was excavated. No artefacts were found. The light-coloured gravel occurred in this cairn, too, but no fire-cracked stones. Under some of the biggest stones tiny pieces of charcoal were collected. The radiocarbon date obtained from one such sample was 1215 ± 55 BP (Ua-18804), the calibrated result of which is 680-970 cal AD, *i.e.* the end of the Merovingian Period or the Viking Age. The sample is probably slightly older than the one obtained from the first cairn. Together the datings are, however, consistent proof of Late Iron Age activity in the area, the form and intensity of which remain undetermined. So far there are no additional archaeological indications of Late Iron Age settlement at Makila. In addition to the Early Iron Age settlement sites and the cairns, only one temporary

[54] Outside the study area, light sand in an Iron Age cairn has been described by Pellinen (2005: 178) in the case of the Tommila Rännemäki cairn in Vehmaa.

shelter of the *tomtning* type is known. This simple structure is located in the western part of Majberget, and has not been examined in closer detail.

The village of Makila developed on the lower slope of Majberget in the Middle Ages. The first mention of the village in historical sources (Makijla) is from 1540. The village name Makila (Mankylä 1545; Makylä 1550) might relate to the Finnish word *kylä* (village) or have the suffix -la, common for Finnish place-names related to settlement; in the latter case a name of a person would form the first part of the village-name (for example Mankinen - Mankila) (Huldén 2001: 135). From the first detailed map from the end of the 18th century it can be seen that the fields of the village were confined almost entirely to the north side of a small stream or ditch running through the village – on the opposite side of the Early Iron Age settlement sites (Fig. 57). Most of the present-day fields were already by that time open pastures. The relationship between the historical village and the Majberget cairns, situated on the hill rising above the village, is an interesting subject to consider. Do

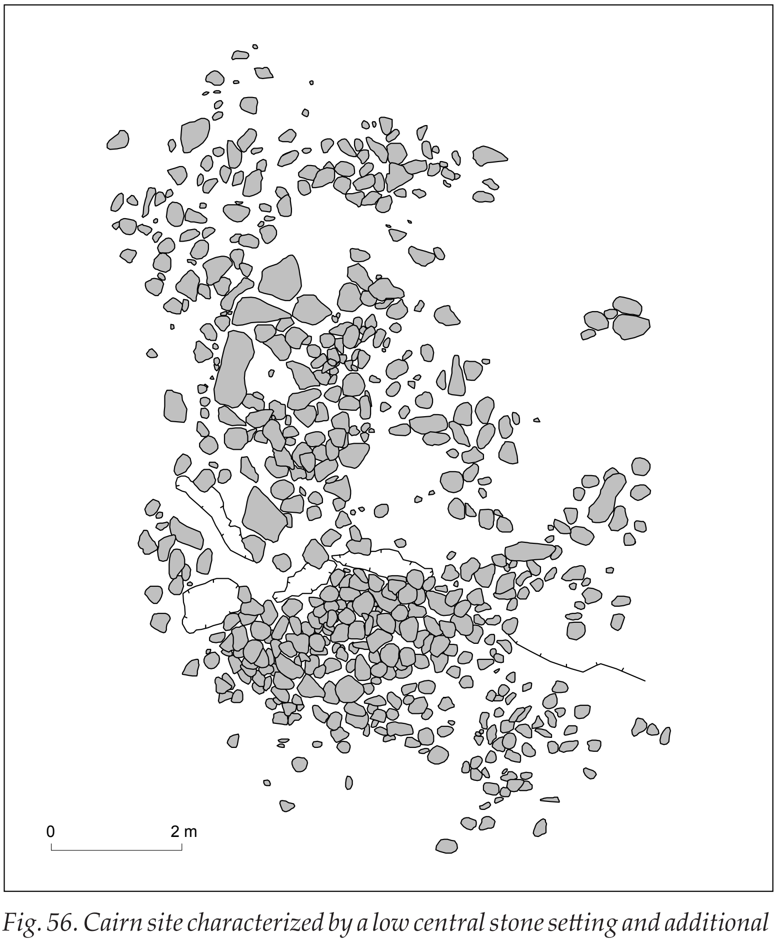


Fig. 56. Cairn site characterized by a low central stone setting and additional stone settings leveling off cavities and ledges at Majberget in Makila.

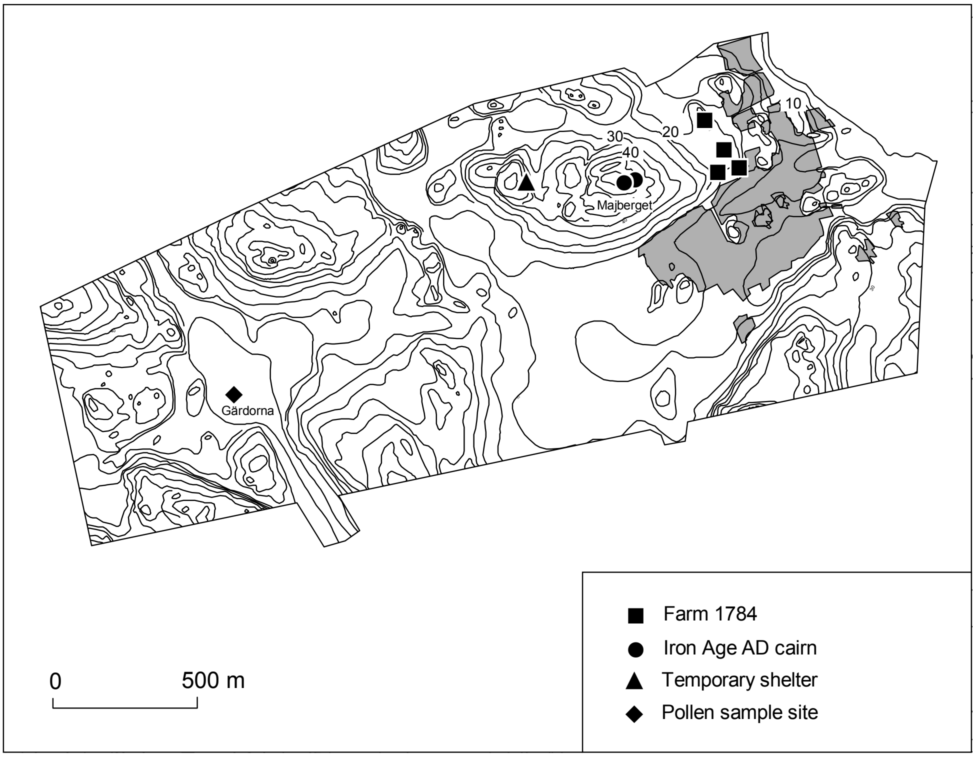


Fig. 57. Farms and fields (shaded) in Makila 1784.

the cairns reflect some activity, which could be seen as a reason for the historical village to be situated on this particular spot?

So far there is no answer to the question. In 1997 a small-scale trial investigation was conducted in the village of Makila, close to the actual sites of the houses, to determine the possibilities of archaeological research concerning the Historical Period village. The investigation consisted of the digging of twelve test pits and the gathering of surface finds from the field area. The results of the investigation were meagre. Retrieved (TYA 645:1-10) and uncatalogued finds told of life and work in the historical village, but details relating to time or specific activities were sparse. Not a single find, for instance, can be considered medieval, which probably indicates, that the area of prospection did not include the main settlement areas of the Middle Ages. Prehistoric activity is suggested only by a stone flake (TYA 645:6) retrieved from one of the fields.[55]

[55] Problems with regard to sparse finds in Historical Period settlement sites have also been experienced in settlement site excavations on the coast and in the archipelago of Uusimaa, east of the present study area. Typologically datable artefacts may be next to nonexistent, the only common finds in early historical contexts often being pieces of burned clay (Alenius *et al.* 2004: 10-11; Jansson 2005: 68-69; Haggrén 2005b: 92).

Nevertheless, it seems that at Makila something essential appears regarding the settlement development of Kemiönsaari – a certain model of periods and phenomena that can be identified. Represented here are four periods: two older and two more recent. The Bronze Age type cairn at Majberget and the Pre-Roman settlement represents the older periods – a continuity of utilization of the Kemiönsaari area having its roots back in the Stone Age. After a phase sparse in finds, new traces of activity appear in the Viking Age, followed by the forming, finally, of the village in the Historical Period.

3.6. Other Iron Age archipelago finds – a comparison

3.6.1. Stray finds

The small amount of Iron Age finds from Kemiönsaari is comparable with the quantity of Iron Age finds in other parts of the archipelago. Similarly to Kemiö, one elliptical fire striking stone (NM 10958:2; Asplund 2000: Bild 36) has been found in Parainen. The site of the find, a field in Vannais, illustrates how these items occasionally were deposited. The object might have moved somewhat in connection with tillage, but as the whole field is on a low elevation, it is probable that the stone was thrown into the sea during the Iron Age. This occurred in an area almost totally surrounded by islands or close to a small island inside a bay (Asplund 2000: 54-55, Bild 37). This is not unique – in many cases similar objects have been found in cleared wetlands or in areas close to the shoreline (Pellinen 1999: 31).

One Migration Period barbed spearhead (NM 13619; Asplund 2000: Bild 38) has also been found in Parainen, at Malmgatan in Kyrkomalm. Equivalent artefacts have mostly been found in cemeteries together with Migration Period objects; in only one case a dating to the early Merovingian Period has been regarded as more probable. In addition to the find from Parainen and a similar find from Maalahti in Ostrobothnia, all other spearheads of this type have been found in Häme (Pihlman 1990: 122-126). They are lacking in the Migration period cemeteries in Finland Proper, which makes it difficult to directly associate the find from Parainen with visitors from the nearby parishes on the mainland. It has also been suggested that the Malmgatan find could indicate the existence of a cemetery somewhere at Kyrkomalm (Tuovinen 1990a: 70). There are, however, no further observations supporting such a theory. Furthermore, the place of discovery of the Malmgatan find is situated on such a low elevation that a cemetery could not have been built on this location during the Iron Age.[56]

A couple of Viking Age finds are also known from Parainen. In addition to one Viking Age axe from Jermo (dealt with more closely below) there is information on a Viking Age or Crusade Period silver hoard found in Parainen around 1830. According to minutes of the Finnish Antiquarian Society from 1897, the collection of the vicar Gabriel Wallenius had included 15 Arabic and Anglo-Saxon coins from a hoard found in Parainen. Wallenius' coins were later sold to the merchant Karl Michelson in St. Petersburg, whose collection was donated to the University of Helsinki in 1880 (Talvio 1994: 53; 2002: 142). At that time, the coins from Parainen were no longer part of the collection. Even if no detailed description of the coins is available, it is likely that the hoard was deposited during the 11th century or later.

A probable Crusade Period find is known from Björkholm in Nauvo. It is a sword with a spherical knob and a long hilt, dated to the 12th century (NM 5215; Meinander 1983: 237; Fagerlund 1992: 14-15). This dating can be regarded as the earliest possible – similar swords were still used in the early Middle Ages. Another sword find, from Stufsund in Särkisalo, has also previously been dated to the Iron Age (Granholm & Häggblom 1969: 5). This sword represents an even younger type with a knob in the form of a double-cone or pear, which belongs to the 15th or 16th century. Possible sword finds in Parainen and Houtskari (outside the present study area) have also been mentioned, but these objects disappeared before investigation (Tuovinen 1990a: 70).

3.6.2. Late Iron Age axes

In addition to the above-mentioned fire striking stones, there is another specific group of Iron Age objects often found in peripheral areas. These are Late Iron Age axes. In the archipelago within the study area three Viking Age axes have been found – two as stray finds and one at the Kyrksundet trading site. The best-documented find is the axe from Jermo in Parainen (Pargas hembygdsmuseum 2869). It was

[56] In addition to the find from Kyrkomalm, only two other spearheads from the archipelago (TMM 6095-6096), found on the island Luonnonmaa at Naantali (outside the present study area), have previously been classified to the Early or Middle Iron Age (Cleve 1948: 502). These items have a leaf shaped blade and a tang instead of a socket for fitting the shaft. This type can hardly be dated to the Early Iron Age but rather belongs to the 8th century AD (*cf.* Salmo 1938: 241-247, Tafel VI:5). The two spearheads were donated to the museum in Turku together, which indicates that they were found at the same site. More detailed information concerning the context of the find is unfortunately not available. This is the only Merovingian Period find in the archipelago close to the study area.

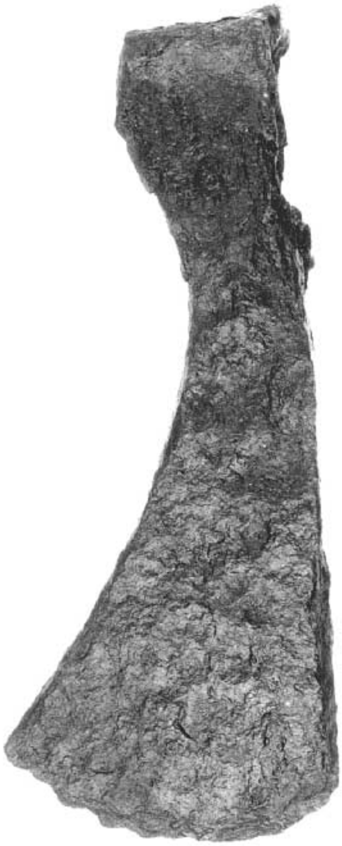


Fig. 58. Viking Age axe (Pargas hembygdsmuseum 2869) from Jermo in Parainen.

found about five metres above the present sea level, which means that the axe was deposited close to the Iron Age shoreline. The object represents a Finnish type characterised by a straight backside and extensions only on the shaft side of the shaft-hole (Fig. 58). Often the extensions are only small cornered bends, as in the case of the Jermo axe (Asplund 2000: 58). Axes of this type are dated to the Viking Age on the basis of cemetery finds (Wuolijoki 1972: 22-23, 66, Kuva 24; *cf.* Kivikoski 1973: Abb. 877). At least 50 axes representing this variant are known, most of them from Häme and Satakunta. In Finland Proper these axes are rare. Only a few have been found, one (TMM 12388) from the island Luonnonmaa at Naantali, one (KM 2436:19) from Paimio, and two (KM 9389:7-8) from Halikko. The Luonnonmaa axe is an archipelago find, the find context of which is similar to that of the Jermo axe. It was found during garden work in sterile soil at an elevation of over five metres above the present-day sea level.

The Jermo axe was conserved at the University of Turku in 1989. A thick layer of corrosion was removed with the help of electrolysis and the original surface of the object was revealed. It appeared that the surface had a black soot patina, which indicates that it has been in contact with fire or soot before it was deposited at the find spot. If the soot had occurred at the site where the axe had been lying for a thousand years, it would have been visible also in the corrosion layer. It is impossible to know why the axe had been burned, but one possibility is that it had originally been part of a cremation or had been deposited in a cremation cemetery. It could also have been part of some other kind of ritual involving fire.

Axes from the Late Iron Age are relatively common finds outside the central settlement areas. Altogether over 500 axes from this period are known, about half of which have been found in contexts other than cemeteries (Wuolijoki 1972: 40). One explanation for this is that axes were essential tools outdoors and in the wilderness.

Some axes were lost or deliberately left behind. However, there are cases suggesting that some axes must have been deposited due to other than functional reasons. The most outstanding site is situated in Karelia, on the island Villapekko, where no less than 49 axes have been found – many of which as single finds without additional objects (Wuolijoki 1972: 39-40; Uino 1997: 247). The site has been interpreted as a hoard (Saksa 1998: 148-149) or a sacrificial site (Lehtosalo-Hilander 1984: 385; Uino 1997: 247), the latter interpretation of which seems more plausible. One explanation given for single axe finds is that they would have been related to rituals of slash-and-burn cultivation (Taavitsainen 1990: 67).

Axes in distinctive find contexts are known also from southwestern Finland. For example, the two axes from Halikko, which are of the same type as the axe from Jermo, are part of a hoard from Kaikumäki (KM 9389:1-28; KM 9510:1-8; KM 10329:1-2; Halikon kotiseutumuseo 740). A group of weapons – mostly spearheads – as well as some other items have been found here. One of the axes is almost identical with the axe from Jermo.[57] The Kaikumäki find can be interpreted either as a hidden hoard or an offering. The latter explanation is more plausible as the objects were found in clayey soil near a small wetland area. In this case the offering is a combination of many objects, but also many of the single axes found are most likely to be sacrificial in character. The burned axe from Jermo can probably be best explained this way.

3.6.3. Temporary shelters

One category of archipelagic sites introduced and discussed in southwestern Finnish archaeology especially by Tuovinen (*e.g.* 1990a: 78-81; 2000a: 29-31; 2002a: 56) are constructions belonging to temporary shelters, which are often referred to using the Swedish term *tomtning* (*e.g*. Norman 1995: 44-52). The sites are characterized by simple stonewalls or fences laid of boulders, often close to a rocky wall, thus forming a round or rectangular floor space. These are probably temporary shelters used by fishermen and seal hunters. In Sweden over 3500 such remains have been recorded, about 1250 of which on the eastern coast (Landin & Rönnby 2003: 7; *cf*. Norman 1993: 30). *Tomtning* sites occur also in the archipelago of the Åland Islands (Karlsson 1990: 92-95). In the archipelago of Finland Proper about thirty have been registered (Tuovinen 2000a: 29; 2002a: 56).

[57] The Kaikumäki finds have been characterised as Scandinavian (Hirviluoto 1992: 74), which is not correct – the axes are, as stated above, of a Finnish type and the E- as well as F-type spearheads included in the find are simple forms most probably locally made.

On the Swedish coast of Norrland the oldest radiocarbon dates from such sites are from the Migration Period and several have yielded Late Iron Age dates (Broadbent 1989; Norman 1993: 40, 48; *cf*. Tuovinen 2000a: 29; 2002a: 56). Especially the Late Iron Age as a period of use of *tomtning* sites has been emphasized, as sites dated to the Viking Period occur all along the Swedish east coast, from Blekinge in the south to Västerbotten in the north (Landin & Rönnby 2003). On the other hand there are many *tomtning* sites on such low elevations above sea level that they must be from the Historical Period. Also recent oral tradition related to the use of *tomtning* sites has been documented.[58]

Regarding sites in the archipelago of the Åland Islands it has been noted that some sites occur on elevations that make it possible (and even probable) that they could be prehistoric (Karlsson 1990: 95). The possibility that some of the *tomtning* sites could be fairly old has been expressed also concerning sites in the archipelago of the study area, *i.e.* sites situated high above the present sea level (Tuovinen 2000a: 29; 2002a: 56). In a survey within the Southwestern Archipelago National Park 1994-1997 by Tuovinen twenty *tomtning* sites were registered with a height above sea level varying from 1.4 to 11.4 metres; it has been noted, however, that on the bigger islands closer to the coast there are sites situated over 20 metres above sea level (Tuovinen 2000a: 29, Kuva 5). The highest lying site registered so far is probably the one in Makila mentioned before, which is situated approximately 40 metres above sea level. Another site lying quite high above water level was found and investigated in Västermälö in Parainen in 2001.

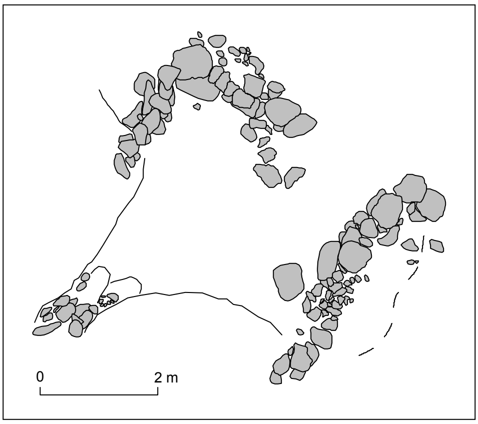


Fig. 59. The remains of a temporary shelter (tomtning) at Västermälö Vestergård in Parainen.

The Västermälö Vestergård site is a typical *tomtning* in the sense that it is situated in a corner of a steep cliff, which gives the outline of two walls of the construction (Fig. 59). The cleft in the very corner of the rock has been filled with stones and the remaining walls indicated by boulders and

[58] Somewhat confusing is the fact that the *tomtning* term has also been used for stone-paved hut constructions of the Pre-Roman Iron Age (Holmblad 2007: 156). If used as a concept defining only a construction related to seasonal maritime hunting it might be understandable in some cases, but usually the term does not refer to a hut or some other more complex construction. It is generally restricted to the remains of light shelters from the later parts of the Iron Age and the Historical Period, the location and simple stone borders of which tend to differ from Early Metal Period constructions.

smaller stones tiled upon each other thus forming a more or less rectangular floor space of about 10 m^2. In addition to the stones, the eastern wall has been improved with a bank of soil. After clearing the remains of trees and other vegetation the construction was documented and about half of the floor space excavated. The excavated area was the western half of the floor, where the layer of earth above the bedrock seemed thinner. During excavation no explicit floor could be identified, but the soil layer within the construction was clearly mixed, consisting of both clayey and coarse ingredients, coloured here and there by soot lenses. No artefacts were found; only some pieces of hard-burned charcoal (TYA 788:1-4) were collected. Some stones (TYA 788:5) looked fire-cracked, but the interpretation is not definite.

A radiocarbon dating made from pieces of charcoal gave the result 350 ± 30 BP (Su-3599), *i.e.* 1460-1640 cal AD. One could, of course, discuss the relevance of the date as it is unsure what it represents – it is not from a hearth or some other identifiable context within the excavation area. As the pieces of charcoal were found mixed within the layer interpreted as reflecting activity within the *tomtning*, it would, however, seem unlikely that the construction is much older than the charcoal. At least this is the best dating so far available for the site. This means that a prehistoric dating for a *tomtning* site within the southwestern Finnish archipelago is still missing.

3.6.4. Viking Age – a period of activity in the archipelago?

The sparse Iron Age finds from the archipelago roughly point out two periods – the Migration Period and the Viking Age (Fig. 60). The stray finds are so few that this might be a coincidence, but as to the Viking Age, the chronological distribution is also supported by other finds and observations. This can be compared with material from the mainland settlement areas, showing a distribution where the Viking Age is accentuated as a period rich in objects deposited outside cemeteries and settlement sites (Fig. 61). The same tendency can be seen in Satakunta, Häme and Savo; in Karelia Crusade Period finds are dominant, but even there the number of finds increases as early as the Viking Age (Taavitsainen 1990: 63-65; 71-72; 74-76; Taavitsainen *et al.* 1998: 215-217).

Regarding the Migration Period finds from the archipelago, it should be pointed out that – except for the fire-striking stones from Helgeboda in Kemiö and Vannais in Parainen – there is only the spearhead from Malmgatan in Parainen to suggest Migration Period use of the study area. This is hardly enough to prove any growing interest in the archipelago during this time. With regard to activities in the archipelago, the Migration Period has previously been accentuated due to a few spectacular finds from the eastern part of the Gulf of Finland (Kivikoski 1940), as well as one cemetery in the southwestern Finnish archipelago somewhat reminiscent of mainland grave forms, which has earlier been dated to this period (*e.g.* Tuovinen 1990a: 58; 1997: 20). This Hyppeis Furunabb cemetery in Houtskari (outside the current study area) was investigated in 1979, 1981 and 1986. At the site there are 12 (according to other sources 14) low cairns or stone settings, several of

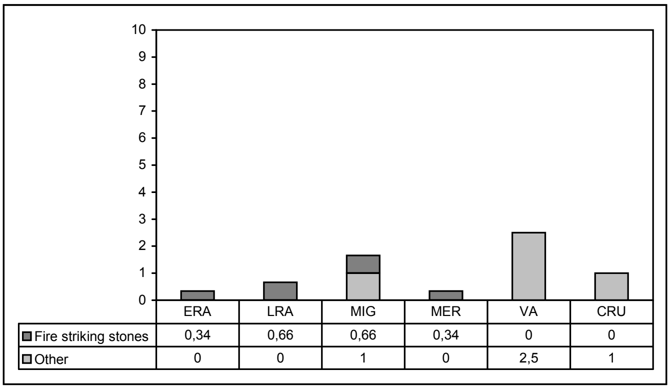


Fig. 60. Iron Age stray find sites according to period in the archipelago (Dragsfjärd, Kemiö, Nauvo, Parainen and Västanfjärd). If a find may relate to two periods it has been given the value 0.5 for both. Due to the long period of use of fire striking stones they have been divided between periods according to the values 0.17-0.33-0.33-0.17.

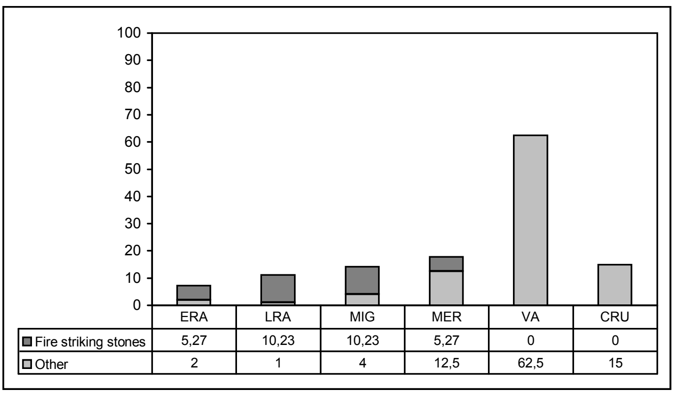


Fig. 61. Iron Age stray find sites according to period on the mainland (Halikko, Kuusjoki, Muurla, Paimio, Perniö, Pertteli, Piikkiö, Salo, Sauvo, Särkisalo). If a find may relate to two periods it has been given the value 0.5 for both. Due to the long period of use of fire striking stones they have been divided between periods according to the values 0.17-0.33-0.33-0.17.

which were excavated. Three cairns contained burned bones and in one cairn a piece of iron was found (Tuovinen 1990a: 57-59; 2002a: 49-51). The finds give no direct dating evidence, but some of the stone settings have been regarded as reminiscent of Migration Period grave forms. Furunabb has also been compared with an Early Iron Age cemetery at Västra Nabbergen in Eckerö in the Åland Islands. In the most recent discussion on the Furunabb cemetery by Tuovinen (2002a: 182-184), it has been given a general dating to the Early Iron Age. During the present study this was confirmed by the results of radiocarbon dates obtained from the burned bones, indicating that the site is from the latter half of the Pre-Roman Iron Age. The idea of a Migration Period dating for the site thus must be rejected. The datings will be discussed further in chapter 6.6.3. dealing with the general notion of Iron Age cairns in the archipelago.

There are not many Viking Age finds with reliable information either. If the silver hoard from Parainen is accepted there is a total of three cases from within the study area, of which the silver hoard could actually also date to the Crusade Period. The two other cases are the axes from Hiittinen and Jermo. In addition to these, the Luonnonmaa axe (from outside the study area) could be mentioned. It should also be noted that, in addition to the stray finds, there are other indications of a more active utilisation of the archipelago during this period. As previously mentioned, some of the cairns in the archipelago must belong to the Late Iron Age at the earliest. In addition to the whetstone find from the cairn at Stora Ängeskär in Dragsfjärd, two cairns excavated at Nötö Sundbergen in Nauvo in 1988 have given even better examples of this. In one of the cairns fragments of a comb made of antler were found, and in the other one some iron rivets (Tuovinen 1990a: 53-57; 2002a: 87-91). The cairns have been dated to the Late Iron Age; the most probable date for the comb fragment is the Viking Age. The fact that cairns have been built during the Viking Age (or, with reference to a couple of the radiocarbon dates, possibly the Late Merovingian Period) is furthermore indicated by the abovementioned finds from Kokkila in Halikko and the radiocarbon dates from Makila in Kemiö as well as the Koupo Rösbacken site in Parainen. Regardless of the still sparse find material, one has the impression that the Late Iron Age – especially the Viking Age – meant something new for the conditions in the archipelago. The Viking Age seems to be an expressive and active period also on the mainland. What we see is probably a reflection of intensified trade and increasing wealth, in combination with population growth and an escalated interest in outlying resource areas as well as new areas for permanent settlement.

It is paradoxical that Iron Age finds and indications of utilisation occur most for the Viking Age, which has often been regarded as a period when the archipelago might have been impossible to settle, due to the risk of raids and other forms of hostility (*e.g.* Nikander 1942: 30; Meinander 1983: 232; Suistoranta 1985: 5; Orrman 1990a: 211-212, 222). The theory of insecurity has been offered also as a general explanation for the sparse Iron Age finds. For example, Salo (*e.g.* 1970: 161-162; 1995a: 2-5; 2004a: 5) has on several occasions discussed coastal settlement development in Finland during the Iron Age. Founding his interpretation on the lack of Post-Roman cemeteries in Uusimaa and the coasts of Satakunta, as well as the almost total lack of cemeteries in the archipelago of Finland Proper, he has supported a theory, according to which the coastal zone was too insecure to allow permanent settlement during several periods of the Iron Age. The insecurity of Finland Proper (and Häme) has furthermore been stressed with reference to the distribution of silver hoards (*e.g.* Salo 2000a: 155, 165). Settling on the open coasts and in the archipelago would, according to Salo (1995a: 26), have been more attractive from the start of the 13th century, when Finland Proper became a part of the Swedish kingdom and the western threat vanished.

The risk of aggression did undoubtedly exist, but on the other hand one could imagine that the Viking Age rather stimulated than prevented a more active interest in the archipelago – both by the population living in the mainland settlement areas as well as foreign people travelling along the coasts of the Gulf of Finland. This is what the Kyrksundet trading site signifies. The Viking Age was not only a period of population growth and settlement expansion, but also a new period of contacts and widening of the worldview of people in the Baltic area. Once again there was reason to re-evaluate attitudes towards the surrounding world and the landscape. What is probably also reflected in the increasing number of finds from the Viking Age is an intensification of utilization of various resources – both marine and agricultural – in the periphery. This probably led to a new relationship towards outlying areas. An increased mobility in combination with a new striving for control of places and landscapes may be one reason for cairn building and an increased number of items deposited outside cemeteries and settlement sites during the Viking Age.

3.7. The Iron Age on the mainland

3.7.1. Cemeteries, settlement sites and stray finds

The study of settlement development in southwestern Finland from the Roman Period onwards has to be based chiefly on the use of cemetery materials, since the settlement sites are more difficult to date than the excavated cemeteries. Relying on cemetery materials is a problematic approach, as cemeteries do not necessarily give the total picture of the number and location of settlement units. In the case of southwestern Finland it has, for example, been suggested that permanent settlement has existed in areas not reflected in the distribution of cemeteries, both in the archipelago (Tuovinen 2002a) and on the mainland (Pihlman 2004). Apart from this, the interpretation of the cemetery sites themselves also pose many problems. During the Roman Period several new types of burial rituals were introduced; for this reason many different grave types have been typified (*e.g.* Salo 1968: 183-197), only some of which are distinguishable above ground. After the Migration Period, the general trend was for grave types to change from single cairns, stone settings and other minor structures towards larger cremation or inhumation cemeteries on or below the ground. It is obvious that single graves and cemeteries from different periods are not directly comparable, due both to the varying possibilities of locating different types of remains and to the different relations between grave structures and the number of settlement units or number of people they might represent. Local differences in grave rituals also add to the uncertainty.

The research area contains 148 sites that can be classified as Iron Age cemeteries or cairns, 81 of which have been properly identified. The cairns have proved most difficult to date. Those shown on the map are sites with a low elevation (which also makes a Historical Period dating possible) and a few cairns with an archaeological dating to the Iron Age AD (Fig. 62). A total of 40 of the 50 cairns have been registered with a question mark, referring to the uncertainty of classification or – more usually

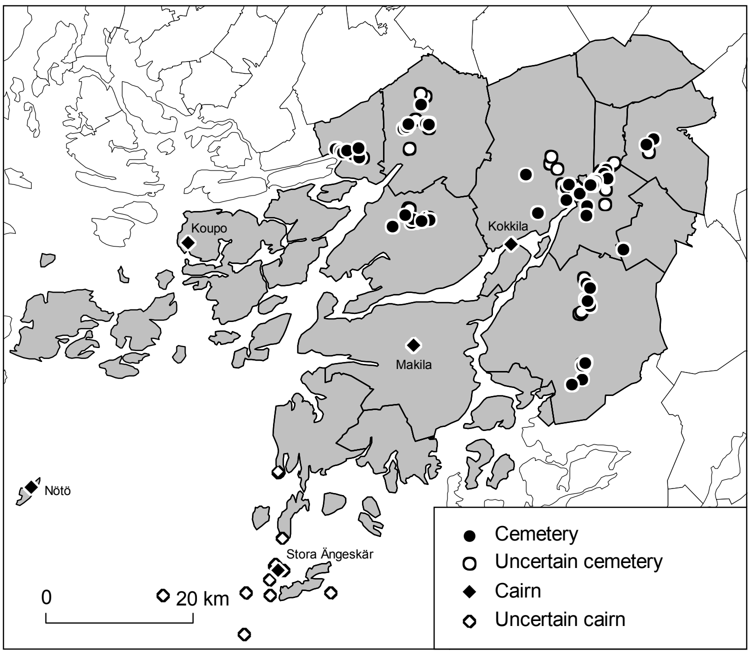


Fig. 62. Iron Age AD cemeteries and cairns in the research area. 'Uncertainty' refers to reservations as to site type or dating.

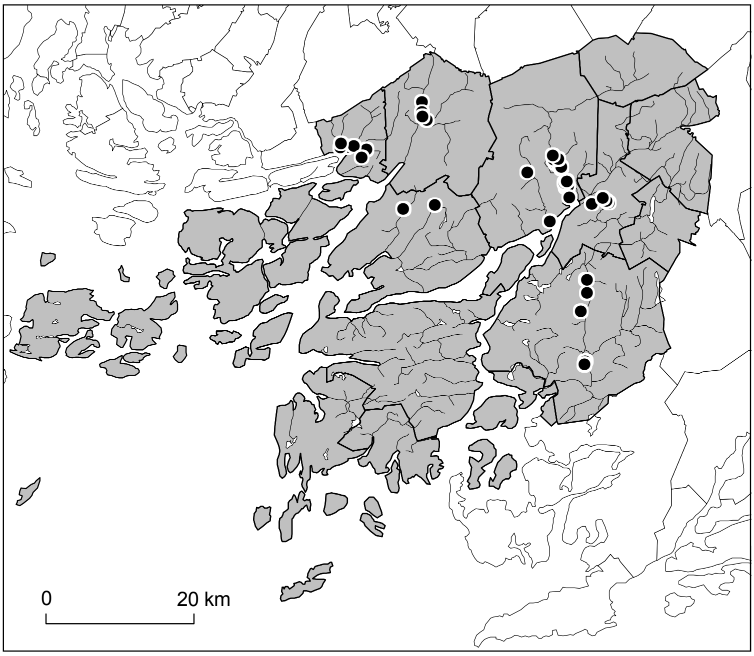


Fig. 63. Cup-marked stones within the research area.

– the actual dating of the cairn. The general impression of the distribution is that the cemeteries form clusters on the mainland, while the archipelago is sparse in sites that can be identified as Iron Age graves with certainty. Regarding the archipelago cairns, the number of sites is, however, most probably underrepresented. If the grouping presented by Tuovinen is accepted, the picture would change radically as over half of all cairns in the archipelago would be from the Iron Age, thus filling the archipelago with sites (*e.g.* Tuovinen 2002a: Fig. 62).

Another group of sites that has a distribution pattern similar to that of the cemeteries is cup-marked stones. A total of 55 sites with cup-marked stones, 47 of which have been verified as to site type and location, have been registered within the study area. All of these are located on the mainland, mostly close to Iron Age cemeteries and settlement sites (Fig. 63). The distribution pattern indicates cup-marked stones as a feature occurring in central settlement areas, most likely related to permanent settlement and maybe specifically to rituals performed within areas of permanent field cultivation. Whatever the reason behind the making of the cups, the distribution pattern is one more indication of the difference between the mainland and the archipelago.

One often repeated statement in the past was that only few Iron Age settlement sites had been found on the southwestern Finnish mainland. One reason for this may have been that archaeologists were looking for building remains or other structures. Things have changed since it was realised that Iron Age settlement sites can be distinguished not only in the form of preserved cultural layers but as artefact clusters observed during fieldwalking and other types of closer surveys. Many sites have been identified on the basis of coarse ceramics of a type that came into use in the Late Roman Period (Carpelan 1979: 10-11) and stayed in use throughout the Iron Age. Pottery of a similar type has also been found in medieval contexts datable as late as to the 14th century (Luoto & Pihlman 1980: 45-46; Pihlman 1982: 111; Taavitsainen 1990: 127, 223; Enqvist 2005; Lehtonen & Uotila 2005). The time-span of use of this type of pottery is thus wider than the Iron Age alone, but presumably many of these sites still belong to the Iron Age.

There proved to be several settlement sites from the Iron Age (or the Middle Ages, if identified on the basis of pottery alone) within the present study area. The total number is 69 sites (the Pre-Roman sites excluded), 28 of which have been marked as uncertain. Many of the uncertain cases are scatters of a few Iron Age (or possibly medieval) artefacts found in present-day fields. The distribution (Fig. 64) is quite similar to the distribution of Iron Age cemeteries, but even more clustered. This may partly be due to field routines. Settlement sites have been searched for more actively in central settlement areas than at the periphery. As settlement site remains are more difficult to recognise than grave finds, the possibility cannot be excluded that Iron Age settlement sites have a wider distribution than is known. However, so

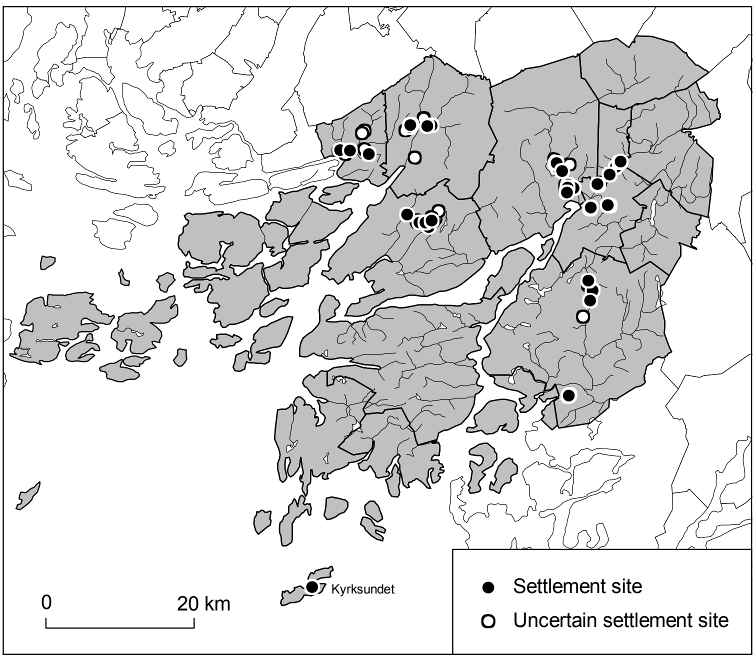


Fig. 64. Iron Age AD (in some cases possibly medieval) settlement sites in the research area. 'Uncertainty' refers to reservations as to site type or dating.

far not a single site has been clearly identified outside the central settlement areas on the mainland, with the exception of the trading site at Kyrksundet.

There are only vague ideas as to how near the cemeteries the actual settlement sites were situated. In a Swedish Late Iron Age study by Callmer (1986), cemeteries were used as indirect indications of settlement within 250 metres of the cemetery. A similar definition may be applicable to the Finnish material as well. Many of the known settlement sites are likely to support such a model. On the other hand, there are cases where known settlement sites seem to be clearly outside the 250 metre limit. If the Huttalanmäki site in Piikkiö was used during the Roman Period, as indicated by radiocarbon datings, it was situated on the opposite side of the microregion from the Roman Period cemeteries. The distance is over 2 kilometres. Another example in the same area is offered by the indications of settlement at Bussila, situated two kilometres upstream from the nearest known cemeteries (Asplund 1988). Even if a general settlement site / cemetery relationship is probable, examples like these indicate that some settlement sites may lie further away from cemeteries. How far away such outlying settlement sites actually may have been situated is an open question, as is the relationship between outlying settlement sites and the cemeteries. Due to the relatively small number of cemeteries compared with expected population numbers, it seems evident that not everyone was buried in the types of cemeteries we know archaeologically from the central settlement areas.

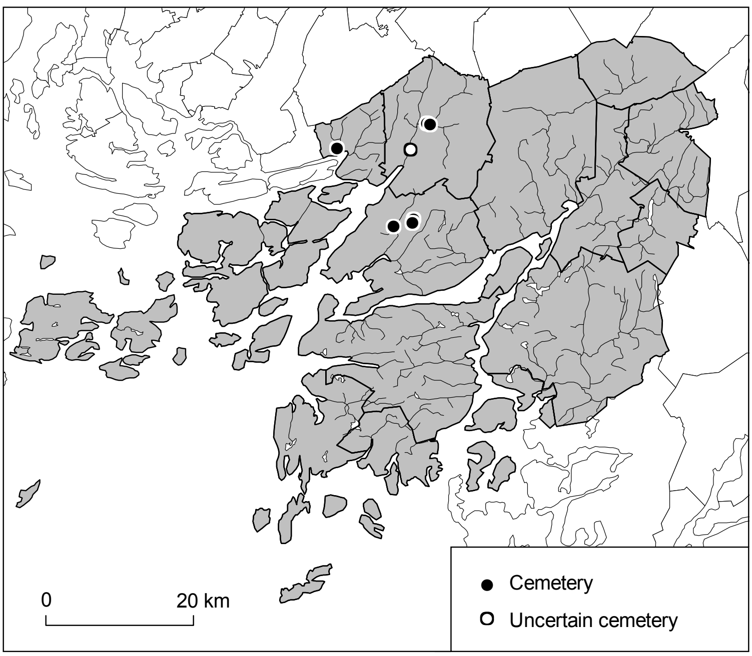


Fig. 65. Early Roman Iron Age cemeteries in the research area.

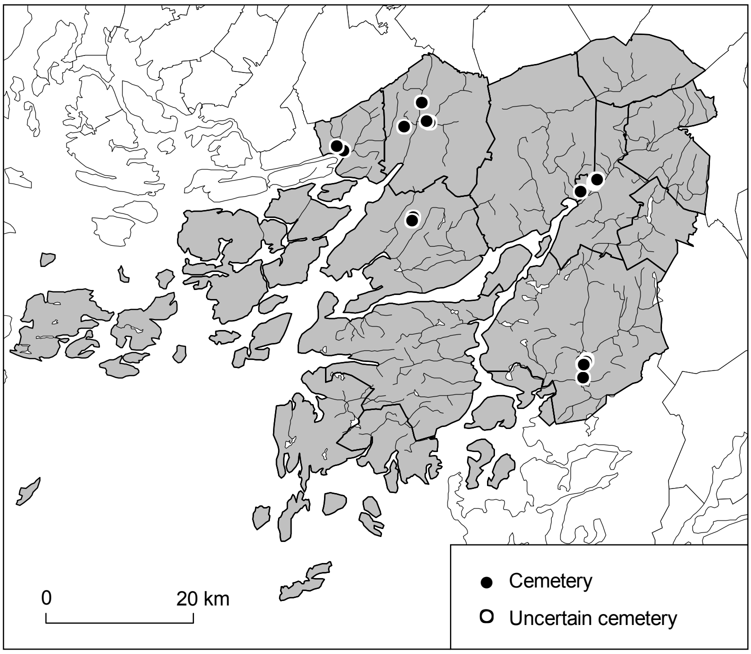


Fig. 66. Late Roman Iron Age cemeteries in the research area.

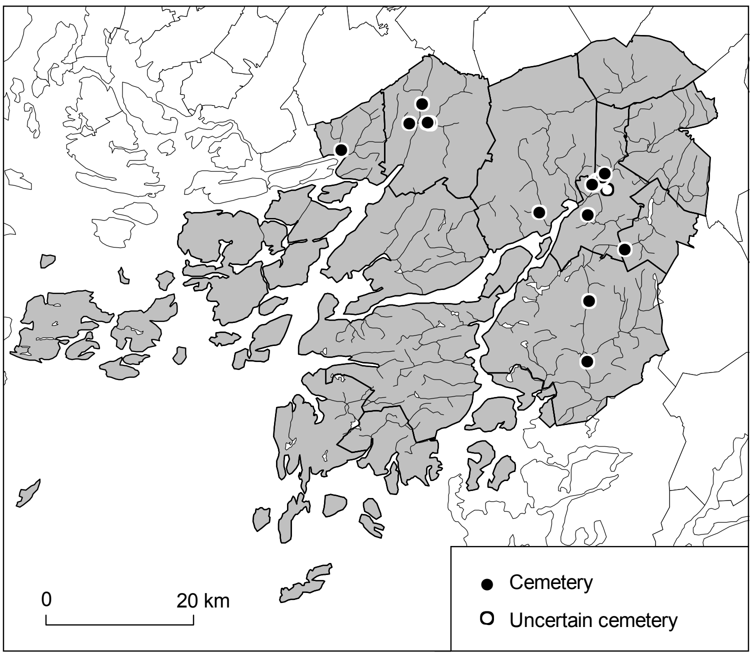


Fig. 67. Migration Period cemeteries in the research area.

This suggests that there existed farms without cemeteries, probably including also outlying permanent or semi-permanent settlement sites. As suggested by Pihlman (2004), the people living at these sites might have been part of the mortuary rituals of some other farm (like their old home farm, for example), or some area or group of farms acting as a ritual centre.

In order to arrive at a rough overview of the development of utilisation of the research area during the Iron Age AD, cemetery distribution maps for each period have been constructed. These indicate that Early Roman Iron Age cemeteries containing grave goods are known only in the western part of the study area, in Paimio, Piikkiö and Sauvo (Fig. 65) [59]. On the map for the Late Roman Period (Fig. 66), cemeteries also show up in Perniö and Salo. In the western part of the area,

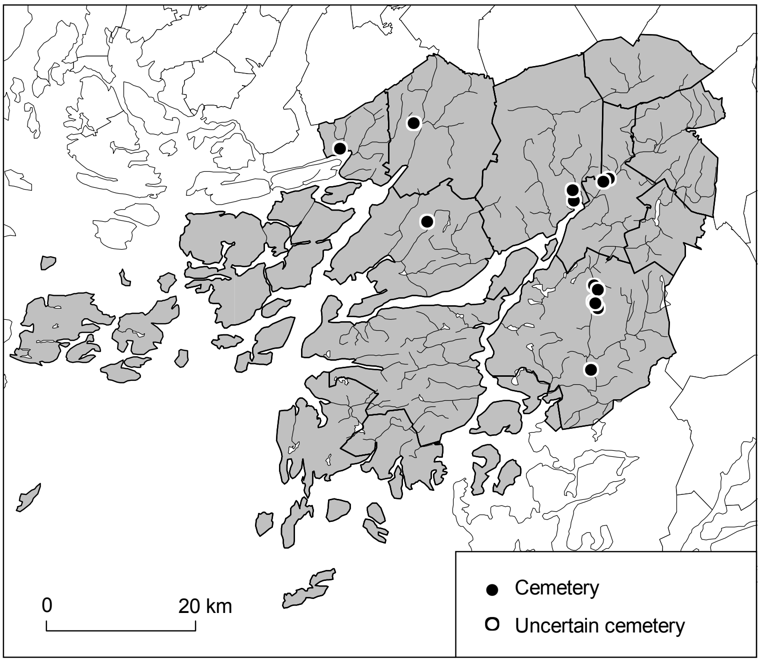


Fig. 68. Merovingian Period cemeteries in the research area.

[59] The datings applied are typological datings based on the metal objects occurring in the cemeteries. A possibility for dating and comparisons with earlier dates is provided by radiocarbon dating of burned bone. A first example of this from within the study area is provided by a couple of radiocarbon datings from the Meriniitynpuisto cemetery in Salo. The typologically datable artefacts from this site quite consistently represent Late Roman Iron Age forms. One radiocarbon dating of burned bone supports this dating, but the result of a dating from another cremated individual goes back to the Early Roman Iron Age (Pesonen 2006). The dating results are 1725 ± 50 BP (Hela-997), *i.e.* 130-430 cal AD and 1930 ± 50 BP (Hela 883), *i.e.* 50 cal BC – 220 cal AD if using the 95.4% probability. This indicates that there may be Early Roman burials in the Late Roman Iron Age cemeteries of the eastern part of the mainland study area which are not distinguishable due to the lack or scarcity of grave goods.

Migration Period cemeteries are known from Paimio and Piikkiö, but not from Sauvo; in the east new cemeteries now turn up in Halikko, Muurla and the northern part of Perniö, in addition to the areas of Perniö and Salo identified earlier (Fig. 67). Merovingian Period cemeteries are present in all of the areas mentioned, with the exception of Muurla (Fig. 68).

The distribution of cemeteries can be compared with the map showing stray finds with known locations (Fig. 51), as well as with the total distribution of Iron Age metal stray find sites according to municipality (Fig. 69). The latter map is of course not at all detailed, but it contains information from twentytwo sites, while the more detailed map shows only eight comparable sites. The general stray find distribution is similar to the distribution of cemeteries, except for one stray find site in the Parainen archipelago. A similar map showing the distribution of fire-striking stones according to municipality (Fig. 70) was also created. It contains information on 33 sites, while the earlier presentation of finds with known locations contained 17. The general idea, however, does not change. The most interesting occurrences of fire-striking stones outside the main distribution of cemeteries, *i.e.* those in the archipelago together with Pertteli and Muurla (as well as a couple of finds from

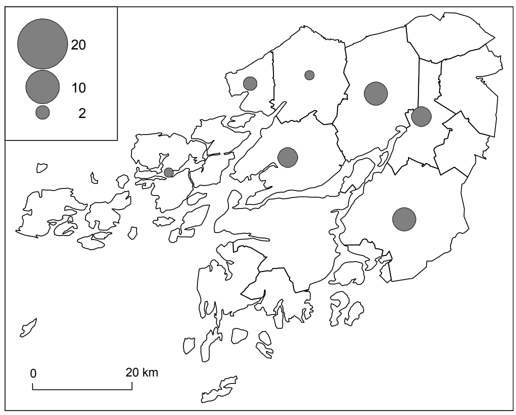


Fig. 69. Iron Age stray find sites containing metal items dated to AD 0-800 according to municipality.

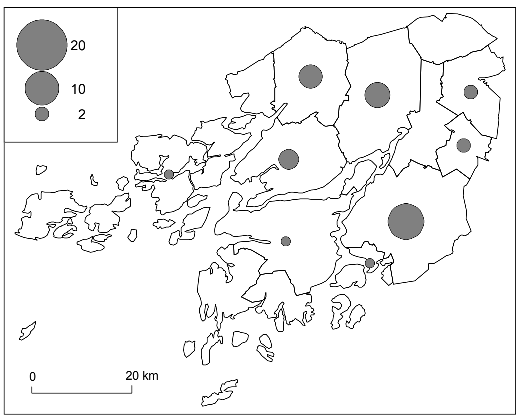


Fig. 70. Stray find sites where fire-striking stones have been found, according to municipality.

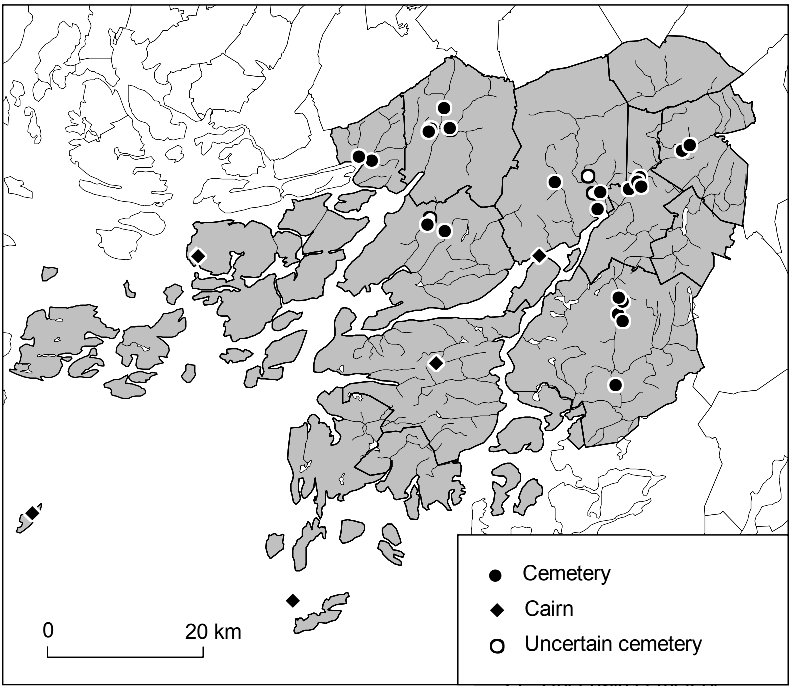


Fig. 71. Viking Age cemeteries and cairns in the research area.

Perniö and Särkisalo), already appear on the more detailed map shown earlier (Fig. 51). These few occurrences are indications of an interest in areas outside the central settlement areas during the periods preceding the Viking Age.

A comparison of the maps of cemeteries from the Late Roman Period to the Merovingian period shown above and the map of Viking Age cemeteries (Fig. 71) reveals a general resemblance. One Migration Period cemetery at Äijälä in Muurla seems to have vanished, but this may be deceptive. One type G spearhead (KM 4409:2) found close to the cemetery might indicate the continuation of settlement and burial in the area. This type of spearhead is commonly dated to the (late) Viking Age and the 11th century (Kivikoski 1973: 115-116, Tafel 99:858-859; *cf*. Taavitsainen 1990: 188-189). Minor changes can also be detected in the Halikko area, where the southernmost Kaninkola cemetery from the Migration Period has disappeared and a new Viking Age cemetery appears at Muntola, to the east of the cemeteries known from the Merovingian Period. Apart from this the only notable new cemeteries are situated at Pertteli, northeast of the Salo settlement area. These few cases are quite unexpectedly the only apparent indications of settlement expansion during the Viking Age reflected in the large-scale distribution of dated cemeteries. Crusade Period cemeteries do not add much to the picture either; all of the identified cases (Fig. 72) are situated in regions distinguishable on the basis of Viking Age cemeteries. The map showing the distribution of Viking Age and Crusade Period stray find sites

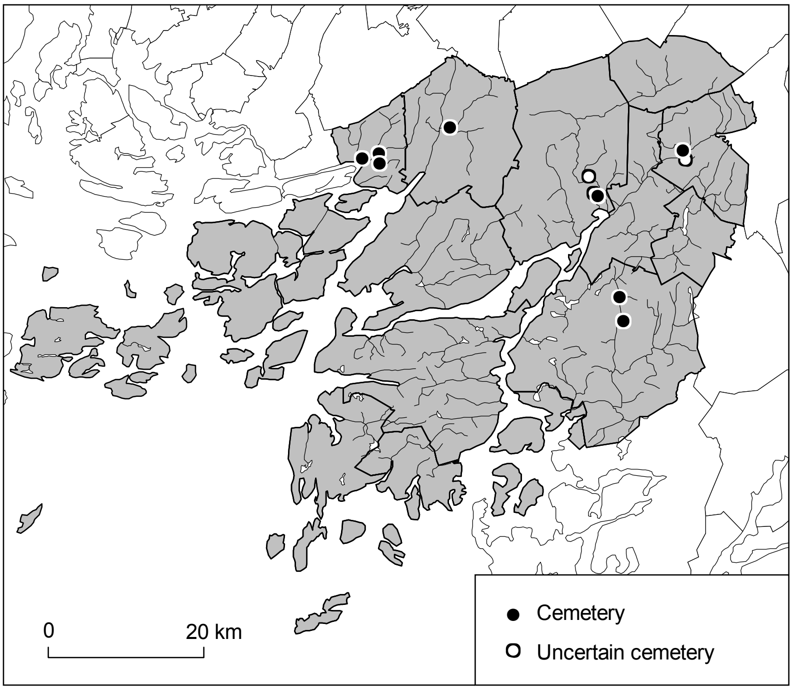


Fig. 72. Crusade Period cemeteries in the research area.

according to municipality (Fig. 73), however, shows an increase in the number of sites as well as a small areal expansion towards the archipelago in comparison with the distribution of earlier stray find sites. Here the total amount is 84 sites, 50 of which have a known location and were shown on the more detailed map (Fig. 53) above.

A new period of activity in the archipelago during the Viking Age was discussed above. The Iron Age cairns in the archipelago, usually referred to as graves, were shown on the map of Iron Age cemeteries. It is rather interesting that all of the six cases dated by artefacts or by the means of radiocarbon dating may actually belong to the same period – the Viking Age. Although the material is limited, the cairn ritual could be something related to Late Iron Age outland areas and the archipelago. The only Late Iron Age cairn site on the mainland is the Kokkila site discussed above, situated in

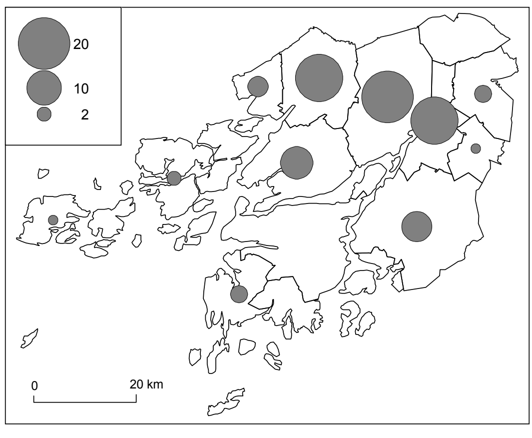


Fig. 73. Iron Age stray find sites AD 800-1200 according to municipality.

the southernmost part of Halikko, close to the strait separating Kemiönsaari from the mainland. The other dated cairns are situated in Kemiö, Dragsfjärd (Hiittinen), Nauvo and Parainen (if the stone construction at Koupo Rösbacken is accepted as a cairn). Six sites are not a large number, but since not a single cemetery of the mainland types has been found on the island of Kemiönsaari or in the nearby archipelago, this may indicate a genuine difference between cemetery rituals in the old central settlement areas and cairn rituals in the coastal periphery. This does not necessarily mean that mainland cemeteries and cairns are different forms of sites with the same function, *i.e.* different grave forms, or that they were built by different people. Mainland cemeteries most likely form the bond between the cultivated land, the ancestors and the living population of the permanent farm or village, while Late Iron Age cairns may relate to different landscapes and ideas.

3.7.2. Settlement development

When looking a little more closely at the numbers and dates of mainland cemetery sites within each municipality, a somewhat more detailed picture emerges of changes in burial rituals and settlement development. As noted above, the development of the total number of cemetery sites is biased by the greater number of single graves or cemetery structures during the Roman Iron Age and the Migration Period compared with later periods. Thus comparability between periods is not easily achieved without detailed studies of individual microregions. One general

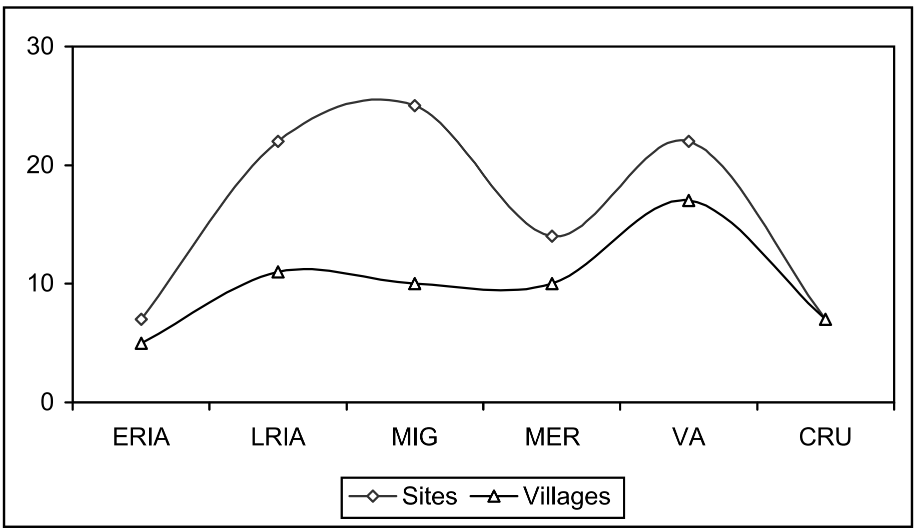


Fig. 74. Total number of Iron Age cemetery sites AD 1-1200 on the mainland per period compared with the number of present-day villages containing Iron Age cemeteries.

comparison can be drawn by calculating only the number of present-day villages with cemeteries from different periods (Fig. 74). Such a comparison implies that the Late Roman Iron Age and the Migration Period are characterised by the occurrence of several cemetery sites or grave structures within a few present-day villages, while the Viking Age witnessed cemeteries in an increasing number of areas.

This view is probably overly simplified; some present-day villages clearly constitute cemeteries distant from each other, indicating the existence of several settlement units. In other cases, separate grave structures close to each other can be defined as forming single cemeteries. A more accurate picture of settlement development could probably be achieved if the most obvious cases of groups of single grave structures were evaluated by taking into account the distance between sites. Such cases might be Spurila in Paimio (Asplund 1985: 468) and Lupaja in Perniö (Salmo 1980: 48-49; *cf.* Sarvas 1980: 97), as well as Isokylä in Salo (Schauman-Lönnqvist 1989: 78-81). The main trends, however, remain the same: the total number of cemeteries within the study area increases from the Early Roman Iron Age to the Late Roman Iron Age and (partly) to the Migration Period, and declines during the Merovingian Period. A new increase in the number of cemeteries during the Viking Age is followed by a decline towards the end of the Iron Age. The whole trend is quite similar to general ideas of Iron Age development in southwestern Finland.

There are, however, discrepancies between different parts of the study area if the development of cemeteries is viewed according to the lines of present-day municipalities. A notable difference, seen already in the maps above, is that Early Roman Iron Age cemeteries are known from Paimio, Piikkiö and Sauvo in the western part of the study area, while there are none in the municipalities of Halikko, Perniö and Salo in the east. This suggests that a cemetery ritual involving the deposition of metal objects was not introduced simultaneously in the whole study area of the mainland. This is one indication of a divergence between the western and eastern areas during the early periods of the Iron Age. Such a difference between the eastern part of the study area and the rest of Finland Proper has also been pointed out by Hirviluoto (1991: 138-139) on the basis of Iron Age material culture in the Halikonlahti area. Her conclusion is that during the earlier periods of the Iron Age, the Halikonlahti area was not part of the organization that was later to develop into the province of Finland Proper. The material culture later converged, and by the end of the Viking Period and the Crusade Period the material culture of the Halikonlahti area and the rest of Finland Proper was more or less uniform (Hirviluoto 1991: 189-190).

In addition to the discussion on difference between the eastern and western part of the mainland study area, it should also be pointed out that the lack of Early

Roman Iron Age cemeteries containing grave goods equals the eastern part with Kemiönsaari and the rest of the archipelago area. In other words, the problem of lack of Early Roman Iron Age cemeteries can be no more no less a problem on Kemiönsaari than in the eastern mainland municipalities. In this sense Kemiönsaari as an area different from the mainland does not really emerge before the Late Roman Period, when cemeteries also occur in Perniö and Salo.

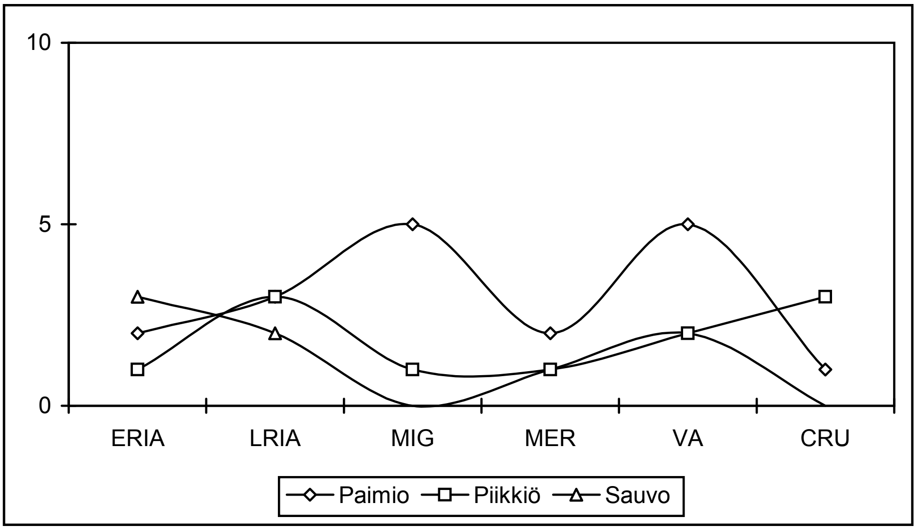


Fig. 75. Number of Iron Age cemetery sites AD 1-1200 by period in the municipalities of Paimio, Piikkiö and Sauvo.

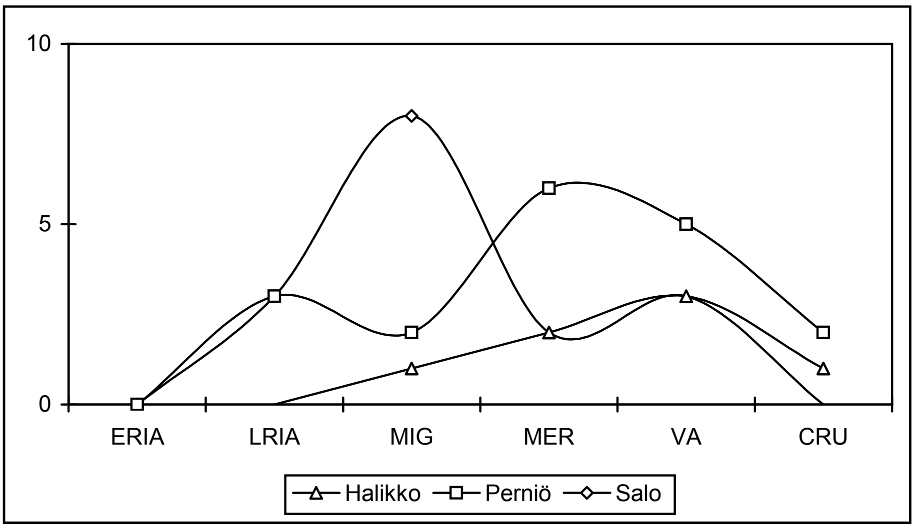


Fig. 76. Number of Iron Age cemetery sites AD 1-1200 per period in the municipalities of Halikko, Perniö and Salo.

In both the western (Fig. 75) and the eastern (Fig. 76) mainland area, the Migration Period shows up as a period sparse in cemeteries – except for Paimio in the west and Salo in the East. One dominant microregion in the western area and one in the eastern area is an interesting pattern, but it is not clear what significance this distribution should be given. It is likely that many of the fluctuations in the numbers of cemeteries in this comparison are due to differences in research activity and problems of interpretation. If such a Migration Period expansion in some microregions and decline in others actually exists as a real trend, however, it may suggest some kind of increase in the role of the Paimio and Salo areas during this time. The Migration Period is characterised by fluctuations in the numbers of cemeteries in other areas as well. In Ostrobothnia this period saw an increase in the number of cemeteries, while, for instance, in Uusimaa, east of the study area, the Migration Period seems (statistically) to be a period of decline (Seger 1983; 1984). In the case of Uusimaa it could be noted, however, that Migration Period cemeteries occur in the western part (*cf*. Pihlman 1990: Taulukko 20: 12a-b), *i.e.* close to the present study area.

The Merovingian Period decline in the number of cemeteries – here most clearly exemplified in the case of Paimio and Salo – is usually explained as a result of the introduction of a new type of cemetery – the cremation cemetery on ground level – often considered to be an indirect result of village formation (Meinander 1980: 8; *cf.* Seger 1983: 190). Other explanations have also been suggested, as in the case of Salo, where finds from the Late Iron Age are few compared with earlier periods. According to one theory, the old, dense settlement at Isokylä spread out both northward and southward (Schauman-Lönnqvist 1989: 83; *cf.* Hirviluoto 1991: 162-163). This would actually turn the village-forming hypothesis upside down as the Merovingian Period in this case would be considered to be a period of dispersion and not of settlement agglomeration. The sparsity of Late Iron Age cemeteries and finds in Salo has also been suggested to be due to changed circumstances in the fur-hunting areas in Häme or less profitable trade relations (Hirviluoto 1991: 163). This is not a convincing interpretation, at least with regard to the Viking Age, which seems to be characterised by a general increase in interaction and exchange.

The mapping of numbers of Viking Age cemeteries according to municipality, shows, by and large, the same trends as discussed earlier. An increase in the number of cemeteries can be seen in all present-day municipalities in the central settlement areas except for Perniö, where the increase is detected somewhat earlier. One reason for this is probably that some of the Perniö finds from the early Viking Age fall between periods and have also been taken into account in calculating Merovingian Period cemeteries. Finally, towards the end of the Iron Age, the number of cemeteries decreased again in most municipalities.

3.8. The Early Iron Age transition – a problem of discontinuity

Chapter 3 has surveyed the archaeological material from the island of Kemiönsaari as well as some comparative materials from both the archipelago and the mainland. During this long-term period of comparison, Kemiönsaari seems to develop from a settlement region and resource area as competitive as the mainland into a periphery sparse in archaeological finds. As demonstrated above, permanent settlement in the archipelago was established during the Neolithic. Later, the increased importance of defining the relationship between people and landscapes during the Bronze Age is seen in the large number of cairns as clearly in the archipelago as on the mainland coast. Also a few settlement sites from the Late Bronze Age and the Pre-Roman Iron Age prove that Kemiönsaari was still inhabited in the same manner as the mainland areas at that time. After this, settlement development can be followed mainly in the main river valleys on the mainland, which started more and more clearly to develop into central areas of settlement. Known settlement sites, cup-marked stones and cemeteries, on the basis of which Iron Age settlement development has traditionally been studied, are concentrated into these river valleys. The difference between Iron Age archipelago and mainland is furthermore accentuated by the henged hill-sites, some of which seem to have their roots in the Early Metal Period. They are almost exclusively found in the mainland area – none have been registered on Kemiönsaari.

Traces of settlement are sparser outside the river valleys and the lack of cemeteries is especially notable. This reveals a difference in use or position of the areas outside the river valleys, but hardly a lack of utilisation. The permanently cultivated fields of the Iron Age may have been situated close to the farmsteads in the river valley, but farther away there has probably been an extensive mosaic of pastures, shielings, areas of slash-and-burn cultivation, and hunting camps, all in varying degrees of utilisation. Some outlying areas may have been inhabited permanently (*cf*. Pihlman 2004). In the archipelago there have at least been sites for trapping and fishing, fowling, and other marine hunting – evidently also pastures and cultivated plots. Since no significant archaeological materials have remained to be studied, all of these are poorly known so far. On general grounds it can be considered likely that permanent settlement existed in the area throughout the Iron Age (Tuovinen 2002a).

It seems possible, in the central settlement areas of the Iron Age to follow the large-scale continuous development of farms or villages from the Iron Age to the historic times. It would appear that roughly the same settlement pattern that is known from the early Historical Period was born during the Iron Age AD. One can make such a claim at least when comparing with the locations of Pre-Roman settlement sites, which are in many cases not connected with later settlement sites and cemeteries. An areal (chorological) continuity of settlement from the Pre-Roman Iron Age to the later stages of the Iron Age exist in the mainland areas, but the topographic location of settlement within microregions may have changed after the beginning of the Iron Age AD.

The changes in site patterns after the Pre-Roman (or Early Roman) Iron Age, in the light of present-day archaeological research, are significant with regard to Kemiönsaari, since there seem to be no cemeteries from the Iron Age AD on the island. This condition could in part be due to the cemeteries not being found yet, although this can hardly explain the whole situation. If cremation cemeteries similar to the ones in the mainland river valleys have existed on Kemiönsaari, some of them should have been found by accident during construction or tillage. Since this has not happened, a more believable explanation is that during the Iron Age AD the form of settlement and exploitation of Kemiönsaari, maybe also the role of the area in some other respect, has differed from the settlement and land-use in the mainland river valleys.

So far it has not been possible to present a simple reason for the change in the pattern of archaeological sites after the Pre-Roman (or Early Roman) Iron Age. The increased significance of cultivation in the economy could be considered as one possible reason. The reason for the peripheral position of the archipelago in the Iron Age given by, for example, Hirviluoto (1991: 162) is that the river valleys of the Halikonlahti area had a more suitable microclimate and provided better opportunities for the Iron Age economy and way of life. This is a problematic theory, as the extent to which the mainland river valleys would be considerably more suitable for agriculture than, for example, the Kemiönsaari area, has so far not been shown. It is as likely that there were also other reasons for the apparently more centralised settlement of the mainland. The end result of the process in any case was that the development of Kemiönsaari differed from that of the mainland. Kemiönsaari may still have remained an important area of resources, probably settled and also exploited by the settlers around Halikonlahti bay, but similar groups of permanent farms practising new forms of cemetery rituals were not formed here. If permanent settlement occurred in the area it might have been different from the mainland farms with regard both to the way of life and probably also status. The situation did not change considerably until the Viking Age when Kemiönsaari and other archipelagic areas seem to have re-attracted interest or developed in some other way. The Late Iron Age cairns built and single objects deposited indicate a new need to establish or signal a presence in the area. This is also generally a period of widespread interest and expansion into new areas outside old settlement regions. The Kyrksundet trading site with finds of Scandinavian, Finnish and

Estonian origin now suggests the archipelago as a meeting point between voyagers and people from the mainland.

The most important period concerning the settlement development of Kemiönsaari is, however, the Early Iron Age, *i.e.* the Pre-Roman Iron Age and the Roman Period. What it all comes down to is how to interpret discontinuity. If this really were to reflect a settlement break or regression, we should not be thinking in terms of a topographic discontinuity of single settlements or settlement zones, but of a major areal re-organization. As the differences between Kemiönsaari and the mainland seem to appear in the Early Iron Age, the answers should be sought from this specific period. There may have been some influential turn of events just then, or – perhaps more likely – we are seeing the culmination of long-term processes of development. This could have been due to local factors, but it is not impossible that the process of Early Iron Age change can be demonstrated even in regions more distant than just southwestern Finland. There are, for example, indications of Early Iron Age settlement discontinuity (or aggregation) from Ostrobothnia, where some settlement units seem to disappear after the Pre-Roman Period (Miettinen, M. 1998: 148-150). Also concerning Uppland in Sweden, the emergence of a more concentrated settlement site distribution, related to a social differentiation beginning with the late Pre-Roman Iron Age, has been discussed (Göthberg 2000: 230-233). As a more general parallel one could consider settlement development on the northern Estonian coast, where similar problems exist conserning Iron Age settlement continuity (Vedru 2001), as within the present study area.

In the following chapter some natural scientific data will be presented and the problem of discontinuity of the archeological record will be compared with palynological results from the study area. After that, some topics of the general Early Iron Age debate in the Baltic Sea area will be briefly reviewed and some specific problems of research into the Early Iron Age in Finland examined. One aim is to consider whether general factors of Early Iron Age development might help to explain the discontinuity observed in the Kemiönsaari area.

4. Environmental studies and osteology

4.1. Shoreline displacement effects

Shoreline displacement, due to land upheaval and eustatic development, has been a major factor shaping the coastal landscape in southwestern Finland, and of importance for the location of different types of settlements. In Fennoscandia, land upheaval is chiefly due to former glacial processes. After the Ice Age land upheaval was rapid, but since then it has slowed down, which must be added as a factor when discussing the rate of the process. Calculation of ancient shore level datings is furthermore complicated by eustatic changes affecting the water level. There is therefore no simple formula for the calculation of shoreline displacement and no exact datings can be used; a margin of error of up to ± 200 years always has to be taken into account, due to general errors regarding the observations and materials used for shore-level dating (Hatakka & Glückert 2000: 5).

Regarding shoreline displacement in southwestern Finland archaeologists have for decades benefited from a study by Glückert (1976), based on a large number of ancient shore observations as well as pollen- and diatomstratigraphy from thirty peat bog basins. The absolute chronology for the shoreline development was constructed with the help of radiocarbon datings from isolation contacts in the basins. Because the study is based on radiocarbon dates it can still be used – also in the Kemiönsaari case – if the chronology is corrected by means of calibration.

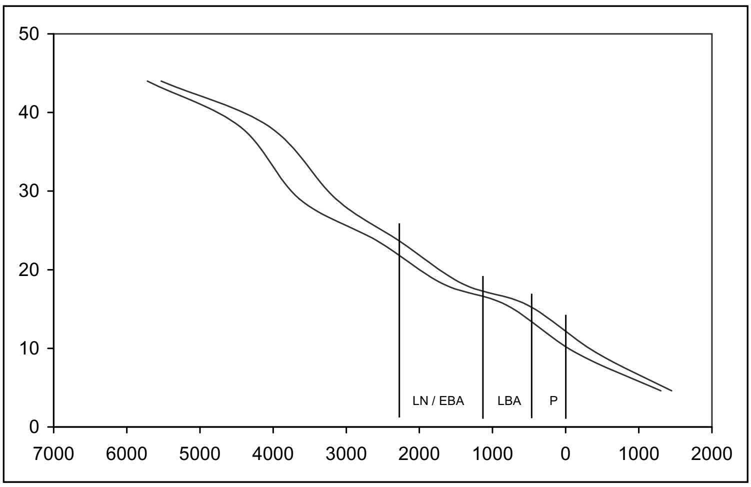


Fig. 77. Shore displacement of the Litorina period in the Kemiönsaari area according to information modified from Glückert (1976). The diagram shows the one sigma maximum and minumum obtained by means of calibration. Main periods of the Late Neolithic and the Early Metal Period are indicated.

Such a diagram picturing shore displacement during the *Litorina* stage in the Kemiönsaari area shows a generally stable and regressive shore displacement where small fluctuations indicate (long-term) periods of slightly slower or faster regression (Fig. 77).[60]

More recently the picture of shore displacement in southwestern Finland has become increasingly complicated, as new studies indicate a more rapid regression, thus making the ancient shorelines older than previously expected.[61] Special attention can be given to a synthesis presented by Hatakka & Glückert (2000) where some new results (published in closer detail elsewhere) are put together. An important part of the article is a diagram presenting the general trend of shore displacement in southwestern Finland, where also the shore displacement applicable to the Kemiönsaari (Perniö) study area is specified (Hatakka & Glückert 2000: Fig. 6). In this diagram two features appear that are different from the diagram above. One is that the shore development curve is smooth, without practically any long-term eustatic fluctuations. The other is that shore displacement would have been more rapid, implying a difference of several metres in height or, as regards dating, an age dissimilarity of up to hundreds of years when compared with previous ideas. If these datings are correct and the new combined diagram (Hatakka & Glückert 2000: Fig. 6) properly drawn, the consequences for archaeology are huge – sites dated on the basis of shorelevels must be re-evaluated regarding their dating or their surrounding environment.

The new shore displacement datings and their impact have not as yet been thoroughly discussed. The data for the new results were obtained in the 1990's in connection with studies especially in the Karjaa-Tammisaari-Perniö area and the

60 The diagram was created from Glückert's (1976) data and chronology by the means of calibration, using a tentative error margin of ± 100 years.

61 Along with the new results on shore displacement it may also be noted that the rates of land uplift have been under discussion. Concerning the Kemiönsaari area, results on the basis of the precision levelling by the year 1962 indicated land uplift with a rate of possibly 4.4 mm/yr (Kääriäinen 1963). More recent precision levelling data (*cf*. Kakkuri 1986: Fig 1; 1992) suggest a much slower rate of around 3.5 mm/yr. The rate of land uplift does not, however, affect the datings obtained from isolated basins, where specifically the altitude of isolation is being dated. Therefore the new shore level datings in general cannot be explicitly due to new results concerning land uplift. As to Kemiönsaari, however, it can be noticed that the isobases of land uplift drawn by Kääriäinen (1963) show a strange feature in the Perniö area, where the isobases approach Kemiönsaari almost straight from the east – not in the SW-NE direction of the Salpausselkä end-moraines of the Ice Age as indicated by, for example, Glückert (1976: Fig. 1, Fig. 2) and in more general approaches by, for example, Kakkuri (1992). What the position of Kemiönsaari actually would be using the isobases of Kääriäinen is not known as the lines are not drawn until the island, but if the isobases really corresponded to those of western Uusimaa rather than the land uplift rates of the area NE of Kemiönsaari, this might explain why shore level dates in this specific case, especially the southern part of the island, could be older than expected.

Olkiluoto-Pyhäjärvi area. One thing pointed out by the researchers is that most of previous studies were based on too few radiocarbon datings. When, for example, Glückert's (1976) old study was based on thirteen radiocarbon datings, a total of 71 datings were made in connection with the new studies (Eronen *et al*. 2001). Regardless of the evidently much better dating material, the results still are under discussion. Archaeologists have started to pay attention to the fact that the new geological datings correlate inadequately with archeological data. For example, regarding the Stone Age in the Turku area, radiocarbon datings related to the Jäkärlä Sub-Neolithic settlement site correlate better with the old shoreline-datings modified by calibration, than with the new ones (Asplund 2006). Similar problems have been encountered also elsewhere (Lehtonen 2005). Due to these yet unsolved problems, detailed shorelevel datings have not been used in this book. The broad dates given are in accordance with Glückert (1976) but at the same time the possibility of a more rapid regression should also be acknowledged. Older shorelevel dates are actually supported by the paleoecological study by Alenius (Appendix 2), where the isolation phase of Söderbyträsket and Labbnästräsket is well indicated in the sediments and an approximate dating can be obtained by extrapolation from available radiocarbon dates. In both cases isolation would seem to have taken place much earlier than indicated by the shore displacement curve presented above.[62]

One strange feature in the curves presented by Hatakka & Glückert (2000: Fig. 6) is the lack of fluctuations. This must be due to some idea of presenting only the main regressive trend; otherwise the curves are not understandable.[63] It is well known that the general regressive change in sea level in the Baltic has been affected by eustatic changes leading to periods of faster or slower regression and even transgressive periods. There is evidence of both long-term and short-term fluctuations, but – the shorter the phases of change, the less well are they known.[64] Regarding the Early

62 This could be due to to several reasons, one being the fact that the isolation phase has been determined only by means of loss-on-ignition – a more accurate method being that of diatome analysis. The use of diatome analysis would be important due to the fact that organic sediment may have already started to accumulate prior to the actual isolation, *i.e.* the proper isolation may have happened somewhat later. Other facts preventing exact comparisons are that the altitudes of the basins have not been exactly measured and the isolation phase in the sediments are dated by means of extrapolation only. Despite these problems – due to the fact that the samples have been analysed not with the aid of studying shorelevel displacement but the palynological record – the samples point in the direction that the new results concerning shorelevel displacement may be relevant in the case of Kemiönsaari.

63 It can be noted that normal fluctuations occur in the original Karjaa-Tammisaari-Perniö and the Olkiluoto-Pyhäjärvi diagrams (*cf*. Hatakka & Glückert 2000: Fig. 4-5; Eronen *et al*. 2001: Fig. 7).

64 In Finland short-term fluctuations have been dealt with mainly in the case of medieval towns and castles (Hiekkanen 1981; 1983; 1988; Wahlberg 1994; Uotila 1998).

Iron Age no striking irregularity of sea level displacement has been discussed in Finland – nor concerning the Bronze Age. A possible Early Bronze Age transgression has, however, been noted in eastern Sweden (*cf*. Wigren 1987: 67-68). A hint of an analogous development can perhaps be seen in the diagram representing the shore displacement of the Kemiönsaari area (Fig. 77) where there is a plateau picturing a slower regression during the Bronze Age. Whether this period could have included some short-term transgression is not known. In the Late Bronze Age or around the beginning of the Iron Age at the latest the rate of sea level displacement seems to have changed again, towards a somewhat faster regression.[65] The effect of this (long-term) change has been that new land has emerged faster than during the previous stage.

How shore-level changes affect coastal environments depends above all on topography. In specific environments some periods have provided new land rapidly, while others have experienced slow growth. Such fluctuations may to some extent have been a factor affecting the availability of various resources and the course of settlement development. In the project Changing Environment - Changing Society, briefly discussed in the second chapter of this book, special attention was given to the environmental changes caused by land upheaval. One simple but significant feature pointed out by the researchers was that new land resources exposed during the same period of time can differ considerably in different topographic environments; in the vicinity of one settlement area no changes might occur, but at the same time another settlement area might gain several hectares of new land and perhaps lose its immediate contact with the sea (Harju 1995: 69). Similar ideas have been presented in Stone Age research, as shore displacement on different slopes may have affected settlement continuity or dislocation in different ways (Åkerlund 1996: 12, 114-119; Nuñez & Okkonen 1999: 109-114; 2005: 36-37). Regardless of the aims of the Changing Environment - Changing Society project it seems that few topographical considerations of shoreline effects in relation to prehistoric sites actually were published. One exception is a study by Nissinaho (2002: 102-106; 2007: 200-201) where differences in the accretion of land as well as changes of ecotypes within villages during the Iron Age and the Middle Ages have been compared.

More generally, the formulation of a model or research strategy for shoreline development could, in its simplest form, start with only a couple of variables. The main factors of shore displacement effects are changes related to 1) the area of land exposed above the sea and 2) the length of the shoreline. In order to exemplify the connection between increasing land area and shoreline length, two extremely

[65] The change would have happened already during the Early Bronze Age if applying the chronology of Hatakka & Glükert (2000) and Eronen *et al*. (2001).

simple simulations related to regressive shoreline displacement can be used. By calculating the areal growth of a piece of land in a uniform water environment and comparing it to changes in the length of the shoreline, it is possible to show that in such a milieu shoreline length will increase with an increase in land area (Fig. 78). Calculation of the drain of a water area (theoretically in sea contact) within an uniform terrestrial environment shows that shoreline length diminishes as the land area grows larger (Fig. 79). The first case can be compared to the land upheaval of an island, the second to the decrease of a bay due to land upheaval.

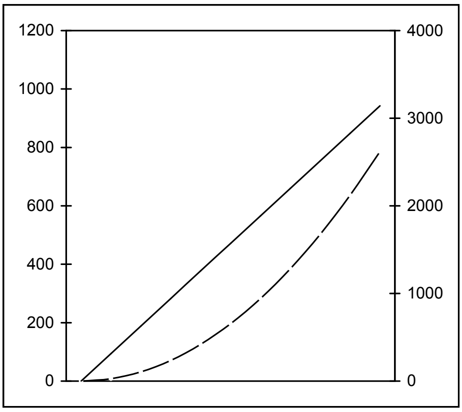


Fig. 78. Simulation of a round piece of land increasing in size due to a regressive shoreline displacement. As the amount of land (broken line, left axis) increases the length of the shoreline (unbroken line, right axis) increases.

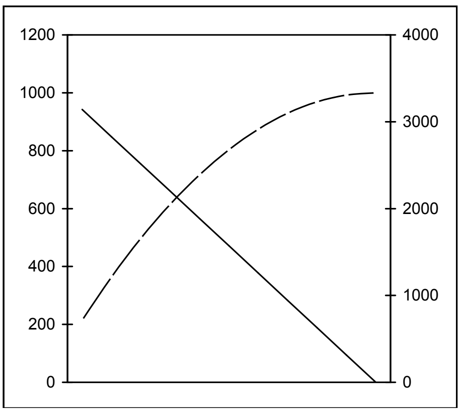


Fig. 79. Simulation of a round water basin in sea contact diminishing in size due to regressive shoreline displacement. As the amount of land (broken line, left axis) increases the length of the shoreline (unbroken line, right axis) decreases.

Another simulation of land upheaval, starting with an uniform water environment, could be used to demonstrate how pieces of land, randomly situated in a coordinate system, will increase in area and add to the total land area until no water is left. For some time the length of the total shoreline will also increase, but as the land area increases sufficiently, the shoreline length will inevitably start to decrease. This is how the island world of the archipelago is slowly transformed into mainland. This process also involves changes in topography, ecosystems and other environmental circumstances affecting the location of settlements. These basic simulations address the amount of exposed land and the length of the shoreline as two simple factors to be used in inter-site comparisons. In particular the length of the shoreline in site catchment areas could be regarded as indicative of the importance of marine and coastal resources. In addition to quantitative comparisons of actual land areas and shoreline lengths, one could also look at whether sites were settled during a period of increasing or decreasing shoreline length, *i.e.* on the one hand an island or archipelago phase or on the other a period of larger areas of land reducing former open sea areas, passages and bays. In addition to actually counting areas and perimeters of pieces of land, much of this knowledge can, of course, be gained visually from simply looking at a topographical chart.

The consideration of shore displacement effects is much dependent on the scale of evaluation. If, for example, the pioneer settlement phase of Kemiönsaari was viewed within an area of a few kilometres around the settlement sites, it is evident that they have been settled during a phase of both an ongoing increase in the amount of land exposed above the sea and an increasing shoreline length. If, on the other hand, reducing the area of comparison to only the immediate vicinity of the sites, the settlement phase is closer to the shoreline maximum or even within the stage of diminishing shoreline length. Visually, in the large scale we see tiny islands in open sea, while in the small scale we see large areas of land around the settlement and only the shoreline of its vicinity.

With the potential change in utilization of resources during the Early Metal Period in mind, the development of shoreline length and area of land exposed above water was counted within a radius of 500 m around the Late Neolithic and Early Metal Period sites on Kemiönsaari.[66] The diagrams picturing the progress of shore displacement around the sites show both common traits and differences due to local topography (Fig. 80). The area of land steadily increased, but at a different pace depending on how high or low the relief of the surroundings. Sooner or later shoreline length increased to a maximum, followed by a decrease when former water areas dried up; in some cases former islands have grown together and new islands later rose up, thus leading to changes back and forth in the perimeter of the shoreline.

Further comparisons are possible when shoreline displacement datings as well as datings for the archaeological sites are available. Following the coarse datings outlined above, some considerations can be presented regarding shore displacement effects during the periods within which the use of the settlement sites took place.[67]

66 Settlements situated close to each other within the same surrounding were measured only once. Sites left out due to this were the Late Neolithic / Early Bronze Age site Hammarsboda 3 (situated about two hundred metres from Hammarsboda 2) and the other of the presumably Pre-Roman settlement sites in Makila (situated about one hundred metres from the Makila Östergård site included in the analysis).

67 The altitudes related to the Kiukainen Culture / Early Bronze Age sites was taken to be 23-17 metres (in the actual analysis the upper range was set to 22.5 or 20 metres in accordance with the registered height of the sites), that of the Late Bronze Age (represented only by the Hammarsboda 2 site settled already during the previous period) 17-15 metres, and that of the Pre-Roman Iron Age (represented by the Makila and Tappo sites) 15-10 metres above sea level.

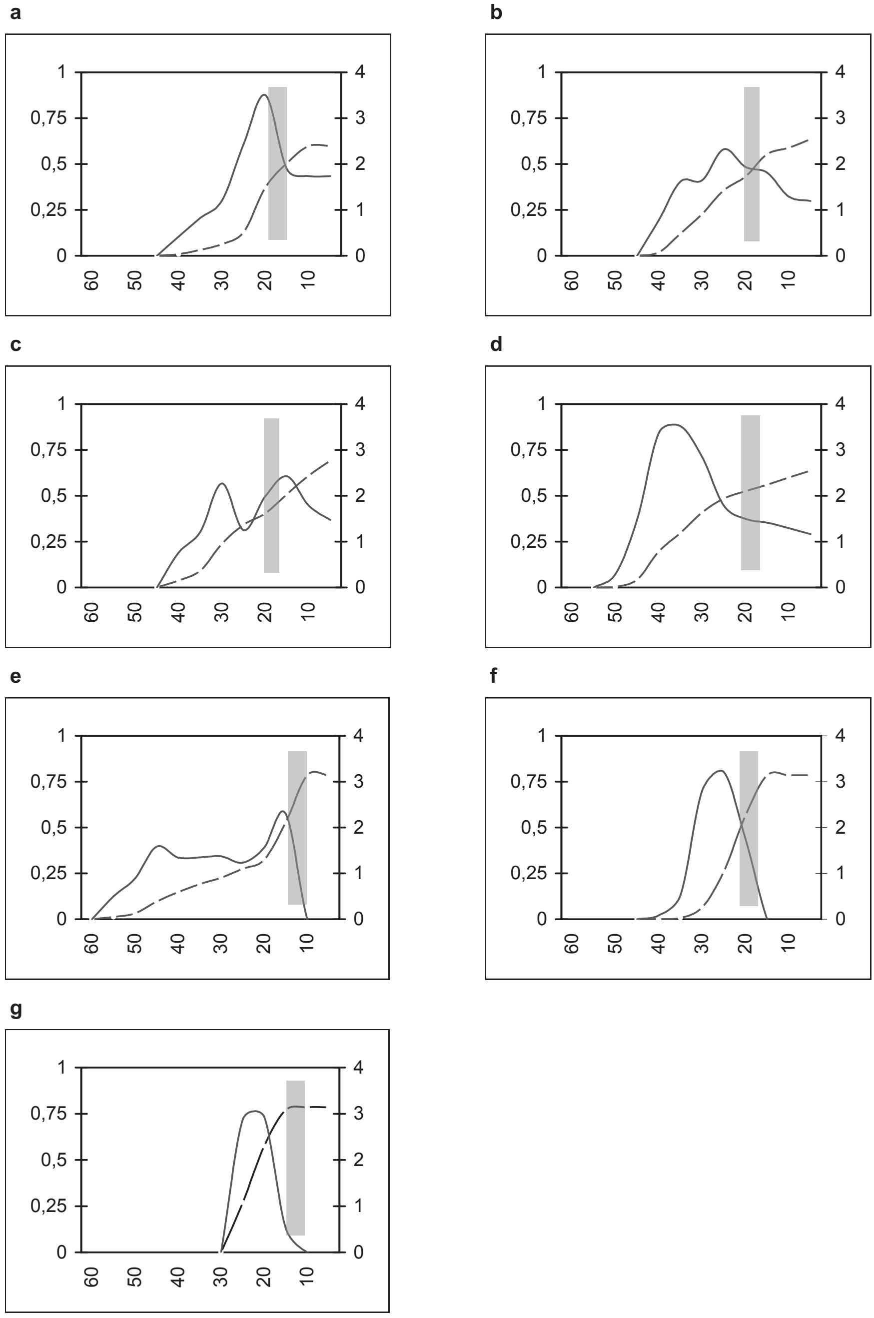


Fig. 80. The development of area of land exposed above water (broken line, km², left scale) and shoreline length (unbroken line, km, right scale) within a radius of 500 m around Late Neolithic and Early Metal Period sites (a: Dragsfjärd, Hammarsboda, b: Dragsfjärd, Jordbro, c: Dragsfjärd, Knipängsbacken, d: Kemiö, Branten, e: Kemiö, Makila, f: Kemiö, Östermark, g: Västanfjärd, Tappo). Shading indicates the altitude (lower axis) taken to represent the time of settlement.

The main impression is, that just about all of the cases are rather similar, the time of settlement being related to the period of decreasing shoreline length and a land area of about 0.5 km^2 being exposed above the sea within the 500 m radius. This is true also concerning the Kemiö Makila site (Fig. 80:e), suggested as dating to the Pre-Roman Iron Age, while the other Early Iron Age site, Tappo in Västanfjärd, is somewhat different. At Tappo the period of settlement seems to occur when the area was already in its final stage of shoreline development (Fig. 80:g). This could be indicative of different environmental requirements of this settlement when compared to those of the Late Neolithic and the Bronze Age. As far as the more or less contemporary Makila settlement is concerned, such a conclusion is not as obvious, but still possible; the period within which the site supposedly was settled is characterized by a fast shoreline development in the vicinity of the site, due to the shrinking and disappearance of a shallow bay still present when the sea reached 15 metres above present sea level. Some centuries later the area of the former bay was all land.[68]

The results of the variables measured can also be exemplified by comparing the actual shoreline perimeters and land areas at the altitudes taken to represent the time of settlement. The shoreline length counted within a radius of 500 m around the sites is between 1 and 3 kilometres, with the exception of that of the Tappo site where it is much less (Fig. 81). The Hammarsboda site in Dragsfjärd (which is the only Bronze Age site with evidenced site continuity into the Late Bronze Age) shows a comparably long shoreline; this is due to the fact that the site is situated on an isthmus, with areas of water on both sides of the settlement. The general impression is that the average shoreline length within a 500 m radius of a Late Neolithic or Bronze Age site could have been around 2 km. The area of land within the same radius would have been about 0.5 km^2 or slightly less (Fig. 82). In comparison, the Tappo site would during its period of use have had a land area of nearly 0.75 km^2 around it (equivalent to about 100 % of the total area within a 500 m radius). In both diagrams the Makila site shows the second most terrestrial (average) values, but due to the topography preventing exact interpretations, the location factors could in principle correspond to those of the Late Neolithic and Bronze Age sites.

68 If using the shore displacement chronology of Hatakka & Glückert (2000) and Eronen *et al.* (2001) all of the outlined changes would have happened earlier, *i.e.* the Late Neolithic and Bronze Age sites would have had a somewhat more terrestrial environment, as would the Pre-Roman sites.

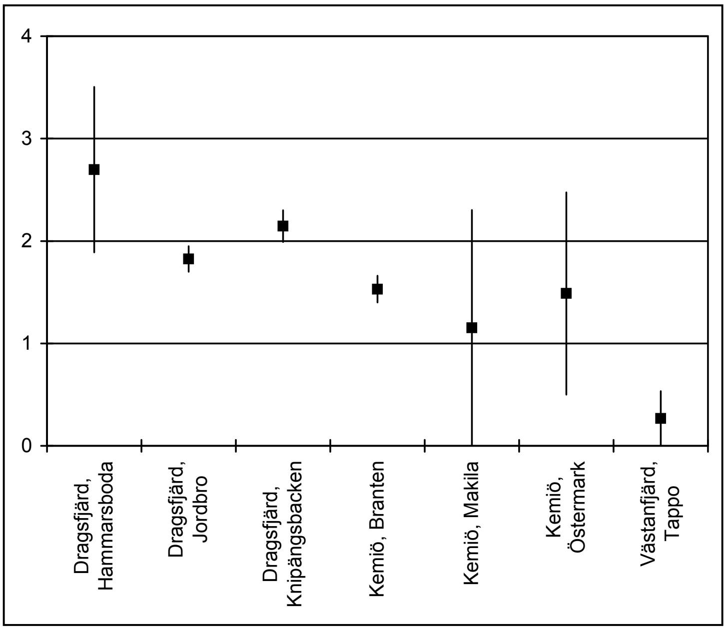


Fig. 81. Shoreline length (km) at the altitude taken to represent the time of settlement counted within a radius of 500 m around Late Neolithic and Early Metal Period sites.

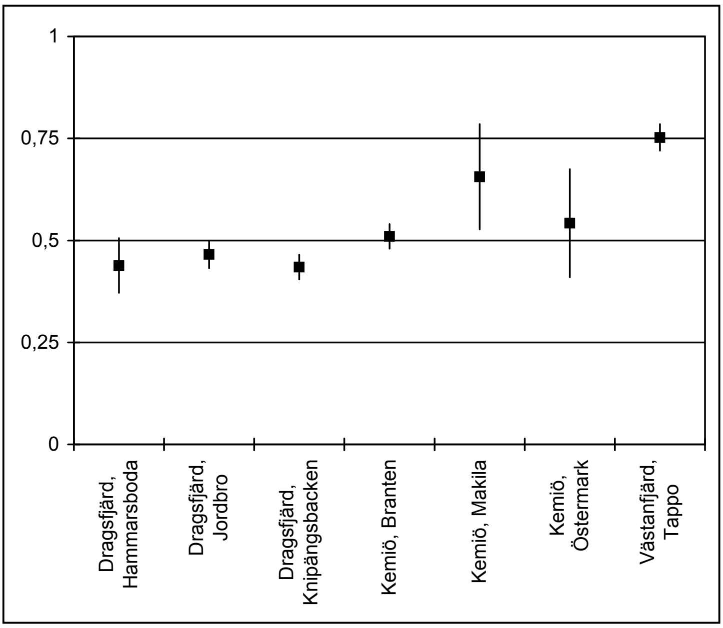


Fig. 82. Area (km²) of land exposed above water at the altitude taken to represent the time of settlement counted within a radius of 500 m around Late Neolithic and Early Metal Period sites.

4.2. Agrogeological considerations

The river valleys on the mainland have been essential environments for settlement in southwestern Finland during the Iron Age and the Historical Period. For example Oja (1955: 49) has pointed out that the oldest historical villages in the study area were all situated in the lower parts of large rivers: Piikkiönjoki, Paimionjoki, Sauvonjoki, Halikonjoki, Uskelanjoki and Perniönjoki. The villages were situated close to the coast, not extending more than 20-25 km inland (Orrman 1996: 29). Apart from the general need for easy access to coastal resources and overseas trade, also the heavier *Yoldia* and *Ancylus* type clays may have kept settlement from spreading further inland; Iron Age farming seems to have been feasible mainly in areas of lighter, more easily tilled *Litorina* clay on lower elevations (Orrman 1991: 15-16; *cf.* Orrman 1990b: 36-38; Salo 1995a: 23).

According to a study of the Vähäjoki area close to Turku, Early and Middle Iron Age settlement seem to have favoured areas containing fine sand or sandy clay, while Late Iron Age settlements occur rather in areas characterized by heavy, more fertile clayey terrain (Saloranta 2000: 29-32, 38).[69] The importance of suitable clayey soils, silt and other fine soil areas for Late Iron Age settlement has been emphasised in other research areas as well (*e.g.* Taavitsainen 1990: 65-68, 70, 113; Taavitsainen *et al.* 1998: 218-221). For example GIS analyses by Kirkinen (1995; 1996: 37-42; 2004: 68-70) has shown that one important factor for Late Iron Age permanent settlement in the Taipalsaari area in eastern Finland was the presence of fine-grained and fertile soils and proximity to bodies of water. Sites in these types of surroundings are, to some extent, over-represented due to the influence of modern land-use, but even if this is taken into consideration the results are valid (Kirkinen 1999).

In the Halikko-Salo area Esa Mikkola (1996) has done a settlement archaeological analysis on the relationship between environmental factors and Iron Age sites. The information on soil types was based on modern soil maps, manually digitised and analysed by means of GIS. Also in this study the relationship between Iron Age sites and specific soil-types as well as closeness to water were emphasized. One result was that the amount of moraine in the vicinity of settlement sites decreases from the Early Iron Age to the Late Iron Age while the amount of clay increases (Mikkola 1996: 93-94). Furthermore, the Early Iron Age sites – both settlement sites and cemeteries – were located near the sea, the mean distance being about 350 and 200 metres only; as far as the Late Iron Age is concerned, there was not such a tendency, the corresponding figures being 2500 and 1350 metres (Mikkola 1996:

[69] The location of Early Iron Age cemeteries close to areas of light clay has been emphasized also in the case of the Aurajoki river valley within the same area, but the correlation is not as obvious as in the Vähäjoki case (Lehtonen 2000: 59).

98-99). The impact of water streams, on the other hand, seems to have been of importance especially during the Late Iron Age. These changes have been interpreted as picturing the development of agricultural techniques. Although the material analysed by Mikkola is not big, the main trends could probably be exemplified also within the whole of the present study area where Iron Age settlement sites and cemeteries occur. A further problem is, however, how to approach the subject of farming potential and settlement development on Kemiönsaari, where Iron Age sites are sparse.

Present-day Kemiönsaari is characterised by an agrarian landscape, in part much resembling nearby mainland areas (Fig. 83). About one fifth (20.5 %) of the

Fig. 83. Present-day fields within the central parts of the study area. Crosses mark the main parish churches, equivalent to the Historical Period centres in the area.

total area of the island is cultivated (Tikkanen & Westerholm 1992: 48). Cultivated areas embrace small rivers and streams that flow into the sea. The cultivated areas are mainly situated in valleys, whose main direction is west-east or east-west; some streams and valleys also run southward. Most of the cultivated areas are claylands. The municipality of Kemiö is officially assigned to the second highest class of agricultural suitability; Västanfjärd belongs to the third class and Dragsfjärd to the fifth (Tikkanen & Westerholm 1992: 48). This means that conditions in part of the area are favourable for present-day cultivation, especially in the northern half of the island, and quite reasonable in the southeastern part as well.

One way of approaching the question of potentials for early agriculture on Kemiönsaari is provided by agrogeological maps made on the basis of comprehensive surveys in the 1930's. These old maps cover parts of the study area from which modern soil maps are not available. They are suitable for analysis also due to a more detailed determination of different types of clay in comparison with ordinary soil maps. Furthermore, the maps, a series of four covering the main part of the study area (Aarnio 1935-1938), are in the scale 1:50 000 and thus fairly detailed.[70] They can be quite well combined with present day topographical charts from the area.[71] Among the different soil types presented on the maps the most interesting one is light sandy clay, the distribution of which could give one indication of areas suitable for early agriculture. It is interesting to note that light sandy clay is quite typical for the Kemiönsaari area, reaching according to Aarnio (1937: 37, Table 1) 59.9 % of all types of clay and 8.52 % of the total area of the agrogeological map covering most of the island. In comparison with the nearby mainland, the extent of light clay areas is considerably smaller than in the Halikko-Salo area, but seems to be quite comparable to that of the Paimio-Piikkiö-Sauvo area and the Perniö area. The result is similar if counted from a digitised version of the maps (Fig. 84). This rough comparison of map sheet statistics does not take into account the small-scale distribution of soils within microregions, nor the problem of how big a percentage of the clay areas have been submerged. However, if light clay areas had been of importance for early agriculture, the quite high percentage of such soils suggests almost as good a general possibility for Iron Age agriculture on Kemiönsaari as on the mainland.

When looking more closely at the distribution of archaeological sites in relation to light clay areas it can be noted, first of all, that the majority of all Iron Age sites

70 In addition to these a separate map from the municipality of Paimio is available (Aarnio 1924).

71 The area covered by the four agrogeological maps, 60º – 60º30′ latitude and 2º30′ – 1º30′ longitude west of Helsinki (Aarnio 1935-1938), correspond approximately to the area 60º – 60º30′ latitude and 22º27′30″ – 23º57′30″ longitude. When registering the maps for digitising a more detailed fitting was done manually.

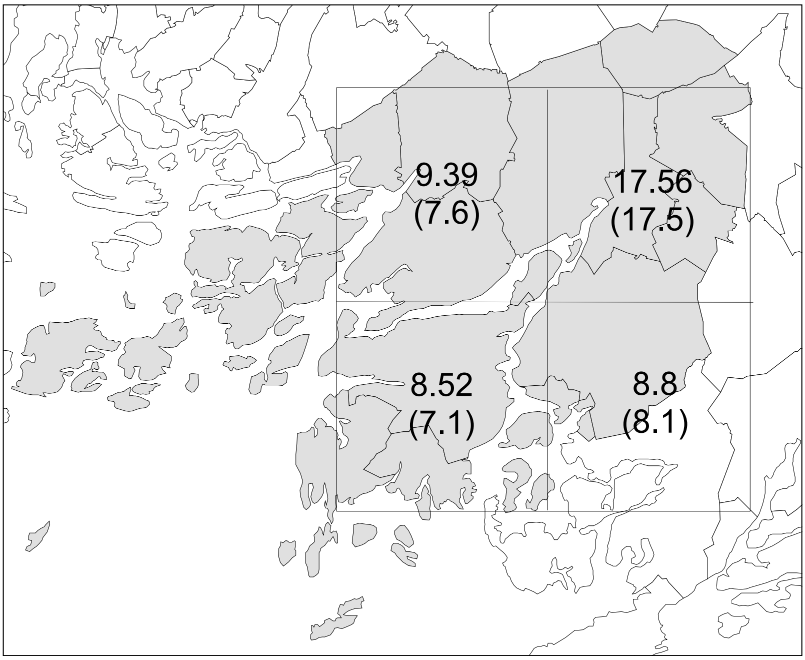


Fig. 84. Amounts of light clay (%) on four agrogeological soil map sheets in the study area according to Aarnio (1935-1938) and as counted from a digitised compilation of the same maps (within brackets).

occur close to light sandy clay. Whether this is due specifically to the significance of this type of soil is, however, not certain. There might be a very general correlation, as the whole pattern of distribution of sites, the distribution of light clay as well as present day fields goes back to the time when the claylands were still open sea. At that time settlement was often situated near the shores of bays, frequently in sandy areas. Due to land upheaval the old bays later formed valleys, often with a stream running through, and the earlier sea bottom formed claylands within these valleys. The environment, which earlier had been favourable for a maritime hunter-gatherer or mixed farming economy, slowly changed into an environment suitable for permanent agriculture. It might be, that major reallocations of settlement in the search for suitable claylands were often not needed at all, just smaller adjustments within the same old settlement areas. At least this is the impression one gets from comparisons of the long-term general distribution of settlement, where many similarities can be seen from as early as the Stone Age to the present.

With reference to what has been argued regarding the economy of the Finnish Battle Axe Culture it is interesting to note some settlement sites and stray finds on comparably high elevations close to light clay areas. Several such sites have been registered in Muurla and in the eastern parts of Salo and Perniö (Fig. 85). Some of these, if not shore related, could indicate settlement in environments suitable for farming. The Battle Axe Culture sites on Kemiönsaari, on the other hand, do not seem to occur close to light clay areas – here the location of the sites is evidently due to other factors. Also regarding Late Neolithic and Bronze Age sites it seems that some of them occur close to light clay areas (part of which in reality was still submerged at the time) while some do not – the importance of light clay areas thus remain doubtful (Fig. 86).

The first period when one could more seriously consider settlement location being dependent on the proximity of light sandy clay is the Pre-Roman Iron Age.

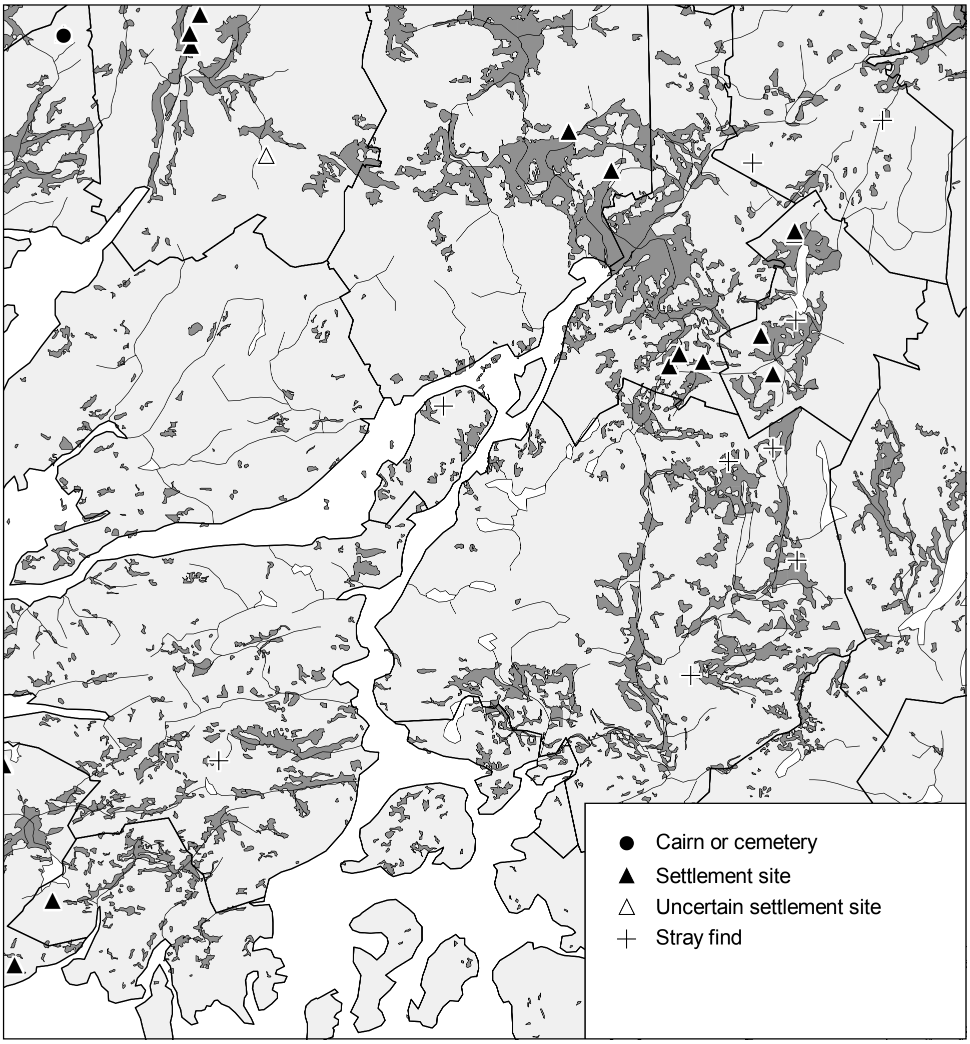


Fig. 85. The location of Battle Axe Culture sites compared with the distribution of light sandy clay (digitized from the maps by Aarnio 1935-1938).

Most sites occur close to this type of soil, the relationship in a way underlined by the sites on Kemiönsaari (Fig. 87). Still there could be other factors as well related to the choice of location of the sites. As pointed out in Mikkola's (1996) study, these Early Iron Age sites are situated on sand or moraine, often near bays or rivers in sea contact. This goes for sites both on Kemiönsaari and on the mainland. Especially one could point out the area of Sauvo, which even in the Early Iron Age was divided by a wide bay. Relying on the distribution of cemeteries, Iron Age settlement occurred on the shores of this bay – the surroundings of which

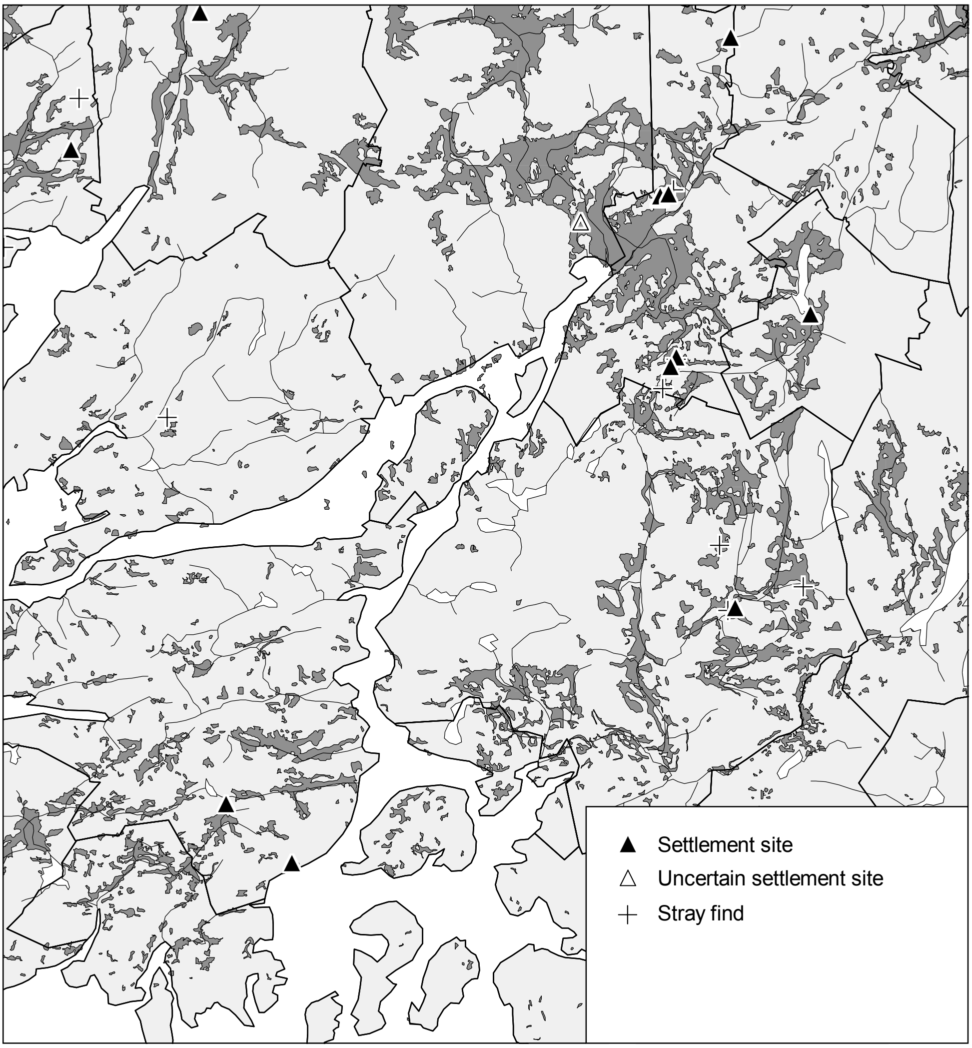


Fig. 86. The location of Late Neolithic and Bronze Age sites, cairns excluded, compared with the distribution of light sandy clay (digitized from the maps by Aarnio 1935-1938).

seem to have had minimal occurrences of light sandy clay when compared with other central settlement areas – or even Kemiönsaari. Still this was one area where several cemeteries were established during the Roman Period (Fig. 88). One could think of least two possible reasons for this. One is simply that closeness to light clay areas may not have been a major requirement for Early Iron Age settlement; the other possible explanation could be that suitable clays actually occur to a greater degree in the area, although not shown on the agrogeological map.

The latter explanation – questioning the validity of the soil survey made in the 1930's – cannot be drawn upon as long as no other classification of clays is available

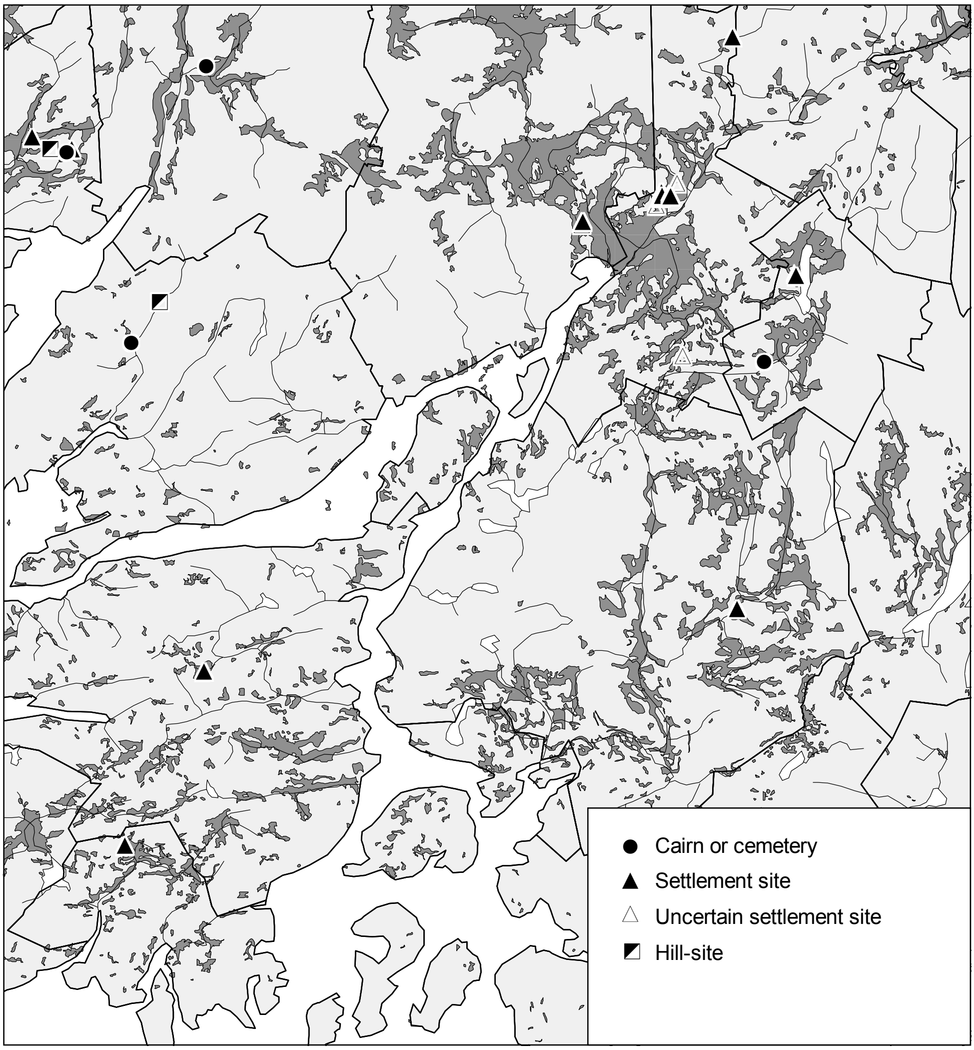


Fig. 87. The location of Pre-Roman sites compared with the distribution of light sandy clay (digitized from the maps by Aarnio 1935-1938).

from the area. Still it is important to point out that the classification of clay made in the 1930's was subjective, *i.e.* dependent on the interpretations made by each surveyor. The grain-size and hygroscopicity of the different types of clay were considered to be so close to each other that these variables could not be used for categorization; instead the classification during fieldwork was done on the basis of the structure of the clays, affected by the amount of organic matter, shrinkage and swelling and other such facts (Aarnio 1937: 38). Heavy clay was described as "plastic when moist … the cutting-surface very shining, not mealy" whereas light clays as "loose fissile soils, the cutting surface of which is dull and mealy, when dry"

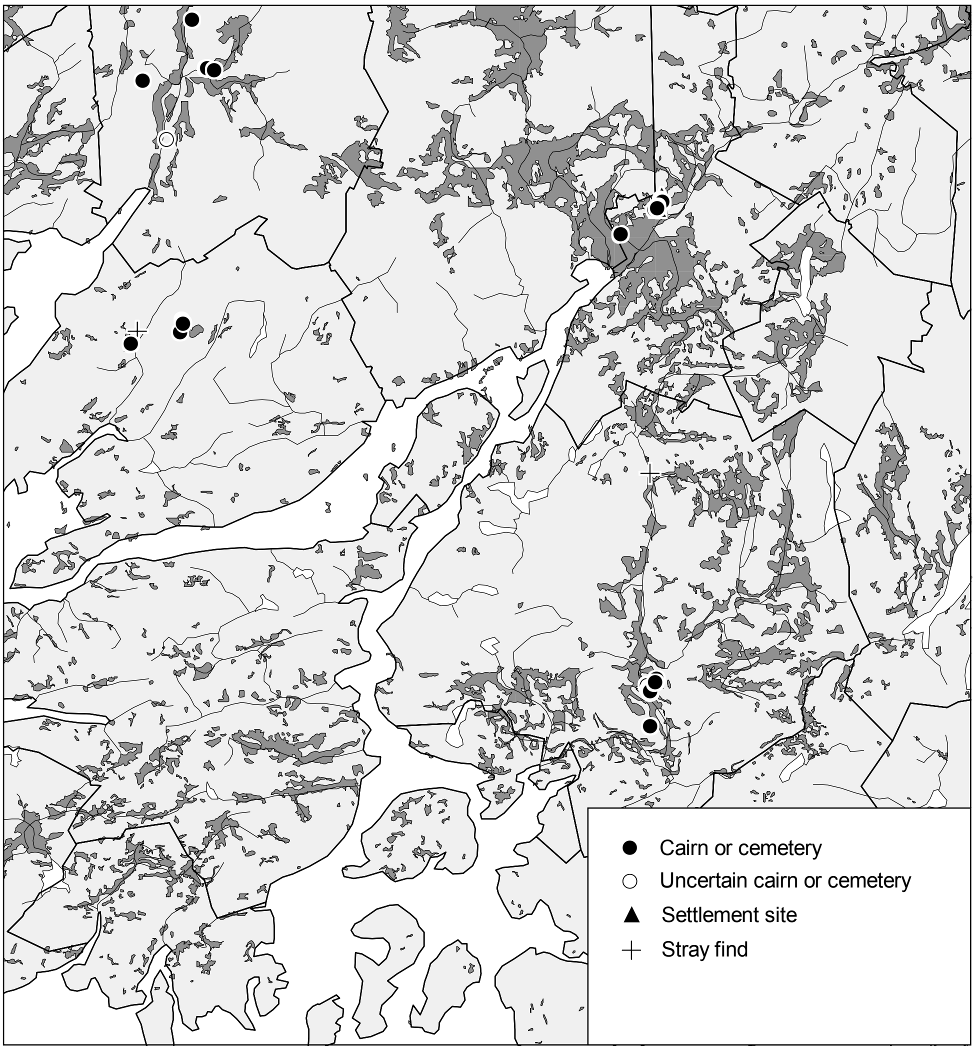


Fig. 88. The location of Roman Period sites compared with the distribution of light sandy clay (digitized from the maps by Aarnio 1935-1938).

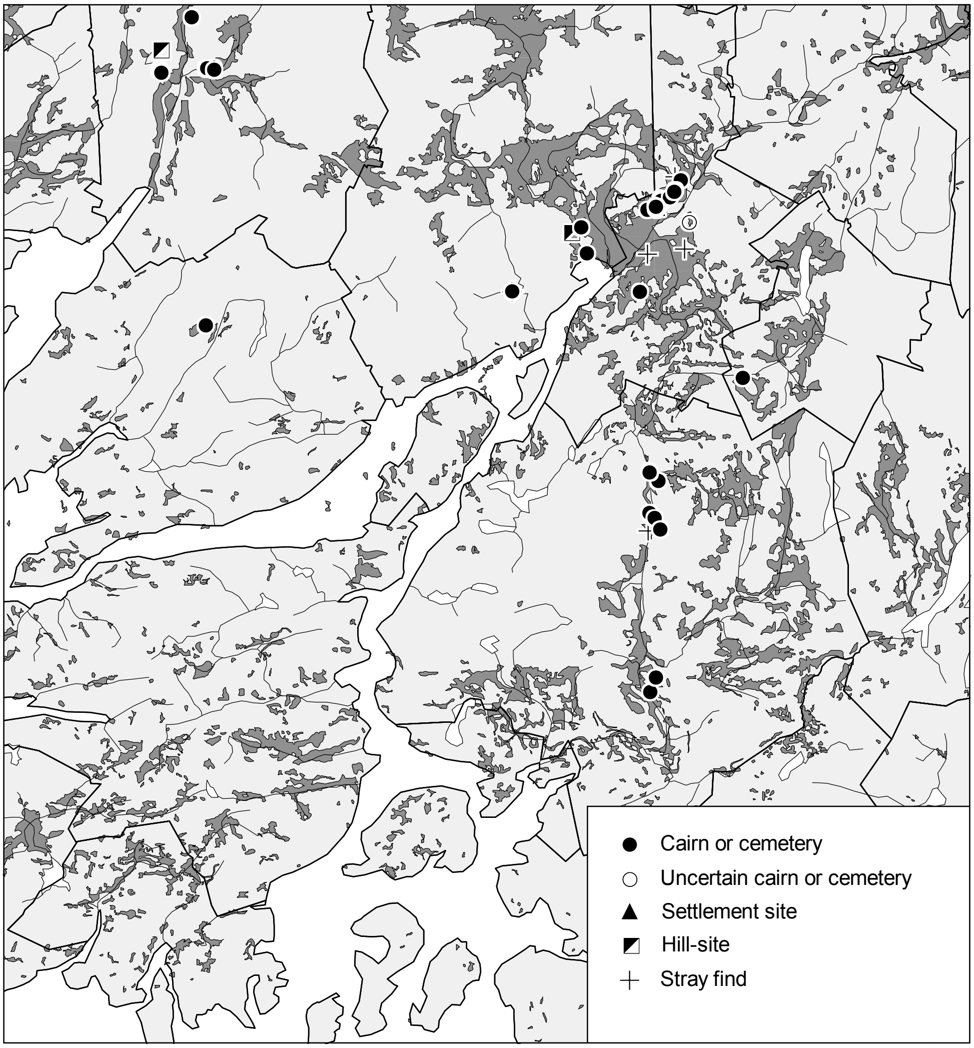


Fig. 89. The location of Migration Period and Merovingian Period sites compared with the distribution of light sandy clay (digitised from the maps by Aarnio 1935-1938).

(Aarnio 1935: 35). The fact that the classifications of clay are subjective can be seen where the borders of the soil map sheets meet – clay areas cut by the map sheets in some cases have differing classifications on different maps as to whether they represent heavy or light clay. The problem can unfortunately not be investigated further in this connection.[72] It seems peculiar that the environment of Sauvo, supposedly similar to other former sea bottom areas of the *Litorina* period in the vicinity, has produced so much less light clay than others, but if the agrogeological

[72] Inconsistency in the marking of different types of soils on soil maps has also been observed by Taavitsainen (1990: 65) in an archaeological context. In that case, the problem was primarily related to the use of maps of different scales.

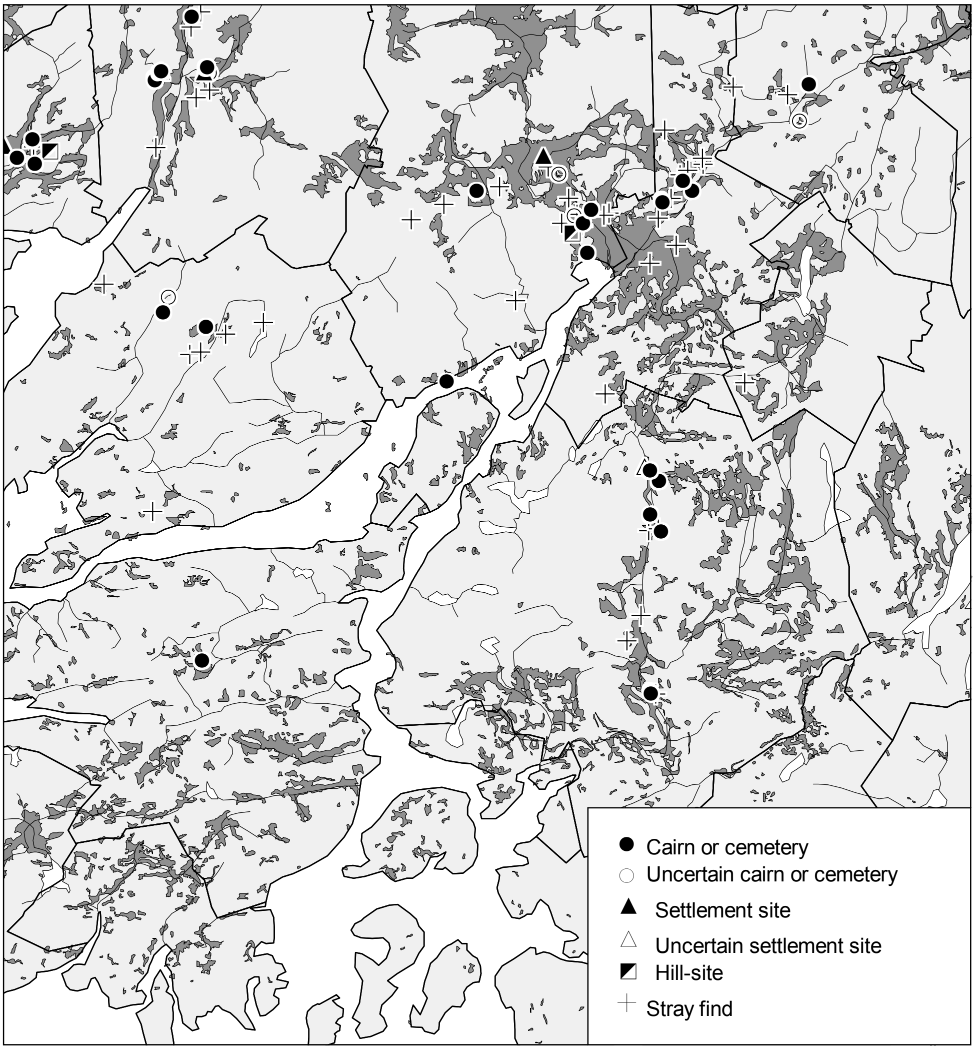


Fig. 90. The location of Viking Age and Crusade Period sites compared with the distribution of light sandy clay (digitized from the maps by Aarnio 1935-1938).

maps are used for comparison, this has to be accepted. In this case Sauvo must be seen as an area where the greater importance of other factors than light clay for the location of Pre-Roman or Roman Period settlement is exemplified.

With regard to the occurrence of archaeologically dated sites, the Migration Period and the Merovingian Period seem to have been times of decline of the Sauvo area. Just one cemetery from the Merovingian Period has been registered and none from the Migration Period. One could speculate that one reason for this development (if not due to the current state of research) could have been the lack of good soils for agriculture, while the more frequent occurrence of easily tilled soils in other areas may have been one reason for the prosperity reflected in the grave rituals in these areas. Most of the sites dating to these periods are in fact situated close to light clay areas – even the single cemetery in Sauvo (Fig. 89). On the other hand, the development is more complicated. As pointed out above earlier, a decline in the number of cemeteries during either the Migration Period or the Merovingian Period can be seen in other areas as well, regardless of the occurrence of light clay.

The distribution of Viking Age and Crusade Period sites does not add much to the discussion. This is the period when, according to Mikkola (1996), clay areas would have been of importance for settlement location within the study area. As could be expected, most sites are in the vicinity of light sandy clay areas (Fig. 90). A few exceptions occur regarding cemeteries – for example in Sauvo – and some more regarding stray find sites. With respect to the settlement development of Kemiönsaari, it is interesting to note that the only assured archaeological Viking Age datings from the main part of the island occur close to the same light clay area in Makila, where the Pre-Roman settlement was located one thousand years earlier.

One dilemma of the comparisons above has been the problem of examining the distribution of sites and light clay areas in relation to elevation and thus the shoreline during different periods. This brings the discussion back to the considerations of shore displacement. The question of whether the location of sites has been more dependent on closeness to the shore than closeness to light clay areas is difficult to deal with, as no detailed elevation model outside Kemiösaari has been used for comparison with the agrogeological data. A different way of approaching the question is to simply examine the height above the sea of settlement sites from different periods. Such a comparison is problematic due to the fact that most sites have just a general dating and, secondly, due to the fact that vertical elevation does not necessary tell much about how far from the shore the site was situated horizontally. A few tendencies can, however, be pointed out, when examining settlement sites according to periods from the Neolithic to the Iron Age in relation to a shore displacement curve (Fig. 91). The sites have been plotted against the curve according to their lowest registered elevation.[73]

As can be seen in the diagram, the elevations of the settlement sites do not follow the shore displacement curve very closely. Only Comb Ceramic settlement sites quite

73 The two highest outliers, referring to the same site, Kaukola in Pertteli (equivalent to Kynttelkoski in Salo), situated 70-75 m above sea level, are not shown in the diagram. The Kaukola site, registered as a settlement with a dating both to the Late Neolithic or the Early Bronze Age as well as the Pre-Roman Iron Age is problematic due to the sparse find material. At the site both a flint sickle (KM 10014) and Morby Ware pottery has been found (Meinander 1969: 44). The flint sickle could be regarded as a stray find, but the occurrence of quartz flakes at the site could in fact indicate that the site had been in use prior to the Pre-Roman Period.

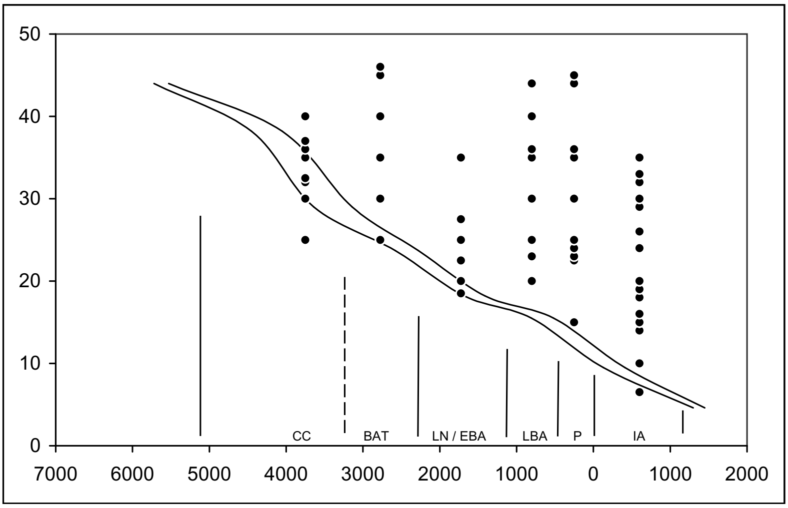


Fig. 91. Comb Ceramic, Battle Axe Culture, Late Neolithic or Early Bronze Age, Late Bronze Age, Pre Roman and Iron Age AD settlement sites grouped according to period and lowest elevation compared with shore displacement (modified from Glückert 1976). The Kaukola site in Pertteli, 70 m above sea level, is not shown in the diagram.

expectedly show a consistent group of sites close to the shore displacement curve. Such a tendency seems also to dominate among the Late Neolithic / Early Bronze Age sites. Within all of the other periods there are single sites close to the curve, but also sites several metres or more above the sea level of the respective periods.[74] Several sites located high in relation to the shoreline already occur within the Battle Axe Culture, but even more evident the tendency of sites losing their immediate sea contact is indicated in the case of the Late Bronze Age and the Pre-Roman Iron Age, the only low lying site shown in the diagram being the Kemiö Makila site. The same can be said for the rest of the Iron Age, where a few settlement sites are low lying, but the majority still occurs on higher levels. This must mean that during the period of the Battle Axe Culture and from the Late Bronze Age onwards, light clay areas in the vicinity of many of the settlement sites had already arisen from the sea and could in principle have been one factor according to which the location of the sites has been determined.

[74] In addition to giving some information on the location of settlements in relation to the shore, the diagram could, in principle, also be regarded as support for the old shore displacement chronology by Glückert (1976), as all sites (even the Comb Ceramic sites at approximately 25 metres above sea level) are within the altitude ranges indicated by the shore displacement curve.

Site	km^2	%	km^2	%
Kemiö, Branten	0,02	2	0,04	1
Kemiö, Makila	0,45	58	0,64	20
Kemiö, Östermark	0,05	6	0,65	21
Västanfjärd, Tappo	0,23	30	0,95	30

Fig. 92. Amounts of light clay around the Late Neolithic or Early Bronze Age settlement sites Branten and Östermark and the Pre-Roman settlement sites Makila and Tappo within the radii of 500 m (left) and 1 km.

With regard to the question of the possibility of early farming on Kemiönsaari, it is interesting that the Pre-Roman settlement sites of Makila in Kemiö and Tappo in Västanfjärd are located close to easily cultivated light clay areas, whereas two Late Neolithic or Early Bronze Age sites available for comparison are not. This can be exemplified in a more detailed manner by examining the occurrence of light clay within the radii of 500 m and 1 km around the sites (Fig. 92). In the vicinity of the Branten site in Kemiö, representing the Kiukainen Culture, only a few percentages of light clay occur. Furthermore, all of the light clay within the 500 m distance was actually under water during the use of the site. At the contemporary site Östermark in Kemiö there is a bigger percentage of light sandy clay, but there as well, part of the light clay amount within the 1 km radius is situated lower than 20 m above sea level, and was most probably under water at the time of use of the site.

In the vicinity of the Pre-Roman sites the light clay areas are bigger. Within a 500 meter radius the percentage is extremely high at the Makila site, which is in fact situated on the boundary of a large light clay area. Even at Makila it is, however, possible that not all of the light clay area was land during the period of occupation. In the vicinity of the Tappo site soils are more variegated, but here too the amount of light clay is quite considerable. When the radius is doubled the percentage of light clay drops substantially in the Makila case; this is due to the fact that most of the light clay is actually situated so close to the settlement site that an extension of the area does not add much to the amount of arable land. In the Tappo case the percentage of light clay stays the same as we move further away from the settlement site. These observations regarding the Kemiönsaari sites fit within what has been discussed above, *i.e.* they may indicate that one criterion by which already Early Iron Age settlement locations were chosen could have been the presence of light sandy claylands suitable for cultivation. This does not exclude other criteria, like the ones pointed out by Mikkola (1996), which may in many cases have been as important, or even more important for the choice of settlement location. To these one could furthermore add requirements of a non-physical nature, not related to archaeometrically measurable variables but social behaviour. This, however, is a different discussion, to be continued in the latter chapters of this book.

4.3. Palynology

4.3.1. The archipelago

During the course of this study the possibility of using recent data on vegetation, concerning species possibly related to ancient settlement or land-use, was considered, but the idea was rejected after realizing that no suitable information was available.[75] Thus the most important botanical data – actually the most important environmental data overall, picturing both natural conditions and human impact – is the information obtained by means of pollen analysis. A total of five sites have been sampled, two of which by Irmeli Vuorela earlier (Asplund & Vuorela 1989), and three, presented in Appendix 2 by Teija Alenius, specifically for this study. As stated in the introduction, the areal coverage is good enough to make some generalizations. Regardless of the fact that the results mostly reflect impact close to the sample sites, the five sites sampled on Kemiönsaari must be seriously regarded as a kind of general synthesis of the intensity of land-use in the area. This is especially true concerning agriculture, visible (in addition to changes in relative pollen frequencies) through the occurrence of cereal pollen. Cereal pollen influx give important indications of human presence and it has even been suggested as an appropriate indicator of population size (Simola *et al*. 1991; Taavitsainen *et al.* 1998: 228-234). Within the study area such a straightforward interpretation is not applicable as one reason for the poor amount of settlement indicating pollen during the earlier periods is probably the low pollen production of barley in comparison with wind pollinated rye dominating in the Late Iron Age and the Historical Period (Donner 1984: 14; Vuorela 2002: 83). This means that one must consider

[75] One source for comparison between different areas could, in principle, be the distribution of potential archaeophytes indicating early human activities. The possibility of using recent vegetation data was tested concerning one common species, *Filipendula vulgaris,* and one more rare species, *Verbascum nigrum*. The idea was to use data from a database administered by The Botanical Museum at the Finnish Museum of Natural History. The material unfortunately proved to be insufficient; it is too dependent on how the information has been gathered regarding different areas. In the database *Filipendula vulgaris* is represented by 366 occurrences (10 on Kemiönsaari, 128 within the rest of the archipelago, and 228 on the mainland). On the mainland most of the registered locales (185) are in the area of Paimio, Piikkiö and Sauvo – most probably due to the special interest in archaeophytes by two local botanists active in the area (Silkkilä & Koskinen 1990; *cf*. Luoto 1989: 64-69). The exceptionally high number of 118 occurrences of *Filipendula vulgaris* in Nauvo, on the other hand, is due to a detailed study made in the area by Eklund (1958). The occurrences of *Verbascum nigrum* are fewer, altogether 80, the number of 65 of which occur in the Paimio – Piikkiö – Sauvo area, evidently due to the same reason as regarding *Filipendula vulgaris*. Three occurrences have been registered in Parainen, one in Dragsfjärd and one in Kemiö.

the sum of the Cerealia pollen occurrences in the pollen diagrams of the study area as dependent on both the species chosen for cultivation as well as the amount of people practising agriculture and/or the intensity of agriculture practised – the latter obviously related to how big a fraction of the total subsistence agriculture has been. The results from Kemiönsaari can be compared with pollen data from other sites within the comparative study area (Fig. 93). To some extent this comparison is biased by the fact that Kemiönsaari has now been sampled more systematically and with better coverage than most regions within the area of comparison.

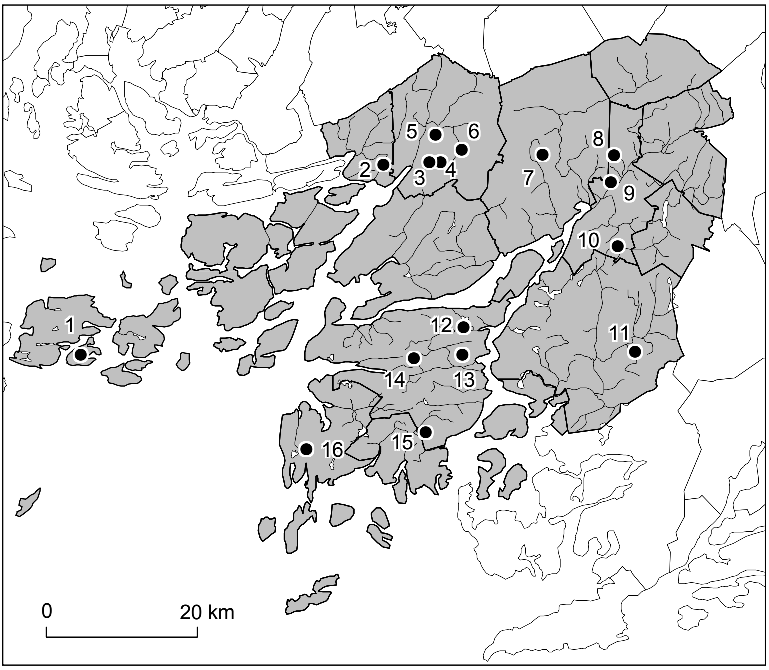


Fig. 93. Pollen sample sites within the study area (1: Lalaxkärret, 2: Kuoppajärvi, 3: Vohteenkellarinsuo, 4: Palomäki, 5: Oinilanmäki, 6: Preitilänsuo, 7: Kankareenjärvi, 8: Santamäensuo, 9: Ketohaka, 10: Pukkila, 11: Lemunsuo, 12: Ilsokärret, 13: Mossdalen, 14: Gärdorna, 15: Labböleträsket, 16: Söderbyträsket).

All of the sampled sites from Kemiönsaari show the general pattern of a long period of sporadic occurrence of Cerealia followed by continuous indications of cultivation (the rational Cerealia limit) in the Late Iron Age or the Historical Period (Fig. 94). At Söderbyträsket in Dragsfjärd the first occurrence of Cerealia – in this case rye (*Secale*), which is unusual – has been dated to the Early Bronze Age. Somewhat further up in the sample there is an occurrence of both rye and barley in connection with a period of decrease in spruce as a convincing indication of clearance and cultivation in the area. Other sporadic occurrences of Cerealia as well

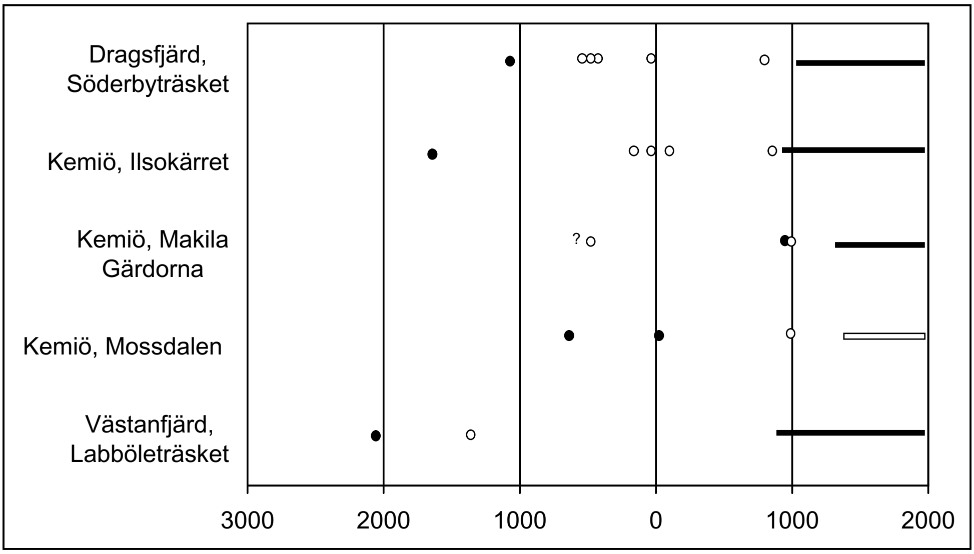


Fig. 94. Human impact reflected in the occurrence of Cerealia at pollen sample sites on Kemiönsaari. Black marks indicate radiocarbon dated occurrences and white marks occurrences dated according to depth in relation to radiocarbon dated horizons. Marks with a question mark refer to occurrences interpreted without absolute chronology.

as other pollen types indicative of human influence are found throughout the Iron Age, culminating in a continuous curve of Cerealia starting from the late Viking Age or the Crusade period.

From the municipality of Kemiö three sites have been sampled and analysed. The oldest rational Cerealia limit has been recorded at Ilsokärret in the northern part of Kemiönsaari. Before continuous cultivation started during the Viking Age some older indications of farming occur, one early horizon (without the occurrence of Cerealia) dated to the Late Bronze Age or the early Pre-Roman Iron Age (Asplund & Vuorela 1989: 76-77; Vuorela 1990: 119-120). This stage is followed by several occurrences of Cerealia, roughly datable by interpolating to the Early Iron Age, including the Roman Period. There is also one Late Iron Age occurrence preceding the continuous cultivation of the Viking Age. As a whole, human impact – both grazing and agricultural – is visible throughout the profile.

At the Makila Gärdorna site the situation is somewhat different as the early human impact is restricted to a single grain of *Hordeum*, found at a depth probably corresponding in date to the Pre-Roman settlement site in Makila. The sparse indication of agriculture is surprising as the settlement site is located relatively close, only about 1.5 kilometres away. This could be partly due to the fact that there is a mountainous ridge between the immediate surroundings of the settlement and the sample site, possibly affecting the spread of pollen. Another explanation could be that the intensity of Pre-Roman agriculture was still rather low. From the Middle

Iron Age onward, according to linear interpolation, there are indications of man-made forest fires and somewhat later indications of grazing. Cultivation can be seen in the form of one Cerealia grain occurring at a level radiocarbon dated to the Viking Age. This occurrence of Cerealia has been interpreted as representing sporadic cultivation too. A dating to the end of the Iron Age corresponds well to the dating of the Makila Majberget cairns nearby.[76] The rational Cerealia limit, on the other hand, has been radiocarbon dated to the 14th century, which might represent the foundation of the Makila village. A further intensification of agriculture took place sometime during the post-medieval period.

At the third site in Kemiö – Mossdalen – early agriculture is again visible, this time in the form of forest clearance probably related to cultivation occurring during the Early Bronze Age; more reliable evidence in the form of one occurrence of cereal pollen occurs during the Late Bronze Age or in the early Pre-Roman Iron Age (*cf*. Asplund & Vuorela 1989). Both of these horizons have been radiocarbon dated, but the marginal of error is too wide to allow more exact dates. In addition to these there is one more radiocarbon dated occurrence of Cerealia, datable to the late Pre-Roman Iron Age or the Roman Period. Also in the Mossdalen sample, the rational Cerealia limit is rather late, estimated according to depth within the sample to the Middle Ages. There is, however, a singe cereal pollen grain at a depth, which might date to the end of the Iron Age, *i.e.* comparable to the Viking Age indications of cultivation recorded at the other sample sites.

Due to a problem with the sampling of the mire Labböleträsket in Västanfjärd the upper part of this site (down to 170 cm) was sampled and analysed twice.[77] In the second (more reliable) analysis probable fire clearance is indicated by the increase of charcoal particles in several horizons starting at the depth of 138 cm. This development culminates at the depth of 100-90 cm, where also the first barley pollen appears at 100 cm below the surface. This is comparable to the results from the first analysis when barley was found at the depth of 96 cm, radiocarbon dated to 2200-2020 or 2000-1980 cal BC, *i.e.* the Late Neolithic. There is even older possible human impact observable, reflected in the marked decrease of pine at the depth of 296-270 cm, and, in particular, the increase of nettle pollen at the depth of 195 cm. The radiocarbon date for the latter horizon corresponds to the period of the Late

76 The result is also supported by an earlier preliminary study of the Makila Gärdorna site carried out by Lasse Korkalainen, a student at the Department of Geology at the University of Turku. In this first rough examination a couple of Cerealia pollen grains occurred in samples from depths of 100-102 and 120-122 cm below the surface (Asplund 2001a: Fig. 103). The 120-122 cm layer was radiocarbon dated to 920 ± 50 BP (GrA-15312), giving the calibrated result 1020-1220 cal AD.

77 The sample site location was measured using GPS during the coring of both samples, *i.e.* both parts of the sample profile are from close to the same spot.

Comb Ware (Ka III). After the first occurrence of Cerealia there is one pollen grain of rye (*Secale*) at the depth of 84 cm, related to an increase in charcoal particles. Judging from the depth, this period dates to the Early Bronze Age. The changes are, however, of a relatively short-term nature; after this period indication of human impact diminishes. From the pollen data it is impossible to conclude whether there has been settlement in the area of Labböleträsket between the Early Bronze Age and the final period of continuous cultivation distinguishable in the upper part of the sample. At least the human impact on the landscape seems to have declined, as can be seen in the new increase of tree pollen and decrease of herb pollen. Finally, the signs of continuous cultivation start at the dept of 56 cm, radiocarbon dated to the late Merovingian Period or the Viking Age.

With regard to the problematic period concerning the settlement history of the Kemiönsaari area, the Iron Age AD, the pollen data does quite confidently show cultivation during the Late Iron Age. In three of the samples continuous cultivation can be seen already during the Viking Age and also the two other sites show sporadic cultivation during that period. It is more difficult to see any clear pattern for the period preceding the Viking Age; sporadic cultivation occurs during different periods at different sites, starting with the Late Neolithic. There is no indication of any consolidate period of cultivation prior to the Iron Age AD and it is thus not possible to see indications of any general decline of land-use after the Pre-Roman Iron Age. Partly this could be due to the fact that the nature of the interpretations of human presence made from pollen data are in most cases positive only – presence can be established, non-presence not. This is equal to the archaeological data, which is difficult to use for negative explanations, in this case the interpretation of non-presence or recession. What has become clear in the light of the palynological evidence is, however, that the pollen results support the idea of more or less continuous settlement or utilisation. Small-scale human activity visible in the form of pollen and charcoal particles indicating fire clearance or slash-and-burn cultivation as well as grazing has been detected in various parts of Kemiönsaari. The interpretation by Teija Alenius (Appendix 2) based on the palynological analysis suggests occasional slash-and-burn cultivation with lengthy interruptions in addition to grazing as the explanation for the pollen pattern. In her opinion, it is reasonable to assume that the weak signs of Iron Age cultivation and settlement indicate a low population size compared to that of the Viking Age when indications of cultivation increase. To some extent the increasing or continuous Late Iron Age Cerealia curves of the diagrams could be related to rye becoming more frequently cultivated, the same cultivated area thus producing more pollen than when cultivating mainly barley. In the light of the archaeological evidence, the Late Iron Age indicia of intensified cultivation can, however, be regarded as further evidence of a period of settlement expansion and an increased presence in the archipelago. According to Alenius (Appendix 2) the palynological evidence from the Viking Age onwards is indicative of permanent and agriculturally based settlement.

Within the rest of the archipelago few palynological studies have been undertaken. In the Lalaxkärret site in Nauvo, where the absolute Cerealia limit is dated to about the same age as the Late Neolithic date from Labböleträsket (*cf*. Vuorela 1990; 1998: 176) it has unfortunately not been possible to study the Iron Age. Within this sample the uppermost 2000 years are missing due to the utilisation of peat (Vuorela 1990: 123, 126), which means that no interpretations regarding the Iron Age AD can be made. The most important Iron Age pollen results from the archipelago thus come from the Mossen site in Korppoo (just outside the study area). At this site Iron Age pollen data has been interpreted as reflecting two more active periods of cultivation (Vuorela 1990: 128). The first one has been radiocarbon dated to 1990 ± 90 (Hel-2702), *i.e.* 250 cal BC – 250 cal AD, and the end of the other has the dating 1350 ± 90 (Hel-2701), *i.e.* 530 – 900 cal AD. Continuous cultivation is reflected in the diagram starting from around 1400 AD (Vuorela 1990: 128-130). The Iron Age cultivation, although interpreted as not continuous (Vuorela 1990: 128), is still one of the best indications of a regular utilisation of the area during the middle part of the Iron Age, which otherwise is the period most difficult to evidence in both archaeological and palynological materials from the archipelago. It might be a coincidence, but Korppoo is the only island where a cup-marked stone has been confidently registered (Tuovinen 1990a: 70-71). Otherwise cup-marked stones occur only in the mainland municipalities, close to cemeteries and are probably also related to agriculture.[78]

New convincing palynological evidence of Iron Age cultivation has also been obtained from the island Ors in Inkoo, in the province Uusimaa, east of the present study area. Although archaeological information on Iron Age settlement is missing from this island covering about ten square kilometres, pollen analysis shows a possible clearance period in the Early Roman Iron Age, followed by a new period of clearance and a continuous curve of rye (*Secale*) from the 5th century AD, the most intensive period of both agriculture and grazing, however, starting in the late 7th century and lasting to the Historical Period (Alenius *et al.* 2004; Jansson 2005: 69-70). These results support to the idea of settlement and utilisation of the archipelago during the Iron Age.

[78] The distribution of cup-marked stones may have something to do also with the period of making such stones. The lack of them on Kemiönsaari, where activities (including permanent cultivation) increased during the Late Iron Age, may indicate the Late Iron Age as a period when cup-marks were no longer of importance – at least not outside the main settlement areas of the mainland.

4.3.2. A comparison with the mainland

The introduction of cultivation occurred just as early on the mainland as in the archipelago. The oldest – Late Neolithic – dates have been obtained in Paimio and Halikko (Vuorela 1999). In Salo, the earliest occurrences of Cerealia in pollen sample sediments are from Ketohaka in Isokylä, dated to the Early Bronze Age (Tolonen 1985b; Vuorela 1998: 176; 1999: 146-147; *cf.* Hirviluoto 1991: 72). In the last-mentioned case, the earliest cultivated pollen grain has been identified as wheat (*Triticum*), which is uncommon. With regard to the question of reflections of Iron Age cultivation, some of the sampled sites on the mainland show similar patterns of cereal pollen occurrences as those from Kemiönsaari, while some seem to differ regarding earlier indications of permanent farming. The mainland material is, unfortunately, not very good for establishing exact dates for the development of cultivation; the samples are less well dated, partly due to the use of traditional radiocarbon dating, with error margins over one hundred years resulting in calibrated dates covering several centuries, which are difficult to interpret.

The only site from which it has been able to draw a continuous Cerealia curve for the whole Iron Age AD is the Salo Ketohaka site, actually situated at the Ketohaka settlement site itself (Tolonen 1985b). The results obtained here are probably most of all due to the optimal location of the sampling site when compared with other sites, the location of which mostly are dependent on a suitable basin, rather than closeness to important archaeological sites. The other two sites in Salo are more difficult to interpret. At Pukkila continuous cultivation has been dated to the middle of the Iron Age (Tolonen 1983) and at Santamäensuo (Tolonen 1985b) to the Late Iron Age at the latest. The date regarding the latter site is problematic due to wide dating ranges; continuous cultivation might have started as early as the middle of the Iron Age. At Lake Kankareenjärvi in Halikko the dating and the general interpretation is even more doubtful as the site originally was published with the comment that human influence during the last 2000 years had been relatively insignificant (Tolonen 1985a: 474). Later (after being radiocarbon dated), the "commencement of the cultivation period" was roughly dated to about 1500-2000 BP (Tolonen 1987b: 365). One problem is, that the radiocarbon dates obtained are much older than this, in fact so much older that the dates have been rejected as "clearly too old" (Tolonen 1987b: 359).[79] The whole interpretation of the Kankareenjärvi series thus remains indecisive. Outside the Salo – Halikko area, there is only one site in the eastern

[79] The period of intensification of cultivation corresponds to the date 3530 ± 140 (Hel-1933) and the period of beginning of arable cultivation to the date 2870 ± 130 (Hel-1932) (Tolonen 1987b: Table 1). A surface sediment sample which should have given a "modern" age gave the result 460 ± 110 (Hel-2068; Jungner & Sonninen 1996: 9-10).

part of the study area, Lemunsuo in Perniö. At this site cultivation occurs during the Roman Period or the Migration Period and has been interpreted as continuous since the Viking Age (Vuorela 1985; Vuorela 1999: 149).[80]

Paimio is of special interest with regard to palynology, as no less than four sites have been sampled within the municipality. At Palomäki, temporary slash-and-burn cultivation has been dated to about 300-700 AD, intensive continuous cultivation following after that (Tolonen 1985a: 476-477). However, in this case too the datings are not at all as exact as the interpretation. The same is true about the Preitilänsuo site where proper dates have been difficult to achieve due to a slow sediment accumulation rate. Some Cerealia pollen appears to occur at a depth possibly dating to the Early Bronze Age (*cf*. Tolonen 1987b: Fig. 8). The level of continuous occurrence of Cerealia has been dated to the Pre-Roman Iron Age (Tolonen 1987b: 362 *cf*. Tolonen & Kukkonen 1989: 77). It is true that there is an Early Iron Age radiocarbon date from close to the rational Cerealia limit, but a level just 15 cm higher gave a dating to the Middle Ages. The onset of cultivation occurred in connection with these dates, with an increase estimated to date to the Late Iron Age or the Middle Ages (Tolonen 1985a: 474-476). The exact dating of the phases related to cultivation, however, does not seem possible. The reliability of the chronology is not enhanced by the fact that some of the radiocarbon dates have also been rejected in this case. The uppermost dates have been regarded as "clearly too young, perhaps due to contamination by deep roots of younger mire plants" (Tolonen 1987b: 359). At Oinilanmäki (Tolonen 1987a; *cf*. Tolonen 1985a: 476-478) the dating ranges are also wide, but continuous cultivation seems to be datable to the transition from the Iron Age to the Middle Ages. This is the case also at Vohtenkellarinsuo, although there is evidence of much older cultivation as well. Some indicia of Late Neolithic and Bronze Age activity occur, but no evidence of agriculture prior to the Roman Iron Age, when a layer of ash and carbonized wood has been registered as well as the start of the occurrence of sporadic pollen grains of Cerealia (Vuorela 1983). The radiocarbon dates used for dating the Vohtenkellarinsuo series are – except one – the same as used earlier in a series analysed by Glückert (1976) for shore-level displacement studies. The use of the old dates was possible, as pollen stratigraphical horizons seemed to correlate well between the samples. The new radiocarbon dating 710 ± 100 BP (Hel-1745), showing a 90.8 % probability for the period 1150-1440 cal AD, is from a level of already continuous Cerealia occurrence, most probably starting around the transition between the Iron Age and the Middle Ages (*cf*. Vuorela 1983: Fig. 5).

80 Another site, Punasuo, was sampled in Perniö as early as 1969 by Kimmo Tolonen. The results are unpublished, except for the date 930 AD for the beginning of the continuous rye pollen curve (Tolonen *et al*. 1979: 57).

Kuoppajärvi in Piikkiö is situated not far from the Late Bronze Age and Pre-Roman Iron Age site of Moisio Alistalo, but unfortunately, the sample does not cover the Early Metal Period. Cerealia is present already in the lowest part of the sediments, interpreted as slash-and-burn cultivation during AD 300-700; after this period there is a continuous Cerealia occurrence and indications of grazing until AD 1400 (Salonen *et al.* 1981). A check of the uncalibrated radiocarbon dates of this sample, however, changes the dates. The earliest dating 1550 ± 160 BP (Hel-1431) has a huge probability distribution of 50-850 cal AD, with the highest probability (67 %) for the years 340-660, which might indicate that the series is slightly younger than previously expected. The start of continuous occurrence of rye (*Secale*) is dated to 1230 ± 120 (Hel-1430), *i.e.* 600-1030 cal AD.

Due to the problems concerning the dating of several of the above-mentioned samples from the mainland part of the study area, a diagram combining all Cerealia dates (like the one regarding the Kemiönsaari sample sites) cannot be drawn with good enough precision. The comparison must be made on a more general level. First of all, both the Kemiönsaari samples and the mainland samples show sporadic early cultivation, dated to the Late Neolithic and the Bronze Age. This is in agreement with the general view, according to which this was one area where agriculture was first introduced in Finland (*e.g.* Vuorela 1999; 2002).[81] It is more problematic to compare the period of increased cultivation (the empiric limit) and the rational limit of continuous cultivation. In general, the empiric limit in southern Finland has earlier been generally dated somewhere in the range of 450-1000 AD and the rational limit to the Historical Period (Donner 1984). There is no need to disapprove these dates; this is still more or less the general picture, with perhaps the addition that both in the archipelago and on the mainland the rational limit in several cases can already be dated to the Late Iron Age, or even earlier. In the Paimio area, where several sites were sampled in the 1980's, a kind of final conclusion was, that the first signs of human influence occur around 3500 BP, while evidence of scattered openings in the forest cover caused by clearance first appeared around 1200 BP (Tolonen & Kukkonen 1989). Regardless of the problematic dates of the Paimio samples, this is a plausible summary of the material. Such a conclusion is

[81] There are also indications of an eastern line of introduction of agriculture in Finland. A quite early date for the occurrence of Cerealia around 2300 BC has been obtained from Puolanka in the northern part of Finland (Vuorela 1999; 2002: 84-87). Late Neolithic Cerealia has been registered also in the Lake Onega area in Russian Karelia dated to about 5000 BP (Vuorela *et al.* 2001). The indications of sporadic Late Neolithic and Early Metal Period cultivation in the northern part of Finland are possibly related to the increased contacts between eastern and northern Finland and north-western Russia visible in the archaeological material from these periods (Meinander 1984; Lavento *et al.* 2004).

also in line with the Kemiönsaari samples, where the Late Iron Age seems to mark a turning point, partly related to the increased importance of rye cultivation, but evidently also in the form of an intensification of agriculture. Concerning earlier Iron Age agriculture, it can just be noted that in the mainland cases the Middle Iron Age is more often accentuated in the interpretations than it has so far been able to establish in the Kemiönsaari samples.

4.4. Osteological analyses

One important source of data reflecting prehistoric economy is bone materials from settlement sites. Osteology has therefore been widely used for such studies. This has sometimes been done uncritically, not taking into consideration biasing factors related to the deposition and preservation of bone and its selection for osteological studies and archaeological interpretation. Site formation should be taken into account, as bone assemblages may be the result of particular courses of actions and may have been mixed and transformed during different disposal processes. In order to better understand the deposition of bones, the importance has been stressed of determining – in addition to species – the variation of anatomical representation of particular elements within sites too (*e.g.* Beech 1995: 108). Detailed determinations, however, require well-preserved materials. In the acid soil of Finland usually only burnt bones are preserved. This means that the material left for osteological studies is only a small fraction of the total material, that which for some reason has been in contact with fire or heat. The bones collected in connection with an archaeological excavation of a settlement site therefore do not represent a random sample directly reflecting the importance of different animals in the economy; the result is affected for instance by butchering techniques and by the treatment of animal products in relation to fire at the settlement site. The state of preservation is also affected by bone quality. Medium-sized mammals, such as seals, have numerous small, solid bones, which more often than others remain identifiable (Fortelius 1981: 11, 14). Large animals, such as elk or cattle, leave considerably fewer bones suitable for identification (Ukkonen 1996: 67). In addition to these problems the shrinkage of bones due to heat affects the possibility of exact species determination (Fortelius 1981: 12). These circumstances call for source criticism in drawing conclusions from osteological materials. The proportions of species identified in settlement site materials do not necessarily reflect the relative importance of different species in the subsistence strategy. Osteological analyses reveal which species have been utilised, but they only give a rough insight into the total mode of subsistence.

In connection with the present study just about all bone materials available from the prehistoric sites of Kemiönsaari were analysed.[82] Almost all the bones derive from small-scale trial excavations, and most of the materials are thus quite small. In all cases seal bones are well represented (Fig. 95). Seals identified to probable species are present only in the relatively large Mesolithic material from Bötesberget in Dragsfjärd, where some of the bones, according to osteologist Pirkko Ukkonen, were more reminiscent of grey seal (*Halichoerus grypus*) than ringed seal (*Phoca hispida*). Fish bones found at four of the Stone Age / Bronze Age settlement sites also illustrate the use of marine resources. The species identified are pike (*Esox lucius*), perch (*Perca fluviatilis*) and cod (*Gadus morhua*). If the bone fragments identified are counted, seal bones are dominant in the group of Mesolithic sites and sites coarsely dated to the Early or Middle Neolithic (*cf.* Asplund 1997b: 230). One third (31 %) of the total number of fragments are fish bones (*Teleostei*) and one half (49 %) are seal (*Phocidae*) bones, while the only other mammals identified are hare (*Lepus timidus*) and elk (*Alces alces*). The number of identified bones, however, is very small, altogether only 67 fragments.

The number of identified bones from Late Neolithic / Bronze Age sites is almost three times greater. This material too is dominated by fish bones (46 %) and seal bones (40 %) (*cf.* Asplund 1997b: 231). Thus fishing and marine hunting is accentuated throughout the Stone Age. In the Late Neolithic / Bronze Age materials one beaver bone (*Castor fiber*) and one fox bone (*Vulpes vulpes*) also occur, as well as one bird bone (*Aves*), not identified as to species. The most extensive bone material from Kemiönsaari related to Late Neolithic subsistence has been revealed at the Kiukainen Culture settlement site Branten in Kemiö. A total of 100 g of bone fragments were found in a small investigation conducted in 1991. In this material it was possible to identify 79 fragments; most of these are from seal, some from fish. The seal bones represent all parts of the body, possibly indicating that the whole seal was brought to the site for butchering.

So far no conclusively identified bones from domesticates have been found on Kiukainen Culture sites. One find of interest, however, is present in the material from Jordbromalmen in Dragsfjärd. This bone fragment (TMM 14122:128) has been identified as a probable cattle bone (*Artiodactyla cf. Bos*). The bone was found in excavations conducted in 1946. The context of the find is not exactly known, but it is most probably related to the Kiukainen Culture or Bronze Age settlement site.

[82] The main analyses were made by osteologists Tarja Formisto and Pirkko Ukkonen. The only unanalysed sample is 57.5 g burned bone (TYA 821:1) from the Middle Neolithic settlement site Oxmossen in the Storfinhofva village in Dragsfjärd. These bones – picked up in 1989 from a ditch running through the site – unexpectedly turned up in 2004 when they were donated to the Department of Archaeology at the University of Turku.

Site	Phocidae	Teleostei	Others
Mesolithic			
Dragsfjärd, Nordanå B (F)	+		
Dragsfjärd, Bötesberget (U)	+		
Early and Middle Neolithic			
Dragsfjärd, Ansvedja (F)	+		
Dragsfjärd, Nöjis (F)	+		
Dragsfjärd, Senatsberget (F)	+		
Dragsfjärd, Senatsberget (U)	+	+	Lepus timidus
Dragsfjärd, Söderby II (F)	+		
Västanfjärd, Misskärr (U)			Alces alces
Late Neolithic / Bronze Age			
Dragsfjärd, Hammarsboda (F)	+		
Dragsfjärd, Hammarsboda 3 (U)	+	+	
Dragsfjärd, Hammarsboda 2 (U)	+		
Dragsfjärd, Jordbro (U)	+	+	Artiodactyla cf. Bos
Kemiö, Branten (F)	+		
Kemiö, Branten (U)	+	+	Castor fiber
			Vulpes vulpes
			Aves
Pre-Roman Iron Age			
Västanfjärd, Tappo (F)	+		
Västanfjärd, Tappo (T)			Bos / Equus

Fig. 95. Species identified by osteologists Tarja Fromisto (F), Pirkko Ukkonen (U) and Auli Tourunen (T) in the osteological materials from Kemiönsaari.

Other indications of domesticated animals are sparse in the materials found at the prehistoric sites on Kemiönsaari. This is also true of the sites of special interest in this respect – the Pre-Roman sites Makila and Tappo – which have yielded almost no osteological material. At Makila no bones were found; in the small sample material from Tappo two fragments have been identified. One fragment (TYA 514:16) is a seal bone; the other is a piece of tooth enamel (TYA 514:7), identified as belonging to a molar or pre-molar of cattle or horse (*Bos M / Equus PM-M*). Nevertheless, the osteological materials do not give any conclusive support to the idea that herding or cattle breeding played a significant role in the Late Neolithic and Bronze Age or even Early Iron Age economy. Considering the very small amount of Bronze Age and Pre-Roman Iron Age material available, however, such a hypothesis cannot be rejected either.

Number	Species
TYA 392 (F)	Capra hircus
TYA 444 (F)	Capra hircus
TYA 644 (U)	Canis familiaris
	Ovis / Capra
	Teleostei
TYA 658 (U)	Bos taurus

Fig. 96. Species identified by osteologists Tarja Formisto (F) and Pirkko Ukkonen (U) in the osteological material from Moisio Alistalo in Piikkiö.

As the number of bones from Early Iron Age contexts on Kemiönsaari island is very small, it is interesting to have the possibility of comparison with additional material gathered from the Late Bronze Age and Pre-Roman Iron Age site of Moisio Alistalo in Piikkiö. At this site, a sunken feature, probably some kind of refuse pit – rich in burnt bones – was revealed. Some bones from this site had already been collected in the 1980's, and were identified as goat (*Capra hircus*). In connection with a small excavation in 1997, conducted for the purpose of the present study, new material was gathered and analysed. The results (Fig. 96) are quite different from what is found on Stone Age sites. The occurrences of sheep or goat (*Ovis* / *Capra*) as well as cattle (*Bos taurus*) give support to previously published results (*cf.* Edgren 1999b) indicating that domesticates were common during the Pre-Roman Iron Age. The Moisio Alistalo site is radiocarbon dated to 2230 ± 100 (Hel-2571), *i.e.* 550 cal BC – 50 cal AD.

5. Early Iron Age archaeology in brief – a review with comments

5.1. Introduction

5.1.1. From the Hackman paradigm to a theory of settlement continuity

The theory of the Finnish Early Iron Age was dominated up until the early 1970's by the model formulated in the early 20th century by Alfred Hackman, according to which a gradual immigration of Finnish tribes from Estonia had taken place, starting from the Roman Iron Age. This hypothesis, based on the idea of a findless Pre-Roman Iron Age, was presented in Hackman's doctoral thesis *Die ältere Eisenzeit in Finnland*, published in 1905. According to this work, the Pre-Roman Iron Age lacked archaeological finds and was regarded as a period when the country had been practically deserted. The idea of a late migration also gained support from contemporary linguistic theories. A changing climate was given as one major explanation for the lack of finds and the presumed lack of habitation during the Pre-Roman Iron Age. The general idea of development was that cemeteries of the Roman Period could not be linked to the half a millennium older settlement of the Bronze Age. The southern and western part of Finland was interpreted as deserted or as inhabited only by a hunting and fishing population referred to as *lappalaiset*, a concept often used as a synonym for the Sámi population. The possibility of a hunting and fishing population living in the area was, however, not foregrounded in the discussion of settlement development. One reason might have been that the contemporary community was strongly based on agrarian values, and the presumed absence of an agrarian population in Pre-Roman southwestern Finland was considered equal to a total lack of habitation (Vilkuna 1996: 17). The settlement indicated by the cemeteries of the Roman Iron Age was thus interpreted as belonging to newcomers from Estonia, representing the ancestors of the historical population in Finland Proper (Hackman 1905; *cf.* Tallgren 1931: 60-61; Äyräpää 1951: 96).[83]

Already in 1917, Ailio (1917: 5-9; 1931: 45-46; *cf.* Vilkuna 1978: 27-28) wrote in favour of the idea of continuous settlement development, suggesting that the finds

[83] The eminent Finnish archaeologist Ella Kivikoski was one researcher who maintained Hackman's (1905) immigration theory. Still it is interesting that even if Kivikoski (1939: 234) could not see the settlement continuity of the Pre-Roman Iron Age she did not neglect the possibility, but stating: "… *dass eine Kontinuität in der Besiedlung des Landes nicht nachgewiesen werden kann, schliesst aber nicht die Möglichkeit aus, dass eine solche dennoch bestanden hat*". The idea of immigration, on the other hand, she accepted without a doubt.

of the Roman Period were not a result of immigration but a cultural phenomenon introduced through trade. Ailio's idea did not gain understanding from colleagues or scholars in other disciplines. Not before the 1950's and 60's, did new finds start to change the old view of the Pre-Roman Iron Age. These new findings and ideas were presented in 1969 by C. F. Meinander in his article *Dåvits, En essä om förromersk järnålder*, where the continuity of settlement development was finally emphasised. Soon afterwards, additional evidence began to be found in both archaeological contexts (Salo 1970: 159-160) and palynological ones (Vuorela 1972; 1975; *cf.* 1982). The final shift of paradigm can be considered to have occurred at a large multidisciplinary seminar held in Tvärminne in 1980, where the old migration theory no longer received any support (Julku 1998: 54).

No major synthesis of the Finnish Pre-Roman Iron Age has been made, but more and more information related to the period has been gathered and presented in publications. The various materials and topics of discussion regarding the Pre-Roman Iron Age of the coastal area have so far been best summarized by Edgren (1999b). With regard to the question of settlement development, the Pre-Roman settlement sites – mainly identified on the basis of the pottery style known as Morby Ware – are nowadays considered to be important evidence of settlement continuity in western and southern Finland. There is a general opinion that the population using this type of ceramics can be associated with the ancestors of the historical Finnish population later living in the same area. This assumption has attracted only sporadic criticism (*cf*. Bågenholm 1992: 153; 1995: 19).

5.1.2. Chronologies

In Finnish research the Pre-Roman Iron Age has mostly been dealt with as a single period covering the second half of the first millennium BC. In the chronology of Salo (*e.g*. 1984a: 186, 199-200) the end of the period has been dated to 50 AD, thus including the Early Roman Iron Age period B1 (Eggers 1955: 229-230; 1959: 162-170; *cf*. Salo 1968: 11) in the Finnish Pre-Roman Iron Age. Similar thoughts concerning the end of the period have been present within Swedish archaeology (*e.g*. Stenberger 1964). In current Estonian chronology, the Pre-Roman Iron Age is likewise dated to 500 BC – 50 AD (Lang & Kriiska 2001), while in other chronologies the period boundary is placed at the end of the first millennium BC (*e.g*. Carlsson 2001; Jensen 2003).

In the northern part of the Baltic, a more refined inner chronology of the Pre-Roman Iron Age (like the La Tène subphases A-D) has proved difficult to achieve. This has been possible mainly in the case of southern Scandinavia and the Swedish islands Öland and Gotland, where there is rich find material from the late Pre-Roman Iron Age in particular. Based on Danish materials, a four period relative chronology (I-II, IIIa-b) evolved during the 1950's (Becker 1961). During the same decennium a four period chronology (A-D) regarding Gotland was put forward (Nylén 1955: 397-403). More recently, a chronology of no less than six subperiods (1-6) related to weaponry and weapon graves (including finds from the Swedish mainland) has been discussed (Nicklasson 1997a; 1997b). In this chronology, the last centuries BC (and the first century AD) are accentuated even more than before, as five of the six subperiods relate to the Late Pre-Roman Iron Age, the start of which is dated to around 150 BC. Usually the boundary between the Early and Late Pre-Roman Iron Age has been dated earlier, around 250 BC, like in current Estonian (Lang & Kriiska 2001) and Danish (Jensen 2003) chronologies.

In terms of Central European chronologies, the Scandinavian Late Bronze Age and Early Iron Age can be approximately synchronised with the Hallstatt (Ha) (Randsborg 1996: 68; Jensen 1997: 17, 46) and La Tène (LT) chronologies (*e.g.* Stenberger 1964: 339-340; Sauter 1976: 131; Pleiner 1993: 2). The Late Bronze Age is contemporary with Ha A2 – Ha D1, and the Pre-Roman Iron Age comparable to Ha D2 – LT D. Local chronologies, however, may still be different. For example, in the case of northeastern Poland a somewhat older six-period Bronze Age chronology from 1950-620 BC has been proposed (Dąbrowski 1997: 88).

Bronze Age and Pre-Roman Iron Age chronologies have been developed on the basis of archaeological typology and cross-dating, but later they have been tested and corrected by means of radiocarbon dating as well as dendrochronology.[84] For example, in Denmark dendrochronological dates have been presented for the famous oak coffins (Randsborg 1992; Jensen 1993), and have been compared with the results

[84] Moving from a relative chronology for the Bronze Age to absolute calendar dates did also stimulate a discussion concerning so-called 'marker dates' (Baille 1991; 1996). These are particular years of changes in annual tree-ring growth that can be identified in a number of dendrochronological series in Europe and in some cases worldwide. It has been suggested that these markers can mostly be correlated with volcanic activity. The best-known of these dendrochronological marker dates is 1628/1627 BC, which has been hypothetically linked with the eruption of the volcano Thera in the Greek archipelago. The marker dates are of importance as they allow the correlation of different dendrochronological curves. The possibility has also been suggested that the markers actually represent short but important transition periods, which may have directly or indirectly influenced cultural development, as reflected in the archaeological record. The eruptions may have created dust veils, sulphur dioxide and water vapour, affecting climate and farming economies for several years (Baille 1991: 238). In the Baltic Sea area it thus could be considered whether the marker dates 1628, 1150 and 431 correlate in some way with the demarcation of the Early Bronze Age, the Late Bronze Age and the Pre-Roman Iron Age. At present such a scenario does not seem likely as the archaeological period boundaries differ from the marker dates, regardless of a somewhat similar periodicity.

of radiocarbon dating (Vandkilde *et al.* 1996: Fig 13). The dendrochronological and radiocarbon dates are in reasonably close agreement, and show that the oak coffins preserved were all used during some generations between the 1390's and the 1270's BC. New chronological data also seem to support a correlation between Bronze Age chronologies in large parts of Europe. Decisive breaks in continuity take place at approximately the same time in areas covering different cultures and societies (Randsborg 1992: 101-104).

In Denmark a total of more than 300 radiocarbon dates are available for the Late Neolithic and Bronze Age, but unfortunately the Late Bronze Age is not particularly well represented (Vandkilde *et al.* 1996). For the Pre-Roman Iron Age there are forty-two dates available, primarily from settlement sites. Both the available Late Bronze Age samples and the Pre-Roman samples support a boundary around 500 cal BC or slightly later for the Bronze Age and Iron Age transition. There are a few broad dates from the eighth and seventh centuries BC, but statistical boundary calculations give the ± 1 sigma range 520-450 cal BC for the start and 70 cal BC-10 cal AD for the end of the period (Vandkilde *et al.* 1996: 195-196). This suggests that the traditional general boundaries 500-1 BC for the Pre-Roman Iron Age can still be regarded as valid. With regard to the inner chronology of the period, from a Finnish point of view there is not much that can be added. One can identify some early and late Pre-Roman finds and features, the former in many respects related to continuities from the Bronze Age and the latter to new influences preceding the Roman Iron Age (*cf*. Meinander 1969: 39). If an absolute chronological boundary between the Early and Late Finnish Pre-Roman Iron Age had to be set, it could be in line with the Estonian chronology, *i.e.* 250 BC.

5.2. Bronze Age and Early Iron Age coastal pottery types

5.2.1. Local ceramics

The term 'epineolithic ceramics' is sometimes applied to Finnish pottery types of the Bronze Age and the Early Iron Age. It was first used by Hackman when referring to ceramics based on the Neolithic tradition but made after the Stone Age (Hackman 1917a: 242-246; 1917b: 61; Meinander 1954b: 168). The epineolithic pottery of southwestern Finland is regarded as a continuation of the tradition of the Kiukainen Culture. The pottery of the Kiukainen Culture (Kiukainen Ware) is characterised by flat bottoms, straight or slightly profiled walls, and a decoration restricted to the upper part of the pot; the decoration consists of pits, comb impressions, twisted cord impressions, and lines, in one or several horizontal zones (Meinander 1954a:

134-148; Holm 2000: Fig. 4). Horizontal lines, zigzag or 'fish-bone' ornaments and other line ornaments, occasionally encircle the pot. Textile impressions may occur on the flat vessel bottoms, as well as on the outer surface (Lavento 2000: 121, Fig. 4; 2001: 23, 113, 166; 2004b: 309). The outer and (more often) the inner surface may be striated. This type of ceramics was apparently in use during the Late Neolithic and still – more or less unchanged – at the beginning of the Bronze Age (Meinander 1954a: 179-186; 1954b: 168; Siiriäinen 1969; 1974; Carpelan 1973: 196; 1982: 269-270; Salo 1981: 311). On Kemiönsaari the most typical examples of Kiukainen Culture pottery have been found on the Jordbromalmen site in Dragsfjärd and the Österbacka Nedergård site in Kemiö.

From the Kiukainen Culture ceramics a simpler type of striated, pit-decorated pottery evolved.[85] The emergence of this type has been dated to the end of the Early Bronze Age, and most of the finds have been regarded as belonging to the Late Bronze Age (Meinander 1954b: 168-173; Kivikoski 1971: 25-26; Salo 1981: 311-313). The term 'Paimio type pottery' (or Paimio Ware) has been increasingly used in discussing this type of ceramics (Salo 1981: 311-313; 1984b: 154-155; *cf.* Edgren 1993a: 137). This may be somewhat misleading, as the term is closely identified with the one and only reconstructed vessel from the Toispuolojannummi site in Paimio (Meinander 1954b: Tafel 2), while the type actually seems to cover almost all striated, pit-decorated ware, regardless of size and shape (Salo 1981: 312; 1984b: 155). The starting point for a definition of Paimio type pottery would thus be that it is coarse, striated and usually thick-walled. The shape is characterised by a flat bottom, and a

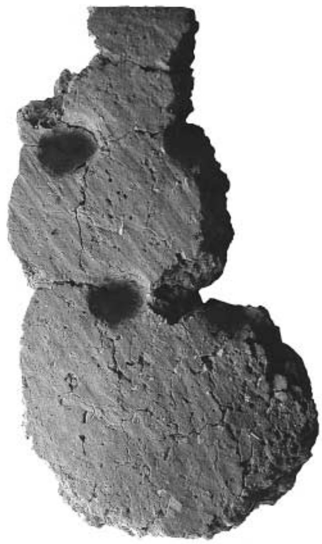


Fig. 97. Fragment of a Paimio type pot (TYA 611:36) from Hammarsboda in Dragsfjärd.

85 The Late Bronze Age and Early Iron Age has been regarded as period of decline of pottery production. Ikäheimo (2002) has interpreted this as related to a change towards a colder and moister climate unsuitable for pottery making. This is not convincing. If the use of pottery had been important, large-scale production would most probably have been possible with simple technical adjustments, like increased use of indoor drying. Another explanation given is that the use of pottery would have decreased due to increased production and use of wooden containers, more easily made due to woodworking tools made of metal (*e.g.* Salo 1989: 20). Evidence of wooden vessels can be seen in the Early Roman Iron Age, when resin used for caulking wooden funerary urns have been found in Finnish graves (Salo 1968: 178-180). This kind of material occurs more seldom in Bronze Age and Pre-Roman Iron Age contexts (Edgren 1993b: 15).

slightly inward-turned, straight or slightly s-profiled wall. The decoration usually consists of a single row of pits on the upper part of the vessel. Previously, in at least one case, a pot with two rows of pits has been presented as belonging to the same type (KM 6914:67; Meinander 1954b, Tafel 23:g). On Kemiönsaari, Paimio type pottery with a double row of pits (Fig. 97) has been identified on the Hammarsboda 2 site in Dragsfjärd.

In the coastal zone of Finland some textile-impressed ware also occurs, some of which can be defined as belonging to eastern and inland pottery styles (*e.g.* Meinander 1984b: 41-43; Strandberg 1996), but textile impressions evidently also occurs on Paimio type pottery as a surface treatment similar to that of the striation of the vessel surface. This is a somewhat problematic matter as a specific study on textile impressed pottery by Lavento (2001: 166-167) does not acknowledge the occurrence of textile impression on coastal Bronze Age ceramics. There are cases of such textile-impressed pottery decorated with a row of pits for example at the Ketohaka site in Salo (KM 20562:358; Uino 1986: 125-129, Fig. 5:5), and the Niuskalan Polttolaitoksenkatu site in Turku (Asplund 1997a: 29-31). Calibrated radiocarbon dates from cultural layer 201 at Ketohaka containing this pottery give the result 1400-800 cal BC, indicating that the pottery fragments are from the end of the Early Bronze Age or the beginning of the Late Bronze Age.[86] As striated Paimio type pottery has also been found in the same cultural layer (KM 20562:253; Uino 1986: Fig.5:5; *cf.* Hackman 1917a), the dating result suggests that both the striated and the textile-impressed, plainly pit-decorated ware did develop concurrently, probably during the final part of the Early Bronze Age. Another hint towards such a dating is the Period III bronze fibula found in 1992 at the Paimio Toispuolojannummi site, *i.e.* the eponym site of the Paimio type pottery (Edgren 1993a: 137; Vanhatalo 1994). The textile-impressed Niuskala Pottolaitoksenkatu pot is somewhat younger, from the earlier half of the Late Bronze Age. A radiocarbon dating from crust on the inner surface gave the result 2770 ± 30 BP (Ua-33769), *i.e.* 1000-830 cal BC. This is further evidence for the contemporaneity of striated and textile impressed Paimio Ware.

Inquiry into the inner chronology – especially the Bronze Age stage – of Kiukainen Culture ceramics has proved difficult. According to one view, the early pottery was rich in individual elements and had a variety of compositions, whereas younger pottery was poorer in symbols and exhibited simpler compositions (Holm 2000: 199-201). This view could be right, but it does not describe in closer detail the

86 These datings have previously been presented in a more compact form, indicating the period 1330-1010 cal BC as the dating for the layer in question (Carpelan 1982: 270; Uino 1986: 129, 132). This might be close to the most probable dating, but the fact remains that the wide probability ranges of the datings, 2870 ± 120 BP (Hel-1184) and 2880 ± 130 BP (Hel-1190) do not permit such a straightforward interpretation.

process of change in the elements and composition of decoration. One idea is that the period of Kiukainen Ware began with a stage characterised by the absence of pits in the decoration pattern (Meinander 1954a: 141-142), later developing into a style more in favour of pit-decoration. It may be noted that fragments of one pot from the settlement site Kuusisto in Nakkila, regarded as belonging to the end of the Kiukainen Culture or the beginning of the Bronze Age, are decorated with several rows of pits, interrupted by vertical zones of diagonal line-ornaments (Salo 1981: 62, Kuva 14). Without considering the vertical grouping of ornaments, it could be considered, whether the Early Bronze Age stage could be characterised by pots decorated with several rows of pits, *i.e.* a pattern which does not fit into the definition of Paimio type pottery (Asplund 1997a: 32-33). The fragments of one such pot (Fig. 98), with smooth walls and decorated with at least four horizontal rows of pits, found at the Hammarsboda 2 site in Dragsfjärd, have been included in this discussion (Asplund 1997b: 253-254).

This pot and fragments of three others, all decorated with at least three horizontal rows of pits, were AMS-dated in order to test the dating hypothesis. The fragments of the three other vessels have been found at the Niuskala Polttolaitoksenkatu site in Turku.[87] Apart from the plain pit decoration, the dated group is heterogeneous;

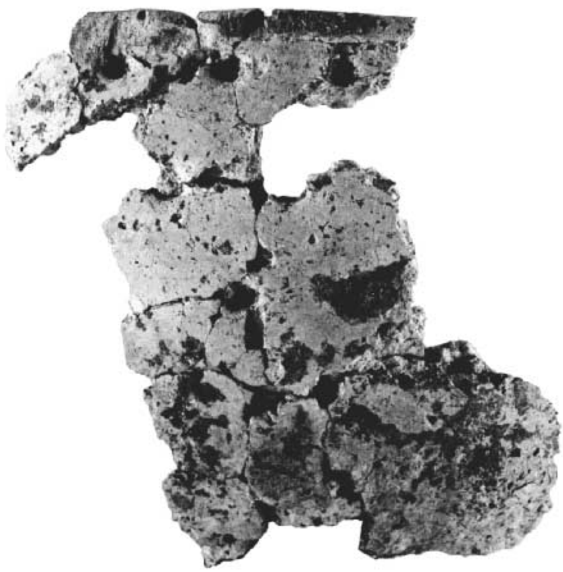


Fig. 98. Part of a plainly pit-decorated pot from Hammarsboda in Dragsfjärd (TYA 611:17-18).

[87] A part of a similar pot decorated with pits in four horizontal rows, found from the Kiukainen Culture site Rainesåsen in Pirttikylä, has also been published (Miettinen 1980: 26, 29-30).

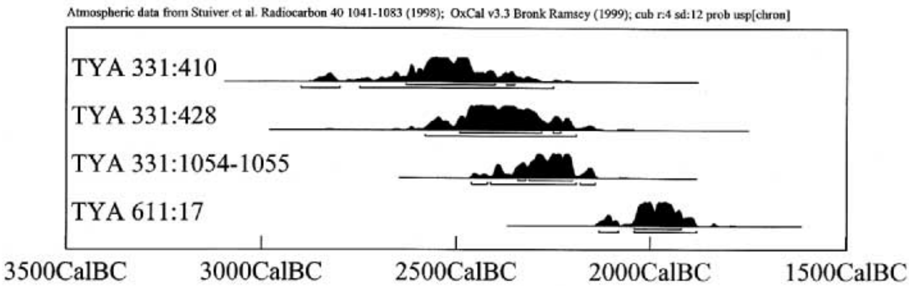


Fig. 99. Probability distributions of radiocarbon dates (GrA-12392, GrA-12393, GrA-14113, GrA-14114) from plainly pit-decorated Kiukainen Culture Ware.

the size of the pits varies as well as the surface treatment. What is most important, however, is that the dating result (Fig. 99) does not support the hypothesis presented. The Niuskala Polttolaitoksenkatu pots seem to date to the turn of the Middle and Late Neolithic, *i.e.* the early stage of the Kiukainen Culture. The dating of the Hammarsboda pot, 2130-2080 or 2040-1880 cal BC is somewhat younger, but this dating too is older than the Bronze Age. According to this result the dating of plainly pit-decorated Kiukainen Culture ceramics does not differ from the dating of ordinary Kiukainen Ware. The dating material is, however, still limited. Only a few AMS-datings from organic residue on Kiukainen pottery have previously been published. Two dates are from shards, the decoration pattern of which has not been described. One was found at the Myrsbacka site in Saltvik in the Åland Islands; it yielded a date to the period 2290-2040 cal BC (Holm 2000: 198), and the other (KM 34005:569) at the Etukämppä site in Eurajoki; it gave the result 3785 ± 50 BP (Hela-770), *i.e.* 2410-2030 cal BC (Lehtonen 2005: 12-14). A third dating has been made from a small pit-decorated shard (TYA 178:363) interpreted as Kiukainen Ware; this piece, found at the Hiukkasaari site in Vammala, yielded the comparable date 3700 ± 65 BP (Hela-261), *i.e.* 2290-1890 cal BC (Luoto 2004: 73, Kuva 26).[88]

5.2.2. Foreign influences

At several settlement sites of the western Finnish Bronze Age pieces of small, carefully made vessels have been found, the ceramic fashion of which differs from the local tradition (Fig. 100). They have been made of fine-grained clay and given

[88] Luoto (2004: 74) has also referred to two ordinary charcoal dates from the Niuskala site in Turku of a comparable age, 3670 ± 100 BP (Hel-2118) and 3840 ± 100 BP (Hel-2132). The majority of the Niuskala pottery is interpretable as Kiukainen Ware.

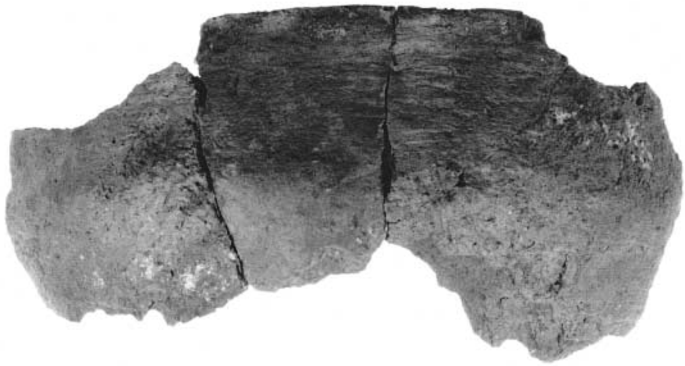


Fig. 100. Fragment of a small pot made of fine-grained clay paste (TYA 174:1a) from the Lemu Lehmihaka site in Perniö.

a smoothed surface, which is sometimes polished. The pots are usually well fired. A typical feature is the sharp-angled profile; the bottom is straight, the lower part broadens towards the angle, and the neck of the pot is typically convex. This type of pot is usually regarded as a loan reaching Finland through Scandinavia, where it was common during the Late Bronze Age; the origin of the form, however, appears to be related to the Lusatian Culture south of the Baltic, where these pots were influenced by metal dishes (Meinander 1954b: 170; Salo 1981: 316-317; Luoto 1984: 118; Gustavsson 1998: 77, 123-124).

Another loan from the same cultural sphere is rusticated Late Bronze Age pottery, with a surface treatment using coarse clay slip, sometimes combined with a finger-furrowed finish. In Finland this type of pottery occurs mainly on the Åland Islands (Meinander 1954b: 144-150; Luoto 1984: 113-114; Gustavsson 1998). The largest material of this kind, from the Kökar Otterböte site, has – after a re-evaluation – been regarded as related to direct contacts between the southern Baltic area and the Åland Islands (Gustavsson 1998). In accordance with this, a more direct influence from the Lusatian Culture might be considered with regard to other parts of material culture as well. The smooth-surfaced profiled pottery could have been introduced in connection with activities involving the Lusatian Culture more directly throughout the Baltic, rather than only through Scandinavia as previously believed. The occurrence of the typical finger-furrowed pottery on the Finnish mainland has been regarded as doubtful (Meinander 1954b: 149), but the occurrence of (some type of) rusticated ceramics has been mentioned in the case of the Kärsämäki site in Turku, Pahka Pahamäki and Vanhalinna in Lieto, Lautkankare in Sauvo and Toisopuolojannummi in Paimio; the Kärsämäki finds, however, are from a Roman Period cemetery and not from the Bronze Age (Luoto 1980: 61; 1984: 114; 2004: 80; Gustavsson 1998: 75).[89] In addition, rusticated ceramics have been identified at the Late Neolithic – Bronze Age site Niuskala Polttolaitoksenkatu in Turku (Asplund 1997a: 31, Kuva 5).

5.2.3. Morby Ware

5.2.3.1. Towards a definition

Hackman's term 'epineolithic ceramics' also included the pottery of the Pre-Roman Iron Age, although it was at that time not known as a separate group or dealt with in detail. Before the type definition and dating of Morby Ware, these finds could be referred to as for example 'primitive', as in the Salo Isokylä case, when "primitive" ceramics were found under Late Roman Iron Age and Migration Period grave constructions (Tallgren 1931: 188-189). The Morby type of ceramics is the most important artefact material related to the Pre-Roman Iron Age in southwestern Finland. Most of the settlement sites and some of the graves of this period are identified on the basis of the occurrence of this ware. About fifty sites with Morby Ware have been mentioned so far (Edgren 1999b: 316), mainly in the coastal zone of mainland Finland. The number of occurrences is, of course, dependent on the site definition as well as on the definition of the pottery type; in this study over 80 Finnish sites containing Morby Ware or Morby-like ceramics have been counted (Fig. 101). Morby Ware is present in one cemetery in Flaka on Lemland as well as on some other sites in the Åland Islands (Edgren 1993a: 154; 1999b: 317). During the 1980's and 1990's several sites containing Morby Ware were registered on the Ostrobothnian coast (Miettinen, M. 1982; 1989; 1994a; 1998). The northernmost occurrence is from the Tervakangas cemetery in Raahe (Forss & Jarva 1992; Ylimaunu 1999).

The Morby type of ceramics evidently continued the native ceramic tradition and is probably a development based on the Paimio type pottery. The definition of the type is mainly based on descriptions by Meinander (1954b: 173-179; 1969: 40-47) and Edgren (1969; 1999b: 313-317). According to the commonly held view these vessels

89 From the Pahka Pahamäki site there is a radiocarbon date available from one pot fragment (TYA 104: 884) treated with clay slip. The dating was made from crust in connection with another study and is so far unpublished. The dating suggests a Pre-Roman age for the thick-walled, coarsely tempered but rather smoothly finished pot, which represents a type previously unknown in Pre-Roman contexts. The only hint towards a Pre-Roman date with regard to the style of the pot is the top of the rim decorated with oval (maybe fingertip-made) imprints (*e.g.* TYA 104: 859).

are made of coarsely tempered clay, the surface is striated, and the upper part of the vessel is slightly s-profiled. The occurrence of striation has not always been regarded as a decisive factor for distinguishing the type; according to Lavento (2001: 117) a "hatched" surface occurred in only two thirds of the Morby Ware vessels examined by him. What should be underlined is that typical Morby Ware is always decorated (even though there may exist Morby-related pottery which is not). The ornaments are placed on the shoulder of the pot and consist of impressions in groups rather than in continuous lines (Fig. 102). This placing of the decoration elements gives the decoration pattern its characteristic rhythm. The most typical (although not the most numerous) impression is the 'cat-paw imprint' – an impression of irregular shape with a wavy bottom, which could have been made with a knot (Carpelan 1980: 189), a leaf bud (Reisborg 1989: 92) or possibly with a cone (Asplund 1997a: 255). In the study by Lavento (2001: 117) the cat's paw ornament existed in only one sixth of the vessels. Other decoration elements used are twisted cord impressions, pits and incisions. Typically the top of the rim is also decorated with impressions. To this description one could furthermore add that a textile-impression-like surface treatment equivalent to striation occurs in at least one case (Fig. 103).[90] Fragments of this particular pot have been found in a cairn at Peltomäki in Ulvila. In the first publication of the find it was equated with the typical Morby Ware found at the same site (Tuovinen 1980: 190), but later it was connected for some reason with 'coastal textile ceramics' (Salo 1981: 314-315). This is a heterogeneous type of ceramics; in reality it seems to consist of various epineolithic ceramic types, both inland ones and coastal striated ware, the ordinary surface treatment of which was occasionally replaced with impressions made with coarse cloth.

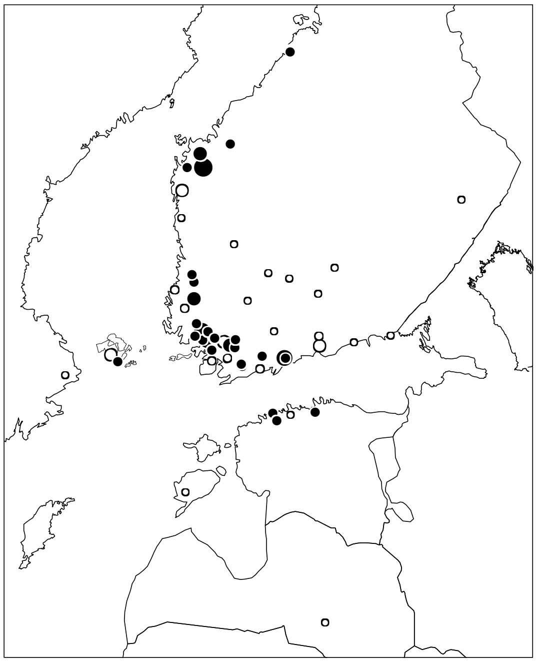


Fig. 101. The distribution of Morby Ware. Circles refer to uncertain identification, or pottery resembling Morby Ware.

[90] According to Lavento (2001: 117) textile impression does not occur in Morby Ware (nor in coastal Bronze Age pottery, as noted above).

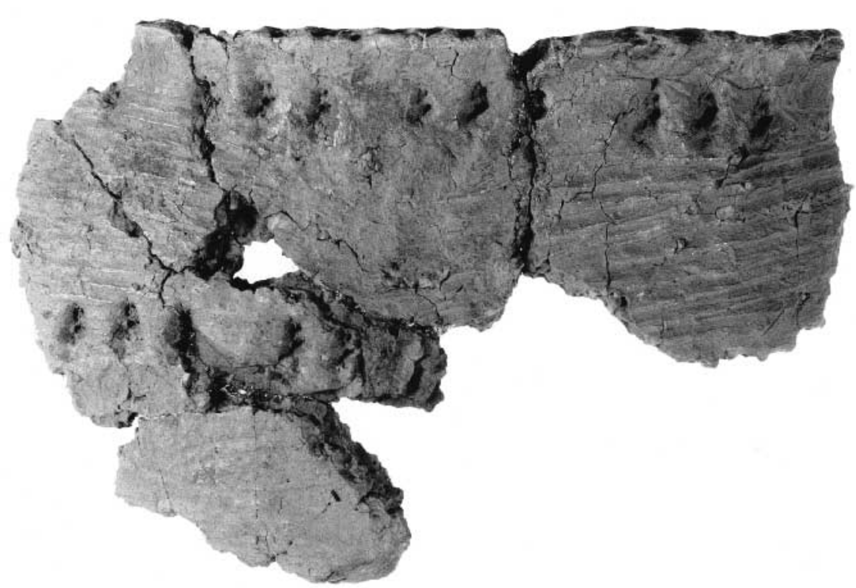


Fig. 102. Typical Morby Ware (TYA 156:79) from the Vermuntila Kallio site in Rauma.

Fig. 103. Textile-impressed Morby Ware (TYA 112:11) from the Peltomäki site in Ulvila.

The most serious problem with regard to the definition of Morby Ware is that it is mostly based on subjective descriptions alone. A systematic analysis of the technological and stylistic characteristics of the whole Finnish material has not as yet been done. Variables included in such a study could be 1) the composition of the clay and temper, 2) the profile of the vessel, 3) the form of the rim (*cf*. Reisborg 1989: 98-100), 4) the surface treatment (including the treatment of the inside of the pot), 5) the decoration elements, and 6) the decoration patterns.[91] In this connection one should also make a comparison with other striated pottery, Paimio Ware and especially Morby-related undecorated ceramics. The characteristics of Morby Ware should be examined in a polythetic manner; a comparison of decoration patterns regardless of the surface treatment, for example, would probably reveal different geographical associations than a focus on striation as a main element, and so on. Simplified further, this is a question of understanding 1) style and 2) technology. In the current state of research the style of Morby Ware is best described as a 'rhythm'. (*cf.* Edgren 1999b: 315), depicted in the grouping of the decorative elements on the vessel surface. Technologically, Morby Ware seems to be characterised by its relatively small amount of temper, with an exceptionally large grain size, which creates a sparse crackleware-like fracturing of the vessel surface.[92] Technologically, this type of ceramics probably reflects a local tradition, but explanations of the stylistic development could also be sought elsewhere.

5.2.3.2. The Lusatian culture and the Baltic

The influence of the Late Bronze Age Lusatian culture is well known along the shores of the whole Baltic, in the form of smooth-walled and profiled ceramic bowls as explained above. These finds are usually interpreted as a cultural loan, reaching, for example, Finland through contacts with the Scandinavian Bronze Age culture. Contacts between the Lusatian culture and Scandinavia can also be seen in the spread of certain bronze finds; these include, for instance, the so-called Gotlandic socketed axes, with their main distribution comprising Gotland and the northernmost part of the Lusatian territory (Larsson 1993a: Figur 3; 1993b: Fig 106). This area, lying between the rivers Oder and Vistula, is where the greater part of Scandinavian

91 A classification of decoration into elements, motifs and designs, as made by Lavento (2001) when focusing on the study of textile ceramics, would seem appropriate also for the closer analysis of Morby Ware.

92 This is probably what Lavento (2001: 168) meant when characterizing the paste of Morby Ware as "brittle". In addition to crushed stone, Lavento (2001: 117) has noted also chamotte and organic temper in Morby Ware.

bronze objects found in Poland have been discovered (*cf.* Bukowski 1998: Ryc. 176). Earlier there was a tendency to explain both the above-mentioned pottery and the bronze objects as a result of Scandinavian trading activity, ignoring the possibility of an active role on the part of the Lusatian culture itself in the contacts that are reflected in the archaeological material. More lately the 'Lusatian connection' has been much debated in Scandinavian archaeology and also other – more complex – explanations for the nature of these contacts have been presented.

One example is the study by Kaliff (2001) dealing with the possible connection between archaeological material indicating long-term contacts between the Swedish and Polish coasts, and the description of the Scandinavian origin of the Goths indicated in Jordanes' *Getica*, written in Constantinople in 551 AD. Kaliff's scenario points out long-term interaction between the Pomeranian area and Scandinavia, where long-lasting trade contacts, particularly between elite groups, could have influenced the cultures in the Vistula area. This exchange could have been going on for centuries, along with a continuous cultural development from the Bronze Age to the Iron Age AD, without major breaks. This could over time have led to cultural similarities, and, according to Kaliff (2001: 61), possibly also to an ethnical identification. The memory of this exchange network could have lived on as oral tradition when Jordanes' *Getica* was written down, and transformed into the myth of the migration of the Goths from the island *Scandza*.

One site of special interest in connection with the Lusatian influence is the Vistad defended settlement site in the province of Östergötland in Sweden, excavated by Larsson during 1988-1990 and radiocarbon dated to about 900-500 or 1000-400 BC (Larsson 1993a; 1993b; Larsson & Hulthén 2004). The settlement site is encircled by remnants of a palisade, within which structures of five houses were found. The houses are rectangular in shape and have roof-supporting walls – a structure entirely different from Scandinavian Late Bronze Age houses. The chief finds at the site consisted of high-quality pottery with Lusatian characteristics, the foreign origin of which is further supported by ceramological analyses (Larsson & Hulthén 2004). The finds and features at Vistad indicate very direct contacts with the Lusatian culture. Larsson's (1993a: 146-147; 1993b: 135-138, 142, 147) interpretation is that the site must be seen in the light of long-distance contacts within a chiefdom-type of society; foreigners were present at Vistad due to the contacts by a local chief with chiefs in present-day Poland. The site was probably not permanently inhabited, but repeatedly visited by Lustatian groups. One possible objective of the visits has been suggested to be the search for iron ore, an explanation supported by the fact that particles of iron slag have been found in clay from the bottom parts of hearts and kilns at Vistad (Larsson & Hulthén 2004: 52). Another perspective on the presence of foreigners at Vistad is that this could have been part of a social strategy practised by the local leaders, where the foreigners' knowledge of iron technology was maybe a key factor; the control of the secret iron technology promoted the elite's prestige and made foreign activity possible (Larsson & Hulthén 2004: 53-55).[93] Pottery with Lusatian character – imported or locally made – also occurs on many other sites in southern Scandinavia. One of the biggest finds of Late Bronze Age ceramic materials comes from the Pryssgården site in Östergötland, which include rusticated, burnished as well as striated ware; many vessel forms show similarities with Lusatian pottery, including fragments of low bowls of a type unique for Scandinavia (Ståhlbom 1994; Kaliff 2001: 51-54).

Another site of importance is the settlement site of Otterböte on the island of Kökar in the Åland Islands, excavated in 1946 and 1950 but re-evaluated in the 1990's by Gustavsson (1997; 1998; *cf*. Meinander 1954b: 121-136). Otterböte was previously regarded as a seal-hunting station for hunters from the Finnish mainland or the Åland Islands, but a multidisciplinary study of the material has yielded an entirely new picture. The ceramic material represents some 300 individual vessels; most of them jars with a rusticated surface. Most characteristic is the finger furrow pattern found on the vessel surface. Finger-furrowed pottery has been found in small amounts at many Late Bronze Age sites around the Baltic, but it occurs in larger numbers only at Otterböte and on Lusatian culture sites. The distribution of finger-furrowed pottery is even wider than is shown by Gustavsson (1998: 67-82, Fig 110; *cf*. Kaliff 2001: 51, Fig 10) as finger-furrowed pottery is also a lead artefact type in Halland in Sweden (*e.g.* Artelius 1989), and occurs in small amounts in western Latvia as well (Vasks 1991: 190, Tablica III:4). What is most interesting is that the clay in the Otterböte pottery differs from the local clay on the Åland Islands, but mineralogically closely resembles the clays in pottery from Bornholm and Poland. A variety of plant imprints on the Otterböte pottery also suggests a southern origin. These include millet, chick pea and grass pea, which cannot have been cultivated in the northern part of the Baltic area. Gustavsson's (1998) interpretation of the material is that people from the southern part of the Baltic used Otterböte as a hunting station and spent the winter months at the site.

[93] The idea of Vistad being a fortified foreign type of settlement closely related to a powerful chiefdom has been criticised by Hauptman Wahlgren (2002: 138-144). She has questioned whether the interpretation of the comparatively sparse material is the only possible explanation. One point in Hauptman Wahlgren's reasoning is the possibility that the rusticated pottery often found at Late Bronze sites in the area represents settlement, while sites where this type of pottery is absent – like in Vistad – could represent places used in ritual contexts. It has also been pointed out that remains of small buildings interpreted as cult houses that occur on both settlement sites and cemeteries are reminiscent of the rectangular houses of the Vistad site (Kaliff 1995; 2001: 56-58).

The archaeometrical studies of the Otterböte materials give a new perspective on Bronze Age contacts between Poland and the northern part of the Baltic. The facts presented by Gustavsson (1997; 1998) strongly indicate that the Otterböte pottery was not made locally but most probably in the Lusatian cultural sphere on the south coast of the Baltic. This raises new questions concerning the nature and scale of contacts.[94] The role of other settlement sites with the same type of material probably needs to be re-evaluated in the light of the Otterböte findings (*cf.* Edgren 1998: 47). It should even be considered whether contacts could have continued during the Pre-Roman Iron Age as well, although less evident in the archaeological material – the same contacts later becoming visible during the Roman Iron Age, when imported objects from the southern part of the Baltic show up in cemeteries in Östergötland and on Öland (Kaliff 2001: 34-41) as well as in the East Baltic area and on the Finnish mainland. One key issue here may be the development of the eastern route from the Vistula river area northward. The western route from the Oder to Bornholm and Southern Scania has usually been considered most important during the Late Bronze Age and the Pre-Roman Iron Age (*cf.* Bukowski 1998: 386, Ryc. 178). The Vistula route may have become important later, during the Roman Iron Age, thus influencing the northeastern part of the Baltic in a new way.

5.2.3.3. Morby Ware and Lusatian culture influence

The decoration pattern of Morby Ware has in some cases been traced to the east, comparing it with Russian pottery types from the upper Volga region (*e.g.* Salo 1984a: 194). Although interesting, the eastern element in Morby Ware remains, however, unclear. When Meinander (1954b: 176-178) first presented his ideas concerning the origin of Morby Ware, he pointed out another interesting resemblance, in this case with decoration found on Late Bronze Age Lusatian-type ceramics. What is strange, however, is that some of the parallels were found in the southern part of the Lusatian Culture, for instance Bohemia. Imported pottery of this type has not been found in Finland, but there is one example in a museum in Estonia (Fig. 104). The pot was purchased by the Estonian History Museum in the 19th century from the manor owner C. E. von Liphart. Unfortunately there is no information as to

94 Gustavsson's interpretations have not raised much criticism. It can be noted, however, that Lang (1999e: 81–82) has questioned whether the building tradition should not also be considered when evaluating the origin of the people of the Otterböte settlement. Huts of the Otterböte type seem to be rare in Central Europe and Scandinavia, but might be associated with stone foundations found elsewhere on the Finnish coast.

Fig. 104. Smooth-walled pot (A 352) from the Estonian History Museum in Tallinn with a decoration 'rhythm' reminiscent of Morby Ware. Photo by Toomas Tamla / Estonian History Museum.

where the pot had been found. It is quite possible that it had been acquired for the manor from somewhere else in Europe. The vessel form is reminiscent of pottery related to the Jastorf Culture and could thus have originated, for example, from Germany.

In typical Lusatian Culture pottery, direct parallels to the form or decoration pattern of Morby Ware are difficult to find. Lusatian pottery types are characterised by several vessel shapes and decoration patterns, none of which are especially close to the shape and decoration of Morby Ware. In the most interesting geographical area for comparisons – the northeastern part of the Lusatian Culture along the river Vistula – no pottery styles reminiscent of Morby Ware occur (*cf.* Dąbrowski

1997: 19-41). In considering the idea of Lusatian pottery influencing the decoration pattern of Finnish Morby Ware, the Polish Early Iron Age pottery styles reminiscent of Lusatian pottery types should also be taken into account. The Post-Lusatian cultures form a difficult complex, including Pomeranian, Wielbark, Cloche Grave, Oksywie and Przeworsk cultures as well as Zarubintsy and even Jastorf cultures, all of which show certain similarities with that of the Lusatian culture (Węgrzynowicz 1995; Dąbrowski 1997: 181; Bokiniec 2005). The only similarity between Pomeranian or Cloche Grave Ware (*cf.* Węgrzynowicz *et al.* 1995; Pietrzak & Podgórski 2005) and Morby Ware seems to be the main placement of the decoration on the shoulder and the rim of the vessels. The one or two cases of similarity of the decoration itself may be incidental. In the mainly Roman Period pottery materials from the large Przeworsk culture grave fields (Dąbrowska 1997; Andrzejowski 1998; Godłowski & Wichman 1998; Ziemlińska-Odojowa 1999), no similarities with Morby Ware seem to exist at all. A close connection between Morby Ware and pottery from the southern part of the Baltic thus does not seem likely. It cannot be totally ruled out, however, that the decoration rhythm of Morby Ware might to some degree follow general stylistic ideas discernible also in the southern and eastern part of the Baltic.

5.2.3.4. Radiocarbon dates and contact dates

During the last decades of the 20th century Morby Ware was regarded as belonging mainly to the Pre-Roman Iron Age. A series of 49 radiocarbon dates from Morby Ware contexts published by Edgren (1999b) show, however, a much wider distribution of dates also covering the Late Bronze Age, a fact which cannot go unnotified as it is based on such a large number of dates.[95] The wide chronological range is best exemplified when the datings presented by Edgren are shown as a sum of probability distributions (Fig. 105). If the period boundaries are calculated using a model of uniform distribution with the OxCal program (© Bronk Ramsey 1999) the result gives the ± 1 sigma range 1020–890 cal BC for the beginning of the period and 60–170 cal AD for the end (Asplund 2004). The dates providing this

[95] The number of datings is comparable to that of the Danish Pre-Roman radiocarbon datings discussed earlier – actually somewhat bigger. For some reason there are more radiocarbon dates available related to Early Iron Age pottery compared with, for example, Bronze Age ceramic types. The age distribution of Finnish radiocarbon dates determined during 1968-1990 in fact shows a strong peak in the distribution around 2000 BP (Jungner 1995), perhaps indicating a more general need to date Early Iron Age finds and features than those of other periods.

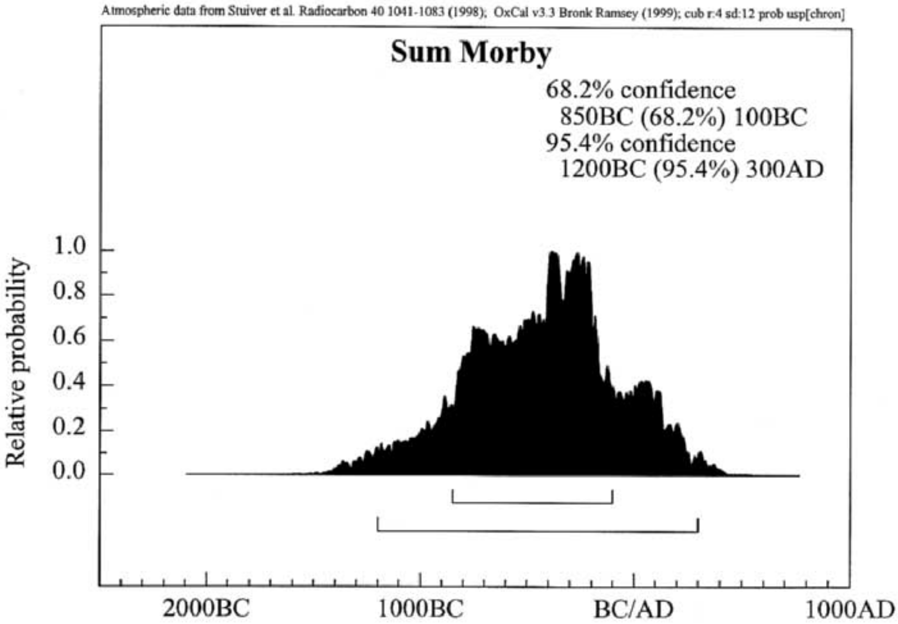


Fig. 105. Sum of probability distributions for radiocarbon dates from Finnish sites containing Morby Ware according to information from Edgren (1999b: Fig. 7; cf. Asplund 2004: Fig. 2).

distribution have been regarded as significant and as supportive of the idea that Morby Ware came into use already during the Late Bronze Age.[96] Based on Edgren's (1999b) list of radiocarbon dates, complemented with finds from closed contexts (unfortunately not mentioned), Carpelan & Uino (2003: 82-83) have later continued the discussion, suggesting the Morby Ware dating 700 cal BC – 300 cal AD. The beginning of the use of Morby Ware – actually the Paimio Ware / Morby Ware transition – is here equalised with the Nordic Bronze Age Period V/VI transition.

The radiocarbon dates providing such a wide chronological distribution of Morby Ware have later been criticized, pointing out several general problems associated with the use of radiocarbon dates for the periodisation of phenomena and more specifically the problem of calibration of radiocarbon dates from the Bronze Age – Iron Age transition (Asplund 2004). The general problems include,

[96] If one would like to trace Morby Ware even earlier in the Bronze Age, there is actually one Early Bronze Age date 2985 ± 75 BP (Hela-133) from next to a sherd of Morby-like pottery (KM 24388:118) from a cairn at the Luistari site in Eura. This dating has, however, been explained as probably deriving from an earlier settlement site layer at the same location (Lehtosalo-Hilander 1999: 42), and has not been included in the material published by Edgren (1999b).

for example, the mixing of datings on different materials as well as the 'old wood problem'. In the case of Morby Ware chronology, the relation of some of the dated contexts with the pottery itself can also be questioned – this has even been stressed by Edgren (1999b: 326) himself when publishing the dates. The picture does, in fact, become somewhat different if only AMS-dated pottery is chosen for the analysis. Unfortunately, this reduces the amount of material considerably. At present, there are only nine AMS-dates from organic residue (crust) from Morby Ware (Fig. 106).[97] A comparison of the probability distributions of single dates reveals a consistent group of six dates flanked by two older dates and one younger one. A statistical calculation of the period boundaries for the whole material gives the ± 1 sigma range 650–430 cal BC for the beginning and 140 cal BC – 140 cal AD for the end of the period. The ranges are not quite clear, but here the impression is that the floruit of Morby Ware fits within the traditional Pre-Roman Iron Age dating of 500–1 BC. With a calculation of this type, the result is naturally dependent above all on the number of dates available. As long as the number of dates is small, the calculated period boundaries may shift considerably if just one or two dates are added. Another factor that should be considered is the effect of calibration. In the diagram showing the AMS-dated samples, the two oldest dates give a long period of even probability; this illustrates the problem of calibration and chronological interpretation of the Bronze Age – Iron Age transition. During the transition period there is a long 'plateau' in the calibration curve, extending the probability of dates around 500 BC to a period covering several hundred years of the Late Bronze Age as well. What this means is that the seemingly old Finnish 'Late Bronze Age' dates of 'Pre-Roman' pottery may be due to the problem of calibration (Asplund 2004). This problem with calculating dates around 500 BC is a general one affecting all research concerning this period – not only a problem of Finnish research.[98] At the other end of the period, the situation is quite different. Around the beginning of the first century AD, no calibration problem exists; the calibration curve gives a symmetrical normal distribution well adapted to chronological interpretations.

97 To the eight AMS-dates published by Edgren (1999b: Kuva 7) one more dating from a shard (TYA 96:36) found at Riihivainio in Turku has been added. The result of 2275 ± 70 (Ua-11603), *i.e.* 520-150 cal BC, is in good agreement with the other dates. A further Pre-Roman dating from crust 2150 ± 65 BP (Hela-779), *i.e.* 380-40 cal BC, is available from the Huilu 2 settlement site in Lappi, the pottery finds of which mainly can be classified as Morby Ware. The dating has been left out of the calculations above, as the dated striated shard (KM 34021:710) is undecorated.

98 The same feature can, for example, be seen in the Danish Pre-Roman radiocarbon dated material where the sum of probability distributions signifies a beginning of the period in the Late Bronze Age (Vandkilde *et al.* 1996: Fig 23).

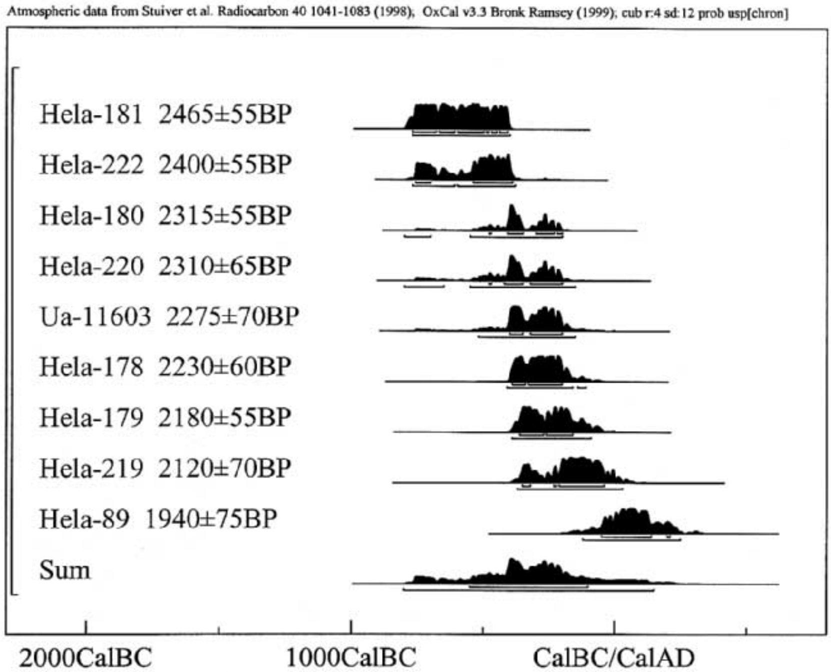


Fig. 106. AMS-dates of Finnish Morby Ware and the sum of probability distributions.

Radiocarbon dating is thus a suitable method for dating the end of the occurrence of Morby Ware but other methods must be regarded as more pertinent for dating phenomena around 500 BC.

One possibility is to look at existing contact dates involving Morby Ware and typologically dated artefacts in closed contexts. As regards establishing the position of Morby Ware in Finnish chronology, one such find is the Dåvits cemetery, which provided a contact date where Morby type ceramics could be connected with a necklace of the Bräcksta type (Meinander 1969: 35-40). These necklaces are dated to the early Pre-Roman Iron Age (Stjernquist 1956; Lang 1996, 286; *cf.* Olsén 1934). A number of other graves with Pre-Roman or Early Roman metal items together with Morby Ware have also been excavated (Meinander 1969: 32-33; Edgren 1999c: 318). One interesting discovery is the Ulvila Peltomäki find, which is probably the oldest Finnish find of a typologically datable metal object together with Morby Ware. In this case, Morby-type pottery and a disk-shaped bronze ornament were found in a low cairn. The cast bronze disk has been dated to Period VI of the Bronze Age or the beginning of the Pre-Roman Iron Age; in Gotland, such disks occur in early Pre-Roman contexts (Tuovinen 1980: 189; Salo 1981: 96, 199, 263-264, 314; 1984a: 188). The Morby type pottery was interpreted as belonging to a culture layer older than or contemporary with the cairn. A similar date is available also from the Ilmandu cemetery in Estonia where Morby Ware was found together with a temple ornament with spoon-shaped ends and a spiral centre (Lang 1995a). From the point of view of the problematic early radiocarbon dates of Morby Ware, it is interesting to note that no evident Late Bronze Age contact dates are available. This supports the possibility that the old dates are the result of poor source materials and calibration problems rather than factual proof of an early start of the period of Morby Ware. This does not mean that the dates have to be squeezed exactly within the 500 cal BC limit, but the importance of the Late Bronze Age dates should not be overestimated.[99]

The question of the chronological extension of Morby Ware into the Early Roman Iron Age is (in principle) somewhat easier to deal with – both in the case of radiocarbon dating, as explained above, and regarding contact finds, since Roman period cemeteries give better cross-dating possibilities. Salo (1968: 175-178) has distinguished three types of Early Roman pottery in Finland. These are 1) Morby Ware, 2) undecorated urns, and 3) small concave-convex or double-cone formed vessels. Salo has identified ceramics from Järnvik in Pohja and Penttala in Nakkila as Morby Ware (Salo 1968: 175, T. 9:5,6,8,9, T. 41:9; *cf*. 1970: 112). To these one could also add the Morby Ware found in the Paimio Spurila cemetery A, with the reservation that the pottery was not found in a definite grave context. All of these cemeteries are from the turn of the Pre-Roman and Early Roman Iron Age, or (in the Paimio case) at least contain some material of this age. This could mark the end of use of this type of ceramics, at least in its most typical form. The Late Roman Iron Age occurrence of Morby Ware as suggested by Carpelan & Uino (2003) remains unclear.[100]

The urn-type distinguished by Salo is represented by vessels with concave or slightly S-formed profile, striated or rusticated surface, and usually no decoration. The type is known from cemeteries in Laitila and Turku (Salo 1968: 176). The vessel

99 The possibility of Morby Ware occurring during the Nordic Bronze Age Period VI is in principle still possible. This could be confirmed if obvious Period IV artefacts were found together with Morby Ware. Such finds do not appear in Finland, which might be due to the sparsity of Late Bronze Age metal finds, but in the Estonian Late Bronze Age cemeteries there might be at least a good potential of the occurrence of such combinations.

100 With regard to late occurrences of epineolithic pottery it may be noted that Ella Kivikoski (1973: 40, Tafel 23:196) has regarded coarse pit-decorated pottery from Ketohaka and Ketomäki in Salo (Uskela) as the youngest occurrence of the "epineolithic" ware, dated according to grave goods to the Late Roman Iron Age and the Migration Period. As the pottery shown by Kivikoski (1973: Tafel 23: 196) is clearly Bronze Age pottery related to the Paimio type, the dating is questionable. Probably the pottery was mixed with the grave structures due to an older settlement at the same site.

form of the third type resembles the small Lusatian-type vessels of the Late Bronze Age, but these pots are coarse and the surface is striated. This type of pot is known only from Kärsämäki in Turku and Koskenhaka in Piikkiö (Salo 1968: 177, T. 31:7, T. 33:5). A somewhat similar vessel type seems to be present in Estonian Roman Period cemeteries (*e.g.* Laul 1962: 32, Tahvel IV:1). Also in Estonia carinate vessels of the Early Iron Age are, however, more rare than during the Late Bronze Age (Lang 1991: 52-53 Joon. 3; Joon 8). Such pots (without exact parallells for the two Finnish finds) occur among the Nurmsi-style pottery as well as the (slightly later) Salnieki-style ceramics (Lang 2007b: 135-136).

Besides the finds of typical Morby Ware in Early Roman Iron Age contexts, the occurrence of undecorated striated pottery (probably related to Morby Ware) is also interesting. This problem can only be briefly elucidated here, but it could be pointed out that within the group of "undecorated urns" there may occur vessels reminiscent of Morby Ware, although undecorated. This could suggest a final stage of Morby-related ceramics where the form and surface treatment of the pot is similar to Morby Ware, while the typical ornamentation has disappeared. This issue is, however, more complex, as undecorated striated pottery probably already occurred during the Late Bronze Age and the Pre-Roman Iron Age, like in Estonia (*cf.* Lang 2006a). One example of such pottery has been discussed by Carpelan & Uino (2003) in connection with finds including 6th century ornaments and the remains of two striated vessels from the island Tytärsaari in the Gulf of Finland. One of the vessels (KM 5424:1) is rather well preserved, allowing a detailed description (Hackman 1910: Fig. 7; Kivikoski 1973: Abb. 392; Carpelan & Uino 2003: Fig. 5). The temper is coarse and the profile of the upper part is slightly S-shaped. Striation is mainly vertical on the lower part and horizontal on the upper part. The rim is narrowed and smoothed, and the pot lacks ornamentation. The fragments of the other pot have been regarded as belonging to a vessel of essentially the same type. Carpelan and Uino (2003: 81-83) have interpreted the vessels as Estonian or Finnish Late Bronze Age or Early Iron Age pottery, which in Finland is represented by the Paimio Ware and Morby Ware. This interpretation would require some comments with regard to the definition of these pottery types, taking into consideration that an important feature of the Finnish types referred to is that they are decorated. If decoration does not occur, it is questionable whether it is possible to speak about Paimio Ware or Morby Ware.

Instead of comparing the Tytärsaari pot with these types one could consider undecorated striated vessels of a, so far, indistinct date. A fairly good parallel to the Tytärsaari pot is a find from Pahka Pahamäki in Lieto, southwestern Finland. Although smaller and with a more distinctively S-shaped profile, here one can find most of the essential features of the Tytärsaari pot – the type of striation, the lack of ornamentation as well as the narrowed and smoothed rim (Fig. 107). The pot was found close to a cremation cemetery, but unfortunately not in a closed context. This part of the cemetery is dated to the 4th century or around 400 AD at the latest (Luoto 1988: 112-113). The dating is further complicated by the fact that other parts of the Iron Age cemetery contained striated pottery interpreted as dating to the Bronze Age (Luoto 1988: 103). The remains of the pot in question were found just a couple of metres apart from the Late Roman Iron Age finds dating this part of the cemetery – a few shards of similar striated pottery (TYA 219:79, 83) were in fact found in the same grid square and layer as the Late Roman artefacts.

There are in principle three ways of approaching the question of the date of the Pahamäki pot – one according to the closeness to the cemetery, suggesting a Late Roman Iron Age dating, a second related to the features of the pot itself and, thirdly, the possibility of archaeometric dating. In the absence of decoration, the form of the rim could be important, as typical Morby Ware has a thick cornered rim, while both the Pahamäki pot and the Tytärsaari pot have a narrowed and smoothed rim, a shape more reminiscent of Bronze Age rim types (*cf.* Reisborg 1989). This could suggest a comparably early date for the pots. The matter is, however, still much more complex. An attempt to date the Pahka Pahamäki pot by means of termoluminiscence dating gave the result 1850 ± 250 BP (Hel-TL04085), *i.e.* something like 90 BC - 410 AD (ca. 160 AD being the most probable date). This result does not fully correlate with the Late Roman Iron Age date of the cemetery (although this is within the error margin), but still suggests the use of undecorated striated pottery at the end of the period of typical Morby Ware. Accordingly the Tytärsaari pots could also belong to the late Pre-Roman Iron Age or the Roman Iron Age, rather than the Bronze Age. The point being made by Carpelan & Uino (2003), according to which the Tytärsaari pots must represent a different context and timeframe than the Migration Period ornaments found in the vicinity thus is probably right, although the type of the pots and the chronological perception may not be as evident as it at first may have seemed. What is most

Fig. 107. Striated undecorated pot (TYA 219:23) from Pahka Pahamäki in Lieto.

important to stress, however, is the importance of further archaeometric dating of such undecorated striated vessels, in order to work out a proper chronology.[101]

5.2.3.5. Morby-related ceramics in Estonia and Latvia

In Estonia Morby type pottery is referred to as pottery of Ilmandu style. The area of the villages of Rannamõisa and Ilmandu near Tallinn in northern Estonia is especially interesting: here are found Pre-Roman ceramics of the same type as in southwestern Finland. There is one early find from a settlement site at Rannamõisa (Lang 1996, Joon 13:1; *cf.* Meinander 1969: 50) in the collection in Tallinn, bearing a close resemblance to Morby Ware, and reconstructed vessels from cemetery III in Ilmandu (Lang 1995a; *cf*. 2006a: Fig. 5) look as though they could equally well have been found north of the Gulf of Finland. The Ilmandu samples are particularly similar: they have the same vessel form, the striated surface, the decoration of the rim and the characteristic rhythm of the decoration pattern typical of Morby Ware. The Iru hill-fort, in the same area of northern Estonia, has also yielded examples of ceramics (Äyräpää 1951: Fig. 13:1; Meinander 1969: 49; Lang 1996: Tahvel V:3,5) with a form and decoration resembling that of Morby Ware. Similar ceramics have been identified at the fortified settlements Asva on Saarenmaa and Alatskivi in eastern Estonia (Lang 2006a: 127). Furthermore, fragments of one pot (SM

[101] The whole problem of these undecorated striated pots is intriguing. One further similarity between the pots seems to be the light orange or reddish colour of both the Pahka Pahamäki pot and (according to the find catalogue) the Tytärsaari pot. This is unusual for typical Morby Ware. The only find (from within the study area at least) with a similar colour is the Morby-like ceramics (*e.g.* TYA 105:308, 315) from Rikala in Halikko, which has been interpreted as possibly secondarily burned. These fragments belong to a decorated pot with a thick cornered rim, which is different from the undecorated pots discussed above. The only additional feature of the Rikala ceramics, maybe somewhat different from typical Morby Ware, is the strong inner surface striation. In principle this type of finish is well-known in connection with Morby Ware (*e.g.* Meinander 1969: 42), but the impression is that there is a lot of variation related to this feature. A coarse inner surface striation also occurs in the Pahka Pahamäki pot. These scattered thoughts are so far merely confusing, but demonstrate some features that should be considered when looking into problems of Morby Ware and related striated ware. In addition to other characteristcs discussed above, important features thus may be the lack of decoration, inner striation as well as reddish colour, maybe due to a different firing technique or a special use of some striated pots in connection with fire. What this special use could have been is unclear. What could be pointed out, however, is that in two cases – Pahamäki and Rikala – the pots have been found in connection with Iron Age AD cremation cemeteries. At Tytärsaari this does not seem to be the case, regardless of the Iron Age ornaments found. Furthermore (in all three cases) the pots are not present as scattered fragments, but as accumulations of sherds, making possible the reconstruction of big parts of the vessels. This probably means that whole pots have been deposited at the sites.

7437:255) from the Liiva-Putla cemetery on the island Saaremaa in Estonia seem to resemble Morby Ware; the surface is rough, ornaments occur on top of the rim and the ornaments on the surface are placed on the shoulder in groups of three. Other examples can be mentioned as well; for example, a find from Muuksi (Vassar 1938: Abb. 17:4-5) has been considered as representing a type of ceramics close to Morby Ware (Salo 1968: 175-176), as well as ceramics found in cemetery contexts at Poanse in western Estonia and Uuri Klaukse in northern Estonia (Lang 2006a: 127). More lately published finds of pottery from Tõugu, Tandemägi and Palmse (Lang 2000a: Joon. 44, 48 and 73; 2000b: Joon. 5) should also be taken to account when evaluating the distribution of Morby-related pottery.

The interesting Ilmandu material altogether consists of a dozen pots of uniform type. According to Lang (1995a: 432-433; *cf*. 2006a: 127), the vessel surfaces are either slightly striated or smoothed, and the pots are decorated with stamp impressions of various size and shape. The impressions are usually situated both on the rim and on the shoulder of the vessel. Lang also mentions that the impressions on the shoulder occur in one or two rows and as a rule in separate groups. In the first publication of the Ilmandu finds, parallels were identified from a stone-cist grave in Loona on the island of Saaremaa as well as ceramics from the grave of Uuri Klaukse and the settlement site of Rannamõisa. Later, other parallels were added (Lang 2006a). In the Loona case at least one of the best preserved pots (AI 4210:1351) has a smooth surface on the preserved upper part, the main similarity with Morby Ware thus being the grouping of the decoration. Both the Uuri Klaukse pot and the Rannamõisa pot (Lang 1996: Joon 9:8), on the other hand, have the typical wall profile, striation and decoration on the rim and shoulder, but in the reconstructions the decoration pattern is drawn as a continuous horizontal zone, without the decoration rhythm typical of Morby Ware.

The dating of the Ilmandu cemetery is of interest with regard to the dating of the ceramics. Lang's (1995a: 434) suggestion is that the foundation of the *tarand* grave at Ilmandu can probably be dated to the early Pre-Roman Iron Age. The only metal find providing such an early dating is a temple ornament with spoon-shaped ends and a spiral centre – in fact found together with one of the clay vessels. These temple ornaments were earlier dated to the first and the second centuries AD (*cf.* Lõugas 1991), but during the 1990's they were dated to the Late Bronze Age and early Pre-Roman Iron Age (Lang 1990; 1995a: 433; 1996: 283-284), which is in accordance with their parallels in Europe. Of importance for the dating of the Ilmandu grave is also considered to be the absence of cord- and comb-decorated pottery, 'shepherds-crook' pins made of iron and bronze, and bracelets, which are typical finds of the late Pre-Roman and Early Roman Iron Age cemeteries in northern and western Estonia (Lang 1995a: 433). Other find contexts containing

Ilmandu type pottery support such a dating, *i.e.* the final Bronze Age and early Pre-Roman Iron Age, while single examples may belong to the late Pre-Roman Iron Age (Lang 2006a: 127).

With regard to the development of pottery of the Ilmandu style, Lang (2006a: 127) has suggested "parallel developments" on both sides of the Gulf of Finland, the Estonian Late Bronze Age Asva style developing into Ilmandu style and the Paimio type pottery into Morby Ware.[102] The relationship between the Asva style and the Paimio type pottery as well as that of the Ilmandu style and Morby Ware is not explained more closely by Lang. The Asva style, as interpreted by Lang (2006a: 124-126), is problematic as it actually contains two groups: coarse-grained and fine-grained, the latter of which comparable to the Lusatian culture influenced Baltic pottery discussed above. It is only the coarse-grained, pit-decorated Asva pottery that is close to the Paimio type pottery of southwestern Finland. There is also a third Bronze Age pottery style of Estonia – Lüganuse style – which has so far not been distinguished as a different type in Finland. Also this type of pottery is pit-decorated. One shard resembling this style found at the Toispuolojannummi site in Paimio (KM 9390:134; Meinander 1954b: Tafel 24: e) has been pointed out by Lang (2006a: 126). If Lüganuse type pottery occurred in Finland in bigger numbers, these plainly pit-decorated shards would have probably been identified as Paimio type pottery. For the (Late) Bronze Age we can distinguish clear resemblances between pottery in southwestern Finland and Estonia, albeit on a general level. On both sides of the Gulf of Finland coarse, pit-decorated and often striated pottery (Asva / Lüganuse / Paimio) occur, as well as finegrained, often smoothed pottery of general Baltic appearance (Asva / Lusatian influenced Ware). The similarities between the Pre-Roman Ilmandu style and Morby Ware, on the other hand, seem more specific. For at least part of the Ilmandu style pottery found in northern Estonia one could actually use the classification Morby Ware as well. The parallel Late Bronze Age / Pre Roman Iron Age development of pottery styles on both sides of the Gulf of Finland suggested by Lang (2006a) is a good conception; within this development one could, however, underline the more definite relationship between Ilmandu style and Morby Ware. The similarity of pottery styles may be due to increased contacts, which during the late Pre-Roman Iron Age and the Early Roman Iron Age become apparent in other materials as well.

[102] Other potter styles of importance for the development of Morby Ware have also been suggested. For example Lavento (2001: 117) has suggested that textile ceramics, especially the Sarsa type, typical of the inland of Finland, in addition to the Estonian Asva ceramics, may have strongly influenced the development of Morby Ware. The similarities between Morby Ware pottery and the Asva pottery has sometimes been stressed a little too much, for example when the styles have been equalized (Künnap & Lang 2000). This is somewhat confusing, and may relate to Ilmandu style pottery found at Asva.

Ceramics similar to Morby Ware and the Ilmandu style have also been found at a few Latvian sites. One example of a vessel with the decoration rhythm typical of Morby Ware comes from the Dignaja site (Cimermane 1980: Ris. 3:4; 1985: Ris. 4:2; Vasks 1991: Tablica XVI:4; *cf.* Šnore 1935: 16. att.). Possibly some other vessel fragments from Dignaja can also be compared with the above-mentioned one (*cf.* Cimermane 1985: Ris. 4:1,3,4,5,18). The Dignaja site was in use during several periods from the first century BC to the 13th century AD; the older finds have been compared with finds from the Asva site in Estonia (Šnore 1935; Cimermane 1985). Also in some other examples of striated ceramics from Latvia published by Vasks (1991: Ris. 5:10-11, Tablica XIV:1,3-5) a vessel form and decoration pattern reminiscent of that of Morby Ware can be observed.

5.2.3.6. Morby-related ceramics in Sweden

A good summary (or simplification) of the main Late Bronze Age pottery provinces in the northern Baltic region – the western and the eastern – has been given by Jaanusson (1985: 39; *cf*. 1981). Within this coarse division the western pottery is characterized by an abundance of rusticated ware and a rarity of decorated vessels. Eastern pottery is distinguished by a large proportion of striated ware, mostly associated with varying quantities of textile-impressed ware. The eastern pottery is most often decorated, usually with horizontal rows of imprints forming the main motif. The boundary of these provinces runs along the Baltic, whereas some coastal and archipelago areas show a variegated amount of mixture of western and eastern elements. This is the case in the Mälaren area in eastern Sweden, where Late Bronze Age and Early Iron Age pottery of East-Baltic types occur at some settlement sites (Ambrosiani 1958; 1959; Schönbäck 1959; Jaanusson 1981; 1993, 12; Reisborg 1989; Eriksson 2005: 371-372).

The most important of the sites studied in Sweden is Darsgärde, excavated by Björn Ambrosiani in 1957-60. The most interesting part of the complex is the oldest layer, dated to the Late Bronze Age and the Pre-Roman Iron Age, although there are eastern influences in the material from the first centuries AD as well. The ceramics from the lower layer at Darsgärde have been studied in detail by Reisborg (1989). Most of the material (61 %) consists of shards with a striated surface, but fragments of textile-impressed and polished vessels also occur. Ornamentation (pits or oblong pits in horizontal rows, nail- and finger-impressions, twisted cord impressions, comb stamp impressions, pin impressions, short vertical lines, ring marks as well as other types of lines and impressions) is found on at least 72 % of the 162 identified vessels. The ornaments are concentrated on the shoulder and the upper part of the vessels. Reisborg (1989) has tried to divide the Darsgärde material into two hypothetical groups on the basis of the ornamentation – one Late Bronze Age group and one Pre-Roman Iron Age group. The hypothesis was tested by examining the clay material, the vessel form and the form of the rim. Some differences can be noticed when the two groups are compared with respect to material and form. The most interesting examination is the one where different rim forms are compared; it seems quite obvious that cornered rims occur more frequently in the hypothetically younger group (Reisborg 1989: 98-100). This is a small but important observation, possibly useful for chronological interpretations elsewhere as well.

The best parallels to the Darsgärde material were found according to Ambrosiani (1959: 120-121) in the Finnish epineolithic pottery from the Late Bronze Age and the Early Iron Age described by Meinander (1954b). Special importance was for some reason given to a few shards found at the Hautvuori hill-fort in Laitila, southwestern Finland (Ambrosiani 1959: 122). Other sites of importance, according to Ambrosiani (1959: 125-126), were Hedningahällan in Uppland and the Estonian fortified settlements of Asva and Iru. Reisborg (1989: 102) stresses the similarity with ceramics on the Åland Islands, mainland Finland and Estonia, but also with pottery in Karelia and the Ladoga and Leningrad areas in Russia. The significance of the three latter areas, however, remains indistinct. In a few shards of the Darsgärde material, the Morby type of impressions can be seen; some are quite typical (SHM 2578:549, 729), some very small (SHM 25878:440) and some not quite clear (SHM 25878:315, 698). The vessels with decoration related to Morby Ware are grouped together in Reisborg's typology as vessels with "*Länglische Grübchen in horizontalen Reihen*" (Reisborg 1989: 88). The decoration pattern – the 'rhythm' – of at least one vessel with other impressions could also be linked to Morby Ware (SHM 25878:745, 788, 790). In this case the vessel has groups of four impressions in two horizontal lines. The typical feature of decoration of the top of the rim as in Finnish Pre-Roman ceramics, however, does not occur in the Darsgärde material.

Ceramics with striated surface have also been found at Broby in Uppland. In this case the finds are a minority among the material and in comparison to the Darsgärde material are characterised by a lack of pit ornaments; this has been suggested to indicate local production under eastern influences (Schönbäck 1959: 100). One vessel with the same surface treatment has been found in a grave at the Vårfrukyrka cemetery in Skälby, Uppland, dated to the Late Bronze Age (Ambrosiani 1959: 124; Schönbäck 1959: 100-104). Ambrosiani also mentions Early Iron Age cemeteries – for example, Alunda in Uppland – with ceramics of the same kind (Ambrosiani 1959: 124). Furthermore, striated pottery is present in small quantities in the material from Hallunda (Jaanusson 1981).

These materials from eastern Sweden can be considered proof of contacts between the eastern and western shores of the northern part of the Baltic during the Late Bronze Age and the Early Iron Age. Reisborg (1989: 102-104) sees the common types of ceramics as a reflection of common traditions during a period of change of climatic conditions and economy. As the area belongs to a zone of slash-and-burn cultivation, foraging and especially marine hunting played an important role. According to Reisborg, the marine-oriented economy and settlement on the seashore was further strengthened during a period of lower summer temperatures around 500-100 BC. This environmental deterministic explanation is not especially convincing. From a Finnish perspective, and the material of the Kemiönsaari study in particular, evidence of an increased importance of marine resources or re-organization of settlement towards the coast is hard to see. On the contrary, the long-term tendency seems to be towards increased agriculture, with settlement location promoting cultivation. This development is even more obvious in the case of Estonia. This does not exclude foraging and marine hunting, but it is as likely that the contacts reflected in the common pottery styles are due to other reasons. The interesting question whether the Darsgärde site should be viewed as the result of continuous local development due to a similar economy and overseas contacts, or as a feature due to immigration cannot, however, be answered. Even without explaining the reasons for the similarities, the contacts revealed by the Swedish finds can still be underlined. Already Ambrosiani (1959: 127) put forward a hypothesis on the basis of the finds, according to which southwestern Finland, Estonia and Roslagen (the eastern Swedish area) could be distinguished as a North-Baltic ceramic group during the Late Bronze Age. This group should still be considered in connection with the Early Metal Period ceramics in the Baltic area.

In addition to the presentations of the Estonian striated pottery groups (*e.g.* Lang 2006a), the most thorough evaluation of the East Baltic material has been carried out by Vasks (1991) from a Latvian point of view. [103] As a general summary, Vasks has concluded that the whole area of striated pottery in the first millennium BC can

[103] Regarding Latvia, Vasks (1991: 194) has concluded that the striated pottery appeared on the basis of local traditions, originating from the Neolithic Narva Culture. Vasks (1991) has distinguished two partly overlapping periods in the development. During the first period, from about 1000-1 BC, two groups – the western and the eastern – existed in present-day Latvia. Pottery with a striated surface is characteristic of the western group, as are S-shaped vessel profiles and the co-occurrence of early rusticated pottery. Striated pottery is also characteristic of the eastern group, but during the same time smooth-walled and textile-impressed vessels occur. The pottery of the northeastern part of Latvia had some conformity with pottery in Estonia, while the western group seems to have had its contacts with the southeastern Baltic area (Vasks 1991: 195). Striated pottery is, for example, present in Lithuania. The earliest occurrences are, according to Elena Grigalavičienė (1995: 275), from the later half of the Early Bronze Age. The second important period in the development began in the last centuries of the first millennium BC. During this period striated pottery was replaced by smooth-walled ware in western Latvia, while old traditions of pottery prevailed in central Latvia. In the northeastern part of the country striated pottery was replaced by textile-impressed ware in the first centuries AD. To these three cultural regions Vasks (1995) has since added the southeastern part of Latvia as a fourth cultural area.

be considered as a more or less united historical-cultural region. He distinguishes three territorial groups, each with their own variants of Early Metal Period pottery and also differing burial customs (Vasks 1991; 1994a: 121). The groups are 1) the northern group (the territory of Estonia and northern Latvia), 2) the western group (the territory of western Lithuania and western Latvia), and 3) the southern group (the territory of eastern Latvia, eastern Lithuania and western Belarus). Considering the Finnish and Swedish striated pottery it is evident that the northern group in the division by Vasks must be extended. Apart from the contacts indicated by the occurrence of common pottery types, the northern group – including parts of eastern Sweden – appears as a distinctive cultural area also with regard to the spread of cemeteries related to the Estonian *tarand* graves as well as grave finds of Estonian or generally East Baltic character (*e.g.* Ambrosiani 1985; Ligi 1993: 14; Feldt 2005: 127-132, 304-309).

5.3. Other material culture aspects

5.3.1. Pre-Roman bronze finds

In Finland metal finds from the Pre-Roman Iron Age occur sparsely. This is true concerning iron as well as bronze finds, which are (if considering the main part of the period) mainly represented by ring ornaments such as neckrings and bracelets – and there are not many of those either. Another aspect of the occurrence of bronze objects in the very beginning of the Pre-Roman Iron Age is the continuity from Period VI of 'Bronze Age' types of objects. One example is the disk-shaped bronze ornament from Ulvila Peltomäki, discussed above in connection with the dating of Morby Ware. In a similar way, some of the metal axe types of the Bronze Age, like the Mälar (or Akozino-Mälar) type axe (*e.g*. Meinander 1985; Kuz'minych 1996; Lavento 2001: 123; Bolin 2004; 2005: 220-223, 226) as well as the Maaninka (*e.g.* Miettinen 1994b: 5-9; Lavento 2001: 122) and Ananyino (*e.g*. Lavento 2001: 122-123; Patrushev 2004) type axes, have been in use during Period VI of the Bronze Age – maybe even in the beginning of the Pre-Roman Iron Age. It has been suggested that it was specifically the form of the Mälar type axe that was copied into iron (Meinander 1954b: 32; Salo 1968: 159-161; 1984a: 192; 1984b: 91; Kuz'minych 1996: 23) – either during the Late Bronze Age or in the Early Iron Age.

Objects more specifically representing the early Pre-Roman Iron Age are three neckrings with flat ends of the Bräcksta-type from Panelia in Kiukainen (Meinander 1954b: 52-53, Tafel 15; Stjernquist 1956). In addition to these a couple of early Pre-Roman necklaces – reminiscent of the Bräcksta and Bjärges types (Olsén 1934; Stjernquist 1956) occur in the material from the Dåvits cemetery, already mentioned above. At Dåvits one complete necklace as well as fragments of another necklace with flat ends reminiscent of the Bräcksta-type have been found; the fragment, however, is lacking ornaments. Furthermore, there is one undecorated necklace with pointed ends, comparable to the Bjärges-type; a similar (undecorated) necklace has been found at Borgmästars in Karjaa (Meinander 1969: Fig. 7). In addition to these there is only one more necklace dated to the Pre-Roman Iron Age. This is a ring with cone-shaped ends from the Pikkulinnanmäki cemetery in Porvoo, with parallels in the East-Baltic area (Meinander 1969: 64-65; Edgren 1996b: 84, 88; *cf.* Hirviluoto 1968: 17-18; 1985: 63).

One more find that could be mentioned in a discussion on early forms of neckrings is a necklace (KM 18251:835) from the Liekolankatu site in Vammala, found in a grave below ground, situated at a Stone Age and Early Metal Period settlement site. Three graves were distinguished, two having an incomplete inner construction made of stone slabs along their sidewalls; the necklace was found in the corner of one of them (Salo 2004b: 156). Early Metal Period activities are indicated by two fireplaces, radiocarbon dated to 1820 ± 100 (Hel-192), *i.e.* 1-430 AD, and 2290 ± 110 (Hel-193), *i.e.* 800-50 BC; the grave containing the necklace was situated above the second of these fireplaces (Jungner 1979: 32). The necklace is made of a flat, undecorated bronze band of 5-6 mm width, and ends in two simple hooks (Fig. 108). Initially, it was dated to 400-600 AD (Jungner 1979: 32), but it has also been suggested that it is an

Fig. 108. Necklace (KM 18251:835) from Liekolankatu in Vammala. Photo by Leena Tomanterä / Conservation Laboratory, National Museum of Finland.

Early Metal Period artefact. It has, for example, been briefly commented on by Luoto (1984: 157), who at first suggested a Late Bronze Age dating. Later, Luoto (2004: 79) compared it with Late Migration Period necklaces from Gotland (Nerman 1935: 71, Taf. 39: 393-395). Furthermore, Salo (2004b: 155-156) has (without presenting any particular parallels) regarded a Pre-Roman Iron Age or (more likely) Roman Iron Age dating as the most suitable.

The difficulty of dating is due to the very simple form of the necklace. If focussing on the closing mechanism, the necklace could represent a form of so-called *Wendelringe* of the Late Bronze Age and the Early Iron Age. Among these rings simple closing hooks occur much more frequently than in the case of Migration Period necklaces. Otherwise the simple form of the Liekolankatu ring is not common among *Wendelringe*. In rare cases plain, undecorated rings may occur as in the case of two necklaces with four-sided cross-section occurring in the Period VI offering from Hellinge in Halsted, Denmark (Broholm 1946: 245, 251). An even better parallel is found in horizon e of the typological development of *Wendelringe* in Denmark, where there occurs a type of flat, band-formed necklace with closing hooks – *flacher bandförmiger Halsring mit Hakenenden* (Ge.) (Heynowski 2000: 77, Abb. 9:1). This is a late variant, lacking most of the typical *Wendelringe* features, but of a form comparable with the Liekolankatu necklace. Horizon e has been suggested as having an absolute chronological dating of 550-500 BC (corresponding to Hallstatt D2), but, with reference to Nordic chronologies, it may also be synchronized with the very beginning of the Iron Age (Heynowski 2000: 88, 210-213). This places the Liekolankatu necklace in the late Period VI or the early Pre-Roman Iron Age.

At Dåvits a few fragments of bracelets also occur. These simple forms, like other finds of simple undecorated bracelets in Finland[104], cannot be dated on the

[104] Several types of simple Early Roman Iron Age bracelets have been classified by Salo (1968: 104-106). More lately simple bronze bracelets have, for example, been discussed in connection with finds from Pahka Pahamäki in Lieto (TYA 187:61; Luoto 1993: 377, Kuva 1) and Hiukkasaari in Vammala (TYA 178:359; Luoto 2004: 29, Kuva 17). In both cases the possibility of an Early Iron Age dating was considered, but the final conclusion was that the bracelets are probably younger. Furthermore, two simple bronze bracelets have been discussed in connection with the Tervakangas site in Raahe. The site has been dated mainly to the Roman Iron Age (Forss & Jarva 1992). Another example is a simple undecorated bronze bracelet found in a cairn at the Frönäsudden site in Närpiö together with an iron bracelet. The find has been dated according to Finnish and East-Baltic parallels to the Pre-Roman or the Early Roman Iron Age; the elevation of the cairn suggests a dating to the end of the first millennium BC or to the first century AD (Miettinen 1980: 93; 1986; 1994a: 159). The bronze bracelet has a strange form as one end is pointed, the other blunt – this could be a fragment of a larger ring, possibly a necklace, reused as a bracelet. Further examples of simple bronze rings in possible Early Iron Age contexts are two pieces of bronze rings found in a cairn at Rimossbacken in Petolahti, the construction of which is similar to that of the Frönäsudden cairn. The Petolahti cairn can be dated, according to elevation, to the 6th or 5th century BC at the earliest (Miettinen 1994a: 159).

basis of their shape alone. One decorated sample from Karjalohja, the decoration reminiscent of the necklaces discussed above, has been presented by Meinander (1969: Fig 8; *cf*. Salo 1968: 83; T. 9:1) in connection with the Dåvits finds. Comparable line-ornamented bracelets with pointed ends have been found at Koukkela in Laitila (Salo 1968: 85, 105; T. 47:1; 1984a: 193) and Salisuonmäki in Rauma (Salo 1968: 88-89, 105, T. 47:6; 1984a: 193). Such bracelets – maybe some other simple but undecorated rings as well – may have a quite early dating, ranging from the Pre-Roman Iron Age to the Early Roman Iron Age.

Another type of bracelet, which has more lately re-entered the discussion on Pre-Roman bronze objects, is the serial bracelet, previously often dated to the Early Roman Iron Age (*cf*. Edgren 1999b: 329; Raike & Haimila 2003: 25). A probability of a Pre-Roman dating for Finnish serial bracelets was originally suggested by Meinander (1969: 64-65). The new interest in these bracelets is, at least partly, a result of the excavations at the Korvala cemetery in Sauvo, which (as already mentioned above) seems to predate the period of occurrence of Early Roman Iron Age fibulae. The Korvala material is at yet mostly unpublished, but contains ring ornaments like serial bracelets (Schauman-Lönnqvist 2006: 51). Other important cemetery sites where serial bracelets have been found are Pikkulinnanmäki in Porvoo, where two complete sets occur together with some separate rings, as well as Kroggårdsmalmen in Karjaa containing one complete set and a few separate rings; separate pieces furthermore occur at the Rönni site in Pälkäne (Hirviluoto 1968: 19-21; Kivikoski 1973: 22, Abb. 32). A single piece of a serial bracelet has also been found in a cairn at Sammallahdenmäki in Lappi (Raike & Haimila 2003: 24-25).[105] All of these sites are potential early sites, quite likely datable to the Pre-Roman Iron Age. With regard to the chronology of serial bracelets, it has been pointed out that a fragmentary serial bracelet occurs together with a Roman Iron Age eye fibula at the Herrankartano site in Paimio (Edgren 1996b: 88; 1999b: 329). This is true, but on the other hand, this is far from a closed context. The fibula and the bracelet are the only finds from the site, probably interpretable as the remains of an Early Iron Age cemetery. Whether the objects belong together is, however, uncertain. As no cemetery structures have been identified, the context of the finds is comparable to that of two stray finds. The objects were in fact found 55 metres apart (Leppäaho 1934: 70).

[105] The possibility of one stray find from Rukkijoki in Paimio being a fragment of a serial bracelet has also been considered; this idea was, however, rejected after an analysis of the metal composition, which did not match compositions regarded as characteristic of the Early Iron Age (Luoto 1993).

The Pre-Roman or potentially Pre-Roman bronze objects listed above illustrate the existence of such objects.[106] At the same time the small number of items makes it unclear how big a growth in the amount of bronze ornaments in cemeteries can be noticed during the Pre-Roman Iron Age in Finland. An increase towards the end of the period could be expected with reference to other areas around the Baltic, like Scandinavia or Estonia, where an increase can be observed during the late Pre-Roman Iron Age. When looking at the bronze objects alone, it seems evident that a few cemeteries containing grave goods in the coastal areas of Finland have their roots in the Pre-Roman Iron Age.[107] When discussing iron objects this interpretation gains further confirmation. Still, with regard to bronze objects – ornaments in particular – the increase of quantities of objects as well as an increase in object forms happened later, during the first centuries AD.

5.3.2. Early iron objects and iron production – Scandinavia and the East Baltic

Iron started to occur almost simultaneously in southern Scandinavia and in Europe north of the Alps in general. The oldest dated piece of iron found in Denmark is a fragment from an urn grave dated to Period III; from Period IV two typically Nordic bronze razors with iron inlay, indicating a local knowledge of iron, have

[106] The list is far from complete. The main issue here has been to cover the most usual object types. Some more objects of other, rarer types could be added, such as a bronze pincette (Hirviluoto 1968: Abb. 13) from the Pikkulinnanmäki cemetery, suggested by Meinander (1969: 64-65) to date from the Pre-Roman Iron Age. Such pincettes have been discussed in connection with a find from a *tarand* cemetery in Gärtuna in Östertälje, Sweden, dated mainly to the early Pre-Roman Iron Age (Feldt 2005: 308-309). Another type of find worth mentioning are a few shepherd's crook pins made of bronze, briefly referred to below in connection with the iron ones. One could also speculate whether one spiral-ended bronze pin (KM 10232) found in Vehmaa could be younger than the Late Bronze Age. Meinander (1954b: 50) has pointed out the possibility of such pins still occurring during the beginning of the Iron Age. The context of the Vehmaa find is problematic, but it is rather interesting that the pin was found in a stony area or stone setting described as containing lots of red sandstone (Kivikoski 1937a: 59). The use of red sandstone in grave constructions is a feature occurring during the Early Iron Age (Miettinen 1986; 1994a: 159-161; Edgren 1999b: 318). Another spiral-ended bronze pin (KM 19000:5385) likely to date from the Pre-Roman Iron Age has been found at the Mahittula site in Raisio. Mahittula is a Middle and Late Iron Age cemetery, but the material also contains older finds, like Morby Ware pottery.

[107] The probablitity of some Finnish Early Iron Age cemeteries dating to the Pre-Roman Iron Age has also been pointed out by Feldt (2005: 135). The cases mentioned by him are Penttala, Koskenhaka, Pikkulinnanmäki, Kroggårdsmalmen, and Dåvits.

been found (Levinsen 1989: 442). During Period V iron appears in a number of urn graves as well as in hoards, in the shape of pins, small knives and bracelets. Urn graves with iron objects occur especially in southern Jutland and Funen, *i.e.* areas related to the Early Iron Age Jastorf phase of Schleswig-Holstein (Levinsen 1984: 154; 1989: 442; Thrane 1994: Figure 10.15). During Bronze Age Periods IV and V, weapons and tools of bronze – such as swords, spears, sickles, socketed axes or socketed hammers – are known from Denmark, but after these periods this group of objects disappears until the middle and late Pre-Roman Iron Age; it is not known whether before this time such tools were made of bronze or iron (*e.g.* Levinsen 1989: 449). For example, the late 4th century BC Hjortspring boat find contained iron swords, spearheads and wooden shafts for socketed axes (Rosenberg 1937: 40-47; *cf.* Randsborg 1995). Several finds indicate that iron was locally produced in Denmark during the Pre-Roman Iron Age. It seems that iron extraction developed around 500 BC, which is indicated by several Pre-Roman sites with finds of slag recorded from all over Jutland (Nørbach 1999: 237-238). Classic sites are, for example, the Bruneborg site in Jutland where slag and roasted bog iron has been found, and the Frogstrup site where pits with charcoal and slag have been found; at both sites the material is related to pottery from the Pre-Roman Iron Age (Levinsen 1989: 450-451). The amount of this early production is difficult to estimate. Probably iron and iron technology was introduced gradually, meaning that both the material and the technology were known for centuries before they became dominant.

In central Sweden excavations during the 1980's revealed new information with regard to the earliest dates of iron working sites. Such sites in Uppland were dated to the Late Bronze Age, and the early dates were supported by radiocarbon dated sites in Södermanland and Östergötland (Hjärtner-Holdar 1989; 1993a: 167-169; 1993b). These sites are linked to a Bronze Age environment, and on several of them evidence of bronze casting has been found. The new settlement site data also led to re-interpretations of some early iron and bi-metallic objects. One well-known example is the socketed axe from Ocksarve on Gotland. It is made of iron, but covered with a thin layer of bronze. This object is probably not an import, as previously believed; bimetallic objects made of iron and bronze are well known from the Lusatian culture, but in these, different parts of the objects are usually made of different metals (Hjärtner-Holdar 1989: 146). Other Swedish objects with an iron core overlaid with bronze are, for example, local types of Gotlandic brooches from the Pre-Roman Iron Age. A Bronze Age bowl with iron supports from Härevi in Uppland is also often mentioned, as is a bronze sword from Svärta in Södermanland repaired with an iron rivet. In addition to these classic finds, several others have been revealed. The number of Swedish iron or bi-metallic objects or fragments discussed in Bronze Age contexts is in fact close to 200, more than a fourth of which can be dated to period V or earlier (Hjärtner-Holdar 1993b).

In Poland, local iron production started to develop during the late Hallstatt phases, *i.e.* the late Period V and Period VI of the Scandinavian Bronze Age (Jażdżewski 1965: 120). The early iron objects in Poland are numerous; already in the 1970's 220 objects with a dating in the range of 700-400 BC were documented (Pleiner 1980: 388). Finds from the eastern part of the Baltic area are sparser. In Lithuania, the earliest imported iron implements are from the middle of the first millennium BC or around 300 BC and the earliest examples of iron technology (slag and discarded iron items at settlement sites) from the final centuries BC (Grigalavičienė 1995: 261, 268; Steponaitis 2000: 60). The earliest iron extraction furnaces, dated to the 2nd to 4th centuries AD, have been found at the Spietiņi settlement site (Peets 2003a: 79-80). In Latvia, finds related to developed Late Bronze Age and Early Iron Age bronze casting have been found at the Brikuļi fortified settlement (Vasks 1994c), but evidence of early iron metallurgy is missing. One iron extraction oven, with a slag-pit outside, is known from the Latvian Early and Middle Iron Age settlement site Jaunlīve. No direct dating is available, but a radiocarbon dating of 1610 ± 100 BP for a nearby charcoal pit, and the artefacts found, suggest a dating from the 3rd to 5th centuries AD (Atgāzis 1994).

From Estonia there are a couple of iron objects probably datable to Period V or VI – an iron awl from the Iru settlement (Lang 1995c: 55; Fig. 5:17) as well as a knife and an awl from the fortified settlement Asva on Saarenmaa; similar awls dated to Period VI or the early Pre-Roman Iron Age have been found from a few other sites (Peets 2003a: 51). One early Pre-Roman site is the Jäbara A cemetery where an iron knife, an iron bracelet, a La Tène sword and an iron awl were found, dated according to accompanying bronze ornaments to the third quarter of the first millennium BC (Schmiedehelm 1983: 31-35; Peets 2003a: 51; 2003b: 214). Evidence of Late Bronze Age or Pre-Roman local iron working is, however, sparse. Beside slag lumps from the above mentioned Iru and Asva sites, no proof of that early iron working has been discovered; the earliest examples of iron working are from the end of the Pre-Roman Period (Ligi 1993: 14) or the beginning of the Roman Iron Age (Peets 2003a; 2003b). Starting with the second century BC, iron ornaments, tools, and weapons begin to occur in larger amounts in the graves. The period between 500 and 200 BC in Estonia should be seen, according to Lang (1996), as a transition from the Bronze Age to the Iron Age, not only with regard to the occurrence of iron, but in economic terms in general. Iron extraction sites found, however, have been dated not earlier than to the very end of the Pre-Roman Iron Age or first half of the first millennium AD. The earliest ones, according to radiocarbon dates, are the sites at Tindimurru, Puiato and Metsaküla (Peets 2003a: 51-62, Fig. 118; 2003b: 214-215). The first half of the first millennium AD is the period when a rapid development of local smithery took place in Estonia, which can be seen as a development of types of objects as well as smithery techniques and the quality of raw materials (Peets 2003a: 232, 267; 2003b: 222).

According to Peets (2003a: 79), iron production in the north follow a certain pattern, where (after the initial introduction of iron) the Early Iron Age – more specifically the late Pre-Roman Iron Age and the Roman Iron Age – seems to be the period when iron technology developed and extraction became generally spread. What the effect of the introduction or development of iron technology could have been with regard to other changes detectable (from the point of view of this study) especially in the Early Iron Age is not easily explained. It is, however, unlikely that changes in settlement pattern or grave rituals could have been initially triggered or affected by the coming of iron. Rather, the process of transition towards the Iron Age should be understood as a dialectical process, involving several factors, maybe including changes in the subsistence economy and climate but also in internal and external relations. It is possible that iron played a role in the process, but it was only one of many factors contributing to this period of change. One point with regard to the introduction and development of iron technology is that it was a long-term process. This process constituted first of all a general increase in the number of objects made of iron, secondly a gradual increase in the range of objects made of iron and the amount of iron produced. There was no sudden burst of iron technology and use of iron, but the raw material slowly gained more and more importance. In the archaeological material this can be seen as a gradual increase in the indications of iron technology, from the first occurrence of iron objects to slag and iron extraction ovens, and finally signs of larger-scale production. These stages, representing the increased complexity of elements in the process of the introduction of iron, originally described by Pleiner (1980; *cf.* Levinsen 1984: 158-159; 1989: 447-449), can still be used to exemplify the spread of the new technology to northern Europe. Single objects and a general knowledge of the technology spread quickly, but there was a long delay before iron reached the level of organised production.

5.3.3. Early iron technology in Finland

It has been suggested that iron technology spread to both Finland and Estonia from the west, *i.e.* from Sweden. The words for iron – *rauta* (Fi.) and *raud* (Est.) – seem to be derived from a Germanic word (*cf.* Sw. *röd*, 'red') related to the colour of soils rich in iron. The Finnish form of the word could in principle be a Baltic loan (the form *raudà* occurring in Lithuania, for example) but the Baltic words do not specifically contain the meaning of iron or ore (Itkonen & Joki 1976: 750-751; Häkkinen 2004: 1032-1033). With regard to the archaeological material the picture is also rather complicated, as the oldest iron extraction furnaces and other traces of ancient iron working have been found in the northern part of Finland (Kehusmaa 1972; Schulz 1986; Kotivuori 1996; *cf*. Peets 2003a: 76-79). This was an area influenced throughout the Early Metal Period by eastern contacts. It is most likely that iron was introduced to the northern and eastern parts of Finland along the same routes that had brought bronze technology to the north (*e.g*. Mäkivuoti 1987: 59-63). There seems to be a parallel situation if comparing the evidence of Late Bronze Age bronze technology and Early Iron Age iron technology. The similarity lies in the fact that indicia of bronze casting – indicated by the occurrence of casting moulds – as well as proof of early iron extraction are more evident in the northern and eastern parts of the country than on the coast.

Classic sites in the north are the slag containing Kemijärvi Neitilä settlement site, dated on the basis of ceramics to the Pre-Roman Iron Age (Kehusmaa 1972: 80-88), as well as the Kajaani Äkälänniemi extraction furnace, radiocarbon dated to the 4th century BC (Schulz 1986).[108] Later a couple of other important sites, similar to that of Äkälänniemi, were revealed. At both the Riitakanranta and Kotijänkä sites in Sierijärvi, a box-shaped extraction furnace made of stone slabs as well as remains of a simple cupola oven have been excavated (Kotivuori 1996: 108-111). The Riitakanranta furnaces have been radiocarbon dated to around the turn of the last millennium BC and the first millennium AD; one dating from a nearby settlement site suggests the date of about 200-400 AD. This is comparable to the datings from the Kotijänkä site, which is about 2000 years old. An Early Iron Age date has also been suggested for a rectangular iron extraction construction from Kitulansuo in Ristiina (Lavento 1996; 1999; 2001: 127).[109] Likewise in Russian Karelia, east of Finland, the earliest signs of iron production – in the form of slag and iron

[108] There has been some confusion concerning the radiocarbon samples from the Äkälänniemi furnace. The conclusion, however, seems to be, that the dating 2220 ± 100 BP (Hel-2098) is related to the furnace and dates it to the Early Iron Age (Schulz 1999: 221).

[109] The age of the Kitulansuo furnace is problematic as two radiocarbon dates indicate a dating to the Merovingian Period or later. Lavento (2001: 127) has referred to the possibility of contamination and still held a dating to the first half of the first millennium AD more probable.

extraction furnaces – have been dated to the second half of the last millennium BC or the first half of the first millennium AD (Kosmenko & Manjuhin 1999).[110]

In the southern and western part of Finland traces of early iron extraction are more modest; finds of Early Iron Age extraction furnaces are almost lacking and iron technology is usually indicated by slag alone. The dating of slag in settlement site contexts is not always clear, but it may be noted that pieces of slag have been found together with Morby Ware at Böle in Porvoo, Luistari in Eura and Koivumäki in Nousiainen (Edgren 1993a: 156-158; 1999b: 326; *cf.* Meinander 1949: 102; Hirviluoto 1985: 58; Salo 1995b; Lehtosalo-Hilander 2000: 109-113). This indicates the presence of Early Iron Age – probably even Pre-Roman – iron technology in southern Finland as well, but the forms of extraction and the scale of production is so far impossible to figure out. The only coastal sites where unquestionable remains of early iron extraction or forging have been found are Holsterbacken in Maalahti and Pörnullbacken in Vöyri, both situated in Southern Ostrobothnia. At Holsterbacken at least three pit-shaped iron extraction structures were identified (Miettinen & Vuorela 1988: 50). The only radiocarbon dating available from the site gave the result 1680 ± 110 (Hel-2549), *i.e.* 50-650 AD. As the probability ranges are that wide, the site may belong to the Roman Period (*cf*. Rubensson 2002: 195), but it could as well be younger. At Pörnullbacken the dating related to iron working is more convincing, as the result 1900 ± 65 (Ua-9179), *i.e.* 50 BC – 320 AD, was obtained from charcoal inside a structure interpreted as a forge (Rubensson 2002: 206-209; Herrgård & Holmblad 2005: 161). The structure itself is interesting as the box-shaped form is reminiscent of the extraction furnaces discussed above. The fact that iron extraction has been practised somewhere at the site is indicated by slag, which according to metallurgical analyses derives from both extraction and forging (Rubensson 2002: 208-209).

After the initial Early Iron Age period of iron production, evidence of local iron extraction is still meager in Finland. The later development of iron technology is not possible to discuss in detail here, but in general there seems to be a change

[110] In addition to the cases above, Lavento (2001: 127) has mentioned the Rakanmäki site in Tornio in the same context where he discusses early iron extraction furnaces. As the reader may have the impression that the Rakanmäki site also contained a furnace, it should be clarified that this is not the case. There is evidence of iron technology in the form of slag and burned clay as well as one spade-shaped iron currency bar, but no furnace remains (Mäkivuoti 1987: 62-64; 1988: 41). Also the dating may need a comment. According to Lavento (2001: 127; *cf*. Mäkivuoti 1988: 44), the site can be dated roughly to between 1 and 400 AD. This dating refers to the radiocarbon dates from the site, while it has been given a dating from the 3rd to the 9th century on the basis of shore displacement chronology and the artefacts found (Mäkivuoti 1987: 64). The spade-shaped iron currency bar, for example, is of a type generally dated from the Migration Period to the Viking Age (Hallinder & Haglund 1978: 33-34).

in the geographical distribution of indicia related to local iron production. Some extraction sites now occur in more southern parts of the country while the evidence from the north is sparser. In the area of Kainuu, for example, there seems to be a break in iron extraction after the Äkälänniemi find. The next furnaces in the area have been dated to the 10th century cal AD, after which iron production in the light of radiocarbon-dates continued until the present (Lavento 2004a: 71).

5.3.4. Iron objects

One of the oldest Finnish iron finds is an Ananjino type knife from Kotijänkä in Sierajärvi in northern Finland, dated on the basis of comparative eastern objects and AMS-dated crust on pottery found next to it to the 8th to 5th centuries BC (Kotivuori 1996: 108-109). From the northern part of the country also a classical find of two curved daggers must be mentioned, probably originating from North Caucasia or the South Russian steppes and belonging to the 5th or 4th century BC (Erä-Esko 1969; Rech 1973; Salo 1984a: 196-197; Peets 2003a: 76). These artefacts illustrate what has already been stated in the case of iron production, *i.e.* the eastern impact of early metal technology as well as imported objects evident in the northern part of Finland.

From the point of view of southern and western Finland several groups of artefacts can be included in a discussion on early iron objects.[111] One such group is iron bracelets, evidently belonging to the early stage of iron manufacturing. Two such bracelets have been found at Penttala as well as Tarringinmäki in Nakkila, two at Lauhianmäki in Eura and one at Frönäsudden in Ylimarkku (Salo 1970: 65, 98; 1981: Kuva 116; Kivikoski 1973: Abb. 24; Miettinen 1980: 93; 1986; 1989: 159; 1994a: 159; Lehtosalo-Hilander 2000: 122-123, 127). In Finland the general view has been that some of the bracelets may be of Pre-Roman date, while others belong to the Roman Period (*e.g.* Salo 1968: 106-107). In Estonia there have been found no less than 36 iron bracelets; it has been suggested that massive bracelets belong to the beginning of the Iron Age while narrower samples were in use throughout the Pre-Roman Iron Age (Lang 2000a: 140-141). One problem with regard to this classification is that these bracelets – at least in Finland – are often badly preserved.

[111] The object categories discussed in this chapter do not cover all potentially Pre-Roman iron objects. For example, the sickle-knives (discussed earlier in the Paimio Spurila case) have been left out, like various single finds of indistinct form. Some iron objects, possibly dating from the Early Iron Age have, for example, been revealed at the Böle settlement site. These include two iron knives and one iron arrowhead (Edgren 1996b: 73-74; 1999b: 318).

Another type of early iron object is iron pins, which can end in a spiral or a ring or in the form of a shepherd's hook. These were probably dress adornments, but it has also been suggested that the shepherd's crook pins could have been functional items used when spinning thread from wool (Luoto 1992; 2004: 48).[112] Iron pins, shepherd's crook pins in particular, were in use during both the Early and Middle Iron Age. Among the probably earliest Finnish examples are two pins with a ring-shaped end from Kuusisto in Nakkila and Karimaa in Noormarkku (Salo 1987: Fig. 3). Both have been found in a cairn. The Kuusisto pin has been regarded as dating from the end of the Bronze Age or the beginning of the Pre-Roman Iron Age (Salo 1981: 270, Kuva 116) and the one from Karimaa as dating from the Early Roman Iron Age, with the reservation that it could possibly be from the last century BC (Salo 1987: 67). The late dating of the Karimaa pin most of all seems to be due to the general idea that cemeteries containing gravegoods usually do not predate the Roman Period (Salo 1987: 66-67). The artefact as such could, however, be much older. In Estonia ring-shaped pins belong to the end of the Bronze Age and the early Pre-Roman Iron Age (Lang 1996: 285-288). A surprisingly late dating has also been attributed to an iron pin with spiral-shaped head from Penttala in Nakkila. Also this pin represents a form deriving, in principle, from the Bronze Age. The relationship between the Penttala pin and Late Bronze Age and early Pre-Roman Iron Age spiral-ended pins was recognized by Salo (1968: 98, T. 37:3) when discussing the Penttala finds, but still the artefact has been dated in accordance with the idea that the entire Penttala cemetery would date from the Early Roman Iron Age. This is probably not correct. Rather some of the Penttala finds indicate an earlier use of the site, including deposition of gravegoods as early as the Pre-Roman Iron Age.[113] A Pre-Roman dating seems the most likely also in the case of a spiral-ended pin found at the Böle settlement site in Porvoo (Edgren 1996b: 73-75).

112 The idea is that the pins would have been used to fasten the wool to a board, from which it was spun. In accordance with the linkage between the pins and wool it has been suggested that this form of pins would indicate the importance of Early Iron Age sheep farming in comparison to the increased impact of cattle during the later part of the Iron Age (Luoto 2004: 48).

113 From the same context as the spiral-headed pin comes a dagger, originally dated by Salo (1968: 129-130; 1984a: 193-194) accordingly to the Early Roman Iron Age. The dagger was previously compared by Šturms (1935: 266) with a short sword from Jäbara in Estonia, dated with reference to Celtic swords to the early Pre-Roman Iron Age. The Jäbara finds are still considered as belonging to the early Pre-Roman Iron Age and (among other finds) the sword has been regarded as one of the earliest iron objects in Estonia (*e.g.* Peets 2003a: 51; 2003b: 214). The Penttala dagger and a few other early iron artefacts were later discussed by Salo (*e.g.* 2004b: 151) as Pre-Roman types of objects, but still with the comment that the Finnish contexts of such finds are Early Roman (50-200 AD). Another view would obviously be that the Pre-Roman objects underline the necessity of re-thinking the dates of the contexts, as in the case of Penttala.

The pin was found in an excavation area where the youngest settlement phase was represented by epineolithic pottery (Strandberg 2002: 212).[114]

At Penttala at least one pin with an end shaped like the typical shepherd's crook pin also occurred; the shape of another pin is more indefinite (Salo 1968: T. 38:1, T 40:2). These two examples are the only pins made of iron, which have been dated to the Early Roman Iron Age – most of these pins are from younger contexts (Luoto 1992: Liite 1).[115] Whether some pins could be even older than the Early Roman Iron Age has not been considered. For example, Jukka Luoto (1992) has – with reference to Lõugas (1971) – held the position that shepherd's crook pins do not predate the Roman Period – not in Finland, Estonia, or the other East-Baltic states. As stated above, the Penttala context could be older than previously thought, and the possibility of an old dating was also insinuated above in the case of one pin from the Vanhalinna hill-fort. The latter was compared with Estonian finds, some of which actually occur in hill-fort contexts. Even in Estonia this group of artefacts is, however, not easy to date; the current view is that shepherd's crook pins were introduced in the late Pre-Roman Iron Age, but stayed in use during the Roman Iron Age and even later (Lang 1996: 55, 288-289; 2000a: 141-142). In addition to what has been stated above regarding different types of pins, one should once again remember Dåvits. The possibility of iron pins occurring in Pre-Roman contexts in Finland is suggested by the fact that iron fragments – probably from pins – also occurred in the Dåvits cemetery (Meinander 1969: 39).

An important find with regard to other types of iron objects is the late Pre-Roman hoard find from Malmsby in Pernaja, which includes tenon axes, a socketed axe, spearheads as well as sickles and scythes (Meinander 1949: 102-103; Salmo 1953; Salo 1968: 83, T. 48-50; Salo 1984a: 191). The composition of the find has been desribed as "local" (Salo 1984a: 192) – some of the finds have even been regarded as probably made by "local" blacksmiths (Peets 2003a: 76). These interpretations are evidently based on the mixed combination of Finnish or East-Baltic tenon axes together with spearheads of supposedly Gotlandic origin (Salo 1968: 131-138; 1984a: 191). The early dating of especially the long narrow spearheads included in the hoard gains some confidence from the fact that such spearheads do not occur in Finnish Early Roman Iron Age cemeteries. There is only one other find

114 As in the Penttala finds, the Böle spiral-ended pin (as well as the abovementioned necklace with cone-shaped ends and the serial bracelets, for example) were also earlier dated to the Early Roman Iron Age (*e.g.* Hirviluoto 1985: 63).

115 A further question is how shepherd's crook pins made of bronze should be dated. In Finland such pins occur in contexts dated to the Early Roman Iron Age at Pikkulinnanmäki in Porvoo (Hirviluoto 1968: Abb. 12), Kroggårdsmalmen in Karjaa (Salo 1968: Taf 4:1) and Spurila in Paimio (2 pins) (Luoto 1992: Kuva 6). All of these are cemeteries where features possibly originating from the Pre-Roman Iron Age also occur.

discussed in the context of such spearheads: a long, narrow spearhead from Hölsö in Ylistaro, differing from the Malmsby objects as it has a pointed ridge (Salo 1968: 89; *cf*. Hackman 1905: Tafel 17:6). Other Early Iron Age spearheads have normally been attributed to the Roman Period, when they occur frequently.

The Malmsby hoard from Pernaja contains two 15-18 cm long sickles and three 25-35 cm long scythes. According to Salo (1968: 166-167; 1984b: 94), their forms resemble similar objects found in Belarus and the East-Baltic area. Within Early Iron Age agriculture it seems that the most important innovation was in fact the scythe, as sickles had already been made of flint and bronze. Scythes do not occur in Roman Iron Age graves (Salo 1968: 167), which underlines the importance of the Malmsby hoard. Generally the whole composition of the find is interesting from an economical point of view, as the appearance of both iron axes, sickles and scythes indicates increased opportunities for field clearance and harvesting (*e.g*. Luoto 2004: 38). During the Early Roman Iron Age small sickles continue to occur on the Finnish coast in female graves (Salo 1968: 165-167, 224). Towards the Late Iron Age, sickles grew bigger and scythes begun to occur frequently, especially in the Viking Age. Salo (1995a: 22) has interpreted this development as indicating the minor importance of cereal cultivation in the Early Iron Age and its increase during the later parts of the Iron Age. According to Salo, cultivation grew in importance towards the Late Iron Age, when winter fodder was also used more than before. The occurrence of special agricultural items such as scythes and sickles (as well as ball-shaped quern stones) during the Early Iron Age must, however, indicate some degree of importance of agriculture. The size of the items is probably not the most conclusive factor. The early iron implements copied earlier cutting edges; the development towards more functional forms and sizes, made possible by the qualities of the new material, followed later. The importance of agriculture is in fact highlighted by the fact that agricultural tools were among the first to be made when iron technology became known.

With regard to the dating of sickles, it can be noticed that sickles occur frequently in Early Roman Iron Age cemeteries. Whether some finds may be older than that is difficult to prove, but it would seem likely, as the sickles are quite typical late Pre-Roman cemetery finds in Sweden, for example (Björk 2005: 71). In Estonia the general view has been that the iron sickles found in cemeteries date to the beginning of the Early Roman Iron Age at the earliest (*e.g*. Laul & Tõnisson 1991; Peets 2003a: 228). Some broad sickles (best known from a couple of bog finds) have, however, been compared with Swedish late Pre-Roman forms (Tamla 1995: 104). One early example in a cemetery context is the broad sickle from Poanse (Mandel 1978). In Finland early samples – except the Malmsby find – are more difficult to point out. Maybe (once again) the Penttala cemetery contains a comparably early sickle, representing a broad-bladed form with early Pre-Roman parallels on Gotland (Salo 1968: T. 36:3; 1984a: 194; 1997: 95; 2004b: 151). Fragmentary broad sickles also occur in the material from the Kroggårdsmalmen cemetery in Karjaa (Salo 1968: T. 1:2, T. 6:6; *cf*. Tamla 1995: 104). Another find that comes to mind is a fragmentary sickle (TYA 175:6) from Vermuntila in Rauma. The sickle, dated to the Early Roman Iron Age (Salo 1981: 121) is the only metal find from a cairn. What may indicate an early dating are pieces of epineolithic pottery occurring in the Vermuntila cairns.

In a way, the Vermuntila case designates the need of – and at the same time the prospect of – further studies into the chronology of Early Iron Age cemeteries and metal objects. The occurrence of cremated bones possible to radiocarbon date give the possibility of dating the Vermuntila find, and could help refine the chronology in many other cases as well. It is easy to predict that this possibility of dating will become increasingly important for Early Iron Age studies in the future. Some rethinking could also be done without the aid of archaeometry. The chronological interpretations of artefacts (both bronze and iron ones) presented above, have in many cases been hampered by the fact that the theory of settlement continuity has not influenced the chronological interpretation of cemeteries as much as one would have expected. Many potential Pre-Roman artefact types have been dated primarily to the Roman Period, one point being that cemeteries containing grave-goods started to occur during that period. This seems like a classical circular argument. In the future, we are likely to see an increased discussion on the Finnish Pre-Roman Iron Age, involving – finally – the rejection of the idea of an abrupt start of deposition of grave-goods during the Early Roman Iron Age.

5.3.5. More on Early Iron Age axes – including a closer look at cuneiform axes

The Early Iron Age axes can be divided into three main types: socketed axes, tenon axes and cuneiforn (or wedge-shaped) axes. The cuneiform axes represent the most primitive type of axes with a shafthole, later to occur in more complex forms. From a Finnish point of view, socketed axes and tenon axes have been dealt with on many occasions, while the cuneiform axes have been overlooked. The most common Finnish Early Iron Age axes are the socketed ones, a type found in the East-Baltic area as well as in Sweden, for example. The most interesting shapes are the ones with an eyelet or loop on the side of the axe, carrying on the form of Bronze Age socketed axes. In Finland all such finds, less than ten in all, are single finds or found in contexts that do not provide the possibility of exact dating. The origin of the type must, nevertheless, belong to the very beginning of the Iron Age

(Salo 1968: 160; 1984a: 192). A Pre-Roman dating at the latest is implied by one such axe (Salo 1968: T. 45:2) found at the Böle site in Porvoo, where the most important Iron Age settlement phase is indicated (in addition to radiocarbon dates etc.) by the occurrence of Morby Ware. Among the Baltic Finns it seems that it was specifically the slim Late Bronze Age Mälar-type axe that was copied into iron (type I:1, according to Salo), while the Swedish axes (type I:2) represent a different, broader form (Meinander 1954b: 32; Salo 1968: 159-163; 1984a: 192; 1984b: 91; Kuzminych 1996: 23).[116] Socketed axes later developed into forms without the characteristic loop and stayed in use until the Merovingian Period. According to Luoto (2004: 38), who has dealt with the subject most recently, Roman Period axes have been mainly found on the coast while axes found in Migration Period contexts are characteristic of Satakunta and Häme.[117]

The second iron axe type belonging to the Pre-Roman Iron Age is the 'tenon axe', *tappikirves* (Fi.) or *Zapfenbeile* (Ge.). In addition to the Finnish finds, the type is known only from a few sites in Estonia, one from Latvia (*e.g.* Vasks 2001: 144, att.: 3) and one from northernmost Lithuania (Kulikauskas 1961: 114 pav: 1). The Lithuanian axe differs slightly in form from the others, but is usually regarded as belonging to the same group. The type is best known from the eight axes in the Malmsby hoard; in addition to these only two similar axes have been found in Finland, one of which from an area in ceded Karelia, *i.e.* present-day Russia (Salo 1968: 164-165; Kivikoski 1973: 26, Abb. 58). The area of distribution suggests that the type may have originated in the area around the Gulf of Finland. With reference to the Malmsby find, this type of axe can be dated to the Pre-Roman Iron Age. A Pre-Roman dating is most probable also in the case of the axe found in cairn A at Järnvik in Pohja together with Morby Ware (Salo 1968: 84, T. 9:4-8).

The third of the main Early Iron Age axe types occurring in Finland is the cuneiform axe (*cf*. Wuolijoki 1972: Kuva 28; Kivikoski 1973: Abb. 882), which has been identified in four cases.[118] The problem with regard to the Finnish axes has been that one object of this type, from Ilomäki in Loppi in the province of Häme, has been interpreted as a Viking Age cemetery find (Kivikoski 1951: 20, Kuva 827; Wuolijoki 1972: 26). The cuneiform axe has thus ended up among Viking Age objects in Finnish atlantes picturing Iron Age object types (Hackman 1900; Kivikoski 1951; 1973). In accordance with this, Finnish cuneiform axes have generally been dated

116 An exceptional find is an unsymmetrical, socketed iron axe with a loop from Otaniemi in Kannonkoski, which may reflect influences of eastern bronze axes (Salo 1984a: 196).

117 The study by Luoto (2004: 39-45) includes a catalogue of Finnish and Swedish socketed axes.

118 The Finnish finds comes from Ilomäki in Loppi (KM 3144:2), Pöhlökangas in Pihtipudas (KM 8702:10), Palojoki in Nurmijärvi (KM 9227) and Hirvensalo in Turku (TMM 15740).

to the Viking Age – in the Ilomäki case even recently (Matiskainen & Ruohonen 2004: 92-93). From the point of view of the Kemiönsaari study the cuniform axes originally drew attention as one such axe is an archipelago find from the island Hirvensalo in Turku. Also the Hirvensalo axe had earlier been dated (in accodance with the general dating applied for the type in Finland) to the Viking Age (Tuovinen 1994: 40; *cf*. 2002a: 55). The Viking Age dating of these axes is, however, confusing. The simple form of the axes (Fig. 109) differs totally from the general forms of Late Iron Age axes and – what is most important – the same type of axe occurs in Early Iron Age contexts in Estonia and Latvia.

One axe (AI 2617:40) of the type in question is present in the find material from the Jäbara C cemetery in northern Estonia, in a context confidently dated to the Early Iron Age – most recently to the late Pre-Roman Iron Age (Jaanits *et al.* 1982: 232-233; Schmiedehelm 1983: 38-40; Lang 1996: 288-290, 301; 2000a; 143; Kriiska & Tvauri 2002: 129). There are also some other Estonian axes of the same type. An old find is the axe from Kunda in northern Estonia (Riga Katalog 1896: 21, Tafel 22:12; Lõugas 1985: Abb. 2:1; Tamla 1995: Abb. 6:7). This is a moor find, the find context of which cannot give a reliable age, but the axe has been regarded as dating from the first or second century AD (Lõugas 1985: 59). This seems to be the general dating often ascribed to these axes before, but in more recent discussions a dating to the Pre-Roman Iron Age has been more accentuated (as in the Jäbara case). With regard to dating, axes found in cemetery contexts

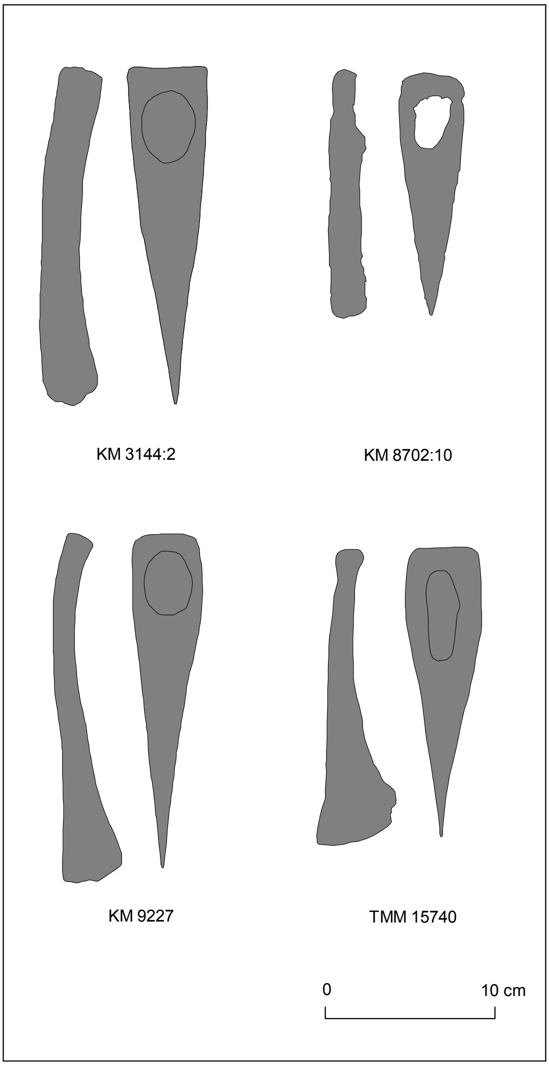


Fig. 109. Finnish cuneiform axes from Loppi (KM 3144:2), Pihtipudas (KM 8702:10), Nurmijärvi (KM 9227) and Turku (TMM 15740).

are the most interesting. One such find is an axe found in the Tandemägi *tarand* cemetery at Võhma in northern Estonia (AI 5074A: 37; Moora 1974: Tablica IV: 20; Lang 2000a: 143, Joon. 56). The whole cemetery was originally dated to the beginning of the first millennium AD (Moora 1974: 86-87). According to current chronology, an older and broader dating would seem more appropriate as the cemetery contains Bräcksta type necklaces, simple bronze bracelets, iron bracelets and shepherd's crook pins (*cf*. Moora 1974: Tablica IV) datable to a period from the early Pre-Roman Iron Age to the Early Roman Iron Age. The context of the cuneiform axe is one of the youngest within the cemetery, dated to the late Pre-Roman Iron Age or the Early Roman Iron Age (Lang 2000a: 145). In connection with the discussion of the Tandemägi axe four other Estonian axes of an associate form have been mentioned One is a stray find from the area of Viljandi, one comes from the Suka cemetery near Abja, one from the Presti cemetery in Rebala and one from a cemetery in Karuste on the island Saaremaa (Lang 2000a: 143). The Karuste axe (Moora 1956: Joon 16; Vassar 1956: 169, Joon 37) had earlier been dated to the first or second century AD, but also in this case the dating of the cemetery was later changed; it is now dated to the late Pre-Roman Iron Age and the Early Roman Iron Age (Lang 2000a: 143). In addition to these axes there is at least one more (a stray find), from Paduvere in Jõgeva (Lõugas & Selirand 1989: 174, 179-180; *cf*. Ciglis 2003: 115).[119]

More examples of cuneiform axes can be found in Latvia, where they form a distinctive type of their own among the earliest Latvian Iron Age axes (Ciglis 2003; *cf.* Graudonis 1967: 103, Tablica XXVII: 6; 1968: V tabula: 13; 2001: 134. att: 5). A total of 11 cuneiform axes are known, eight of which are single finds. Thus most of the axes have been found in Latvia and Estonia, which could hint in the direction that the origin or main production area of these axes should be sought in this region rather than along the Gulf of Finland, as suggested in the case of the tenon axes (Fig. 110). The matter is, however, more complicated, as cuneiform axes are known also from Lithuania (Malonaitis 2005), Belarus, the westernmost part of Russia and even Ukraine. It has in fact been suggested that this type of axe is originally Scythian (Graudonis 1967: 103; *cf.* Lõugas & Selirand 1989: 180; Lang 2000a: 144; Ciglis 2003).

119 In connection with the Paduvere axe, another similar axe, found as a stray find at Palamuse in the Jõgeva area, has been mentioned (Lõugas & Selirand 1989: 174, 180). Whether the second axe represents the cuneiform type cannot be confirmed as no picture has been published, but judging from the direct comparison with the Paduvere axe, this seems likely. Ciglis (2003: 115) has noted the Paduvere axe, but unfortunately recorded it with a wrong reference. The Palamuse axe, however, is not among the axes listed by him.

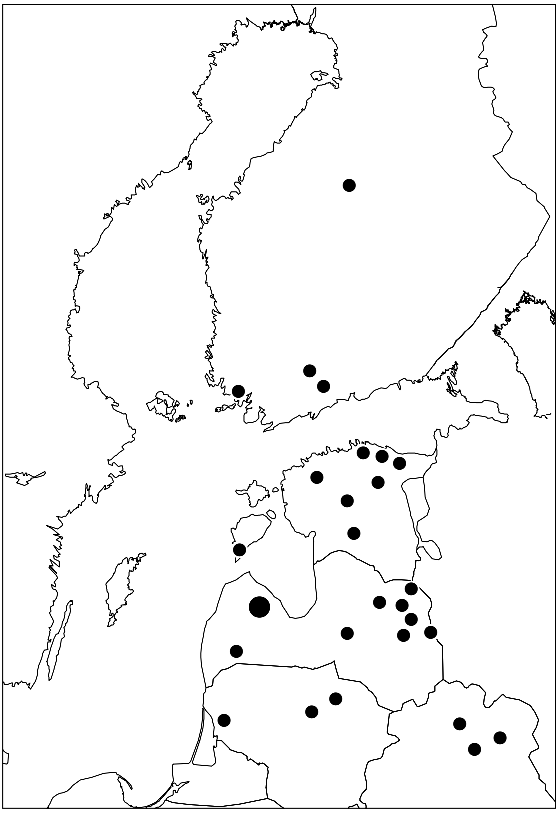


Fig. 110. Distribution of cuneiform axes in the Baltic area. Redrawn from Ciglis (2003: Ris 1), with corrections and additions.

One aspect of this type of axe (as well as other Early Iron Age axe types) is that many of them are single finds. This accounts for all the Finnish and Lithuanian samples and most of the Latvian ones. In Estonia (as referenced above) five axes are cemetery finds. In Latvia three cuneiform axes have been found in a cemetery context, but they are all from the same Stradze *tarand* cemetery in Curonia. In this case the oldest finds – including (among other things) the cuneiform axes and a spoon-shaped temple ornament – have been redated according to current chronologies and are regarded as belonging to a period from the 3rd to the 1st century BC (Vasks 2006: 102).[120] With regard to the differences in find contexts – involving many single finds – it is not easy to give any good explanation, but the occurrence of many of these early axes in stray find contexts points in the direction that early iron axes were intentionally also deposited outside cemeteries.

It is evident that the Estonian and Latvian axes must be taken into account in evaluating the dating of the Finnish cuneiform axes – even more so since the dating of the Loppi find is actually unfounded (Asplund 2000: 62). It appears that the axe was not found as a closed find in the Viking Age cemetery itself but in a nearby field, meaning that the find context cannot be used for a contact dating. The Finnish cuneiform axes thus must be dated according to the Estonian and Latvian parallels

[120] The Stradze cemetery was excavated by Sergej Bogojavlenskij in 1896. The finds (inventory number 35564) have been kept at the State Museum of History in Moscow. These facts have been presented according to personal information provided by Andrejs Vasks. A couple of the Stradze finds – a necklace with small cone-shaped ends, the decoration of which is reminiscent of the Bräcksta type, as well as one cuneiform axe – have been published by Moora (1952: Ris. 7: 7-8).

to the Early Iron Age.[121] The spread of the type in the Baltic area could have occurred in the late Pre-Roman Iron Age at the latest, as several of the cemetery contexts can be dated to this period. As mentioned above, the form of the axe has been traced southwards. An innovation from far away could be a possible explanation for the form of these axes, as there seems to be no common shaft-hole axe typical of the Bronze Age in the Baltic area, which could have served as stimulus for the form of the cuneiform axe. Such shapes are rather found among the simple shaft-hole axes of the Late Neolithic. At present there is no way of combining these forms of stone axes with the cuneiform ones made of iron. It is interesting, however, that when the cuneiform axes represent the first form of iron axes with shaft-holes, they equally represent the last phase of simple shaft-hole axes.

Even though the axes form an easily discernible group, it should also be emphasized that there is variation – especially with regard to the axe head, the relative width of the shaft-hole, the side profile of the blade and the form of the cutting edge. One could speculate, whether there could be a chronological relevance with regard to this variation. The Hirvensalo axe, for example, differs from the other axes as to the width of the blade and the form of the shaft-hole.

5.3.6. Other artefacts

In addition to metal objects a few object categories and single finds made of other materials also belong to the beginning of the Iron Age. A classical find is a ball-shaped object made of dark red glass or precious stone ornamented in Celtic style and found in Sipoo in the province of Uusimaa (Meinander 1949: 105; Nylén

121 It is rather surprising that Ella Kivikoski – one of the most prominent specialists on Iron Age artifacts – misinterpreted the dating of the cuneiform axes. Cemetery C at Jäbara was excavated as early as 1927 (*cf*. Schmiedehelm 1983: 25) and other cuneiform axes, including their dating, were presented at least in the 1950's and 1960's (*e.g*. Moora 1952; 1956; Vassar 1956; Graudonis 1967; 1968). When Kivikoski (1947) published her first atlas, she acknowledged the pervious work and help by Alfred Hackman, mentioning especially Hackman's (1905) work *Die ältere Eisenzeit in Finnland*. The first book is in fact dedicated to him. It is likely that, apart fom Hackman's later work, an old atlas of prehistoric artefacts compiled by him strongly influenced Kivikoski when she originally chose the objects to be published in her own atlas. In Hackman's (1900: Tafel 67: Fig 7, Tafel 77: Fig 5) atlas the Loppi axe is published on a page containing nothing but Late Iron Age axes, and reference is given to the Late Iron Age artifacts from the Ilomäki site. The Ilomäki find complex is described with the words "*Zum Teil ein unsicherer Fund*", a comment not repeated by Kivikoski. She may later have had doubts about the importance of the dating context of the Ilomäki axe; in the renewed second edition of the atlas, the site of the find is still mentioned, but the dating reference to the Viking Age cemetery has been taken away (Kivikoski 1973: 118, Abb. 882). The axe and its description, however, still remained among the Viking Age artefacts.

1969; Salo 1984a: 197). The object is the only one of its kind in Finland and no exact parallels are available from other parts of Europe either. The ornamentation, however, is typically Celtic. Other artefacts that can be mentioned in a discussion focusing on the Pre-Roman Iron Age form two main groups: objects made of stone and objects made of organic material, which, in the case of Finland, means wooden objects.[122] Among the stone objects, the most typical is the ball-shaped grinding stone, which is a form occurring throughout the Iron Age. Other stone objects occurring over several periods can also be found in Pre-Roman contexts. This includes the possibility of Bronze Age object forms (together with flakes indicative of the use of stone technology) occurring in the early part of the period. At the end of the period, on the other hand, the occurrence of elliptical fire striking stones is possible. In Finland these are usually dated to the Iron Age AD at the earliest, but as the majority is stray finds, some may be older than that. Such stones occur in the Przeworsk and Oksywie cultures as early as the late Pre-Roman Iron Age (Salo 1968: 169; 1990b: 49). Probably the fire striking stone from the Penttala cemetery in Nakkila (Salo 1968: T. 40:3) could be so dated.

The occurrence of grinding stones is a particularly interesting topic – both regarding the Pre-Roman Iron Age as well as other periods, as the quern stones probably reflect the development of crop growing. The history of this type of artefact is older than the Early Iron Age, but there are not many well-dated specimens. According to the literature, grinding stones are known from some Kiukainen Culture settlement sites. Often pictured is a complete set, with an upper and a lower stone, found at the Uotinmäki site in Kiukainen. It has often been stated that the quern stones in particular from the Uotinmäki, Kaunismäki and Saama sites in Kiukainen and Harjavalta are numerous (*e.g*. Salo 1984b: 83, 87; 1997: 64). This occurrence of quern stones at Kiukainen Culture settlement sites has been regarded as very important (with the regard to the general importance of farming), and as a feature underlining the cultural superiority of the Kokemäki River area where these implements have been found (Salo & Söyrinki-Harmo 2001: 60-61). What is important to remember, however, is that the Uotinmäki finds – nine in number (Meinander 1954a: 11, 113-114; Salo 1981: 307; Salo & Söyrinki-Harmo 2001: 60) – are not necessarily from the period of the Kiukainen Culture, as younger finds have also been recorded at the site (*cf*. Carpelan 1973: 196-197). With regard to other sites where early grinding stones occur, the number seems to be rather small; just one stone has, for example, been found at Kaunismäki in Harjavalta and just one at Köylypolvi Aarikka in Kiukainen – in areas outside the Kokemäki River area

[122] Probably due to the bad preservation of bone in acid soils, important objects like the Estonian spade-headed bone pins found in Late Bronze Age and early Pre-Roman Iron Age contexts (Lang 1992) are missing in the Finnish material.

the early quern stones are represented only at the Kärsämäki site in Turku (Salo & Söyrinki-Harmo 2001: 60). It can be noted, however, that Kärsämäki is also a site that has a continuity from the Late Neolithic to the Early Iron Age. What is also surprising is that practically no finds of grinding stones in Late Neolithic contexts have been published after these classical finds – regardless of the fact that several Late Neolithic and Bronze Age sites have been excavated.[123] This is comparable to the situation regarding early quern stones on the Åland Islands where some cases have earlier been mentioned in the literature, but according to Stenbäck (2003: 91) there are in fact no clear cases of Neolithic quern stones in the find materials. The true number of finds of this kind from the time of the Kiukainen Culture – as well as later periods – is thus unclear, as is detailed information on prehistoric Finnish quern stone types and dates in general.

During the Late Bronze Age at the latest a new form – the ball-shaped quern stone – appeared. One well-dated example was found in the Late Bronze Age Rieskaronmäki house in Nakkila (Salo 1981: 308; 1984b: 87). Another find in a probable Bronze Age context comes from the Toispuolojannummi site in Paimio (Vanhatalo 1994: 7). The form is widespread and is mostly related to Iron Age settlement.[124] Such stones in documented Morby Ware contexts have been found in at least five cases (Edgren 1999b: 326), the stones found at the Tappo settlement site in Västanfjärd included as one of them. The same form evidently continued to be used in the Middle or Late Iron Age, or even at the beginning of the Historical Period. The type is also known from cemeteries, where the stones seem to occur in both female and male graves (Hackman 1905: 253-254). In addition to the grinding of grain or other foodstuffs, ball-shaped quern stones may also have been used

[123] One reason may be that the issue of grinding stones has not interested archaeologists recently. There is a possibility that potentially early grinding stones occur, although unpublished. One such is a fragmentary lower stone (TYA 239:1671) found at the Niuskala Kotirinne site in Turku (which is the same site where macrofossile barley dated to the Early Bronze Age has been found). Unfortunately, the Niuskala Kotirinne stone was found in soil mixed by a ditch at the site. It is, however, probable that the griding stone belongs to the same period as the settlement site material in general. The main part of the material is of Late Neolithic / Early Bronze Age character, but Late Bronze Age pottery found nearby as well as radiocarbon dating results suggesting activities at the site during the Late Bronze Age and the Pre-Roman Iron Age should also be taken into account when evaluating the date of the finds (Asplund 1997a: 40).

[124] No statistics as to the total number of finds is available, but a fair guess would be that a few hundreds have been found, as stray finds as well as in different types of sites. The current idea is that these stones really were used as quern stones. In the early 20th century, however, the function of ball-shaped quern stones was still not known – at that time they could be called, for example, *bearbeitete würfelförmige Steine* (Hackman 1905: 252-254).

for the ritual crushing of bones from cremations; this may be one reason why they are also found in grave contexts (Kaliff 1997: 88-90). Ball-shaped querns also occur in other parts of the Baltic Sea area. In Estonia they are often connected with the Bronze Age (*e.g.* Mandel 1993: 21-23) or the Pre-Roman Iron Age (*e.g.* Lõugas & Mägi-Lõugas 1994a: 29-30; 1994b: 391). At the Latvian fortified settlement Brikuļi in the Lubāna lowlands, most of the ball-shaped grain grinders occurred in the earlier layers of the settlement, relating to the first millennium BC and the first quarter of the first millennium AD (Vasks 1994a: 115).

Among the wooden artefacts, a sledge runner of a specific central-ridged type (Fi. *keskiharjallinen jalas* or *harjajalas*) from Puisto in Kullaa (Salo 1965) must be mentioned. It is radiocarbon dated to 2390 ± 160 BP (Tx-125) (Alhonen 1965: 18), *i.e.* 850-50 cal BC. There are some other finds representing the same type, two of which have been radiocarbon dated. Both resulted in a Late Neolithic dating, which gives some indication of the time-span of use of this particular type.[125] During the Early Iron Age a new type of a lighter sledge seems to have developed, the flat runners of which were bent upwards in both ends; one sledge runner of this type has given a Pre-Roman dating and another a most probable date to the Roman Iron Age.[126]

A further important group of wooden artefacts that has yielded Early Iron Age datings is skis.[127] Several types occur, some of which have been in use simultaneously (Taavitsainen *et al.* 2007: 64-75). For example, two skis with flat undersides and low footspaces between carved side lists with binding holes (type B according to Manker 1971) have been radiocarbon dated to the Early Iron Age – about as early datings have also been obtained from types with raised footspaces, without or with a single groove on the underside (types C_1 and C_2).[128] During the Early Iron Age

125 The sledge runner from Harjakangas in Noormarkku has been dated to 3530 ± 110 BP (I-1921) (Alhonen 1967) and the one from Ketlahti in Heinola to 3600 ± 175 BP (Hel-659) (Jungner 1979: 101; Seger 1988: 37-38).

126 The sledge runner from Tarvaalankoski in Laukaa has been dated to 2190 ± 70 (Su-1513), *i.e.* 400-50 cal BC and one from Saarijävi to 1790 ± 80 (Su-1514), *i.e.* 60-420 cal AD (Vilkuna 1999).

127 The presentation of the material and dates below has benefited from a list of skis compiled by Jussi-Pekka Taavitsainen. Most of the dates are also included in Taavitsainen *et al.* (2007).

128 The type B ski from Viitasaari has been dated to 2370 ± 50 (Su-2485) (Vilkuna 1999), *i.e.* 800-350 or 300-250 cal BC and one from Riihimäki to 1950 ± 130 (Hel-23) (Jungner 1979: 7; Naskali 1999: 297), *i.e.* 400 cal BC – 400 cal AD. The oldest datings of C_1 and C_2 skis have been both been obtained from Liperi; a C_1 ski is dated to 2370 ± 140 (Hel-596), *i.e.* 850-100 cal BC, and the oldest C_2 ski to 1670 ± 100 (Hel-1078), *i.e.* 130-600 cal AD (Jungner 1979: 91; Jungner & Sonninen 1983: 13; Naskali 1999: 298-300).

a type of ski with carved edge lists on the underside (type C_4) also seems to have emerged. The oldest radiocarbon datings of this type are from the Pre-Roman and the Roman Iron Age.[129]

In addition to sledge runners and skis only single wooden artefacts of other types have been dated to the Early Iron Age. One such find, which has been radiocarbon dated to the Bronze Age / Iron Age transition 2455 ± 60 BP (Ua-18767) is a wooden spoon from Lestijärvi (Immonen 2002). The dating corresponds to the calibrated date 770-400 cal BC. Apart from wooden artefacts being restricted to just a few types, it must also be recognized that for the most part they have been found only in the interior and northern parts of Finland. Only in Satakunta do sledge and ski finds occur in contexts close to that of the Early Metal Period coastal culture. This distribution could signify that these objects mainly belong to the Early Metal Period features of the inland. On the other hand it seems improbable that dwellers on the coast would not have been aware of objects like sledges and skis, and probably also been using them on hunting trips and journeys in wintertime. With regard to the general question of inland / coast relationships, the probable presence of inland inhabitants on coastal sites – indicated by the occurrence of eastern pottery types at some settlement sites – could be emphasized. The lack of coastal sledge and ski finds could thus be due to different environmental circumstances making the preservation less likely, or the deposition of such objects may have followed another pattern in the inland than in the coastal area. There is only one wooden object dated to the Early Iron Age undoubtedly found in the coastal area. This is not a bog find like most of the inland objects are, but comes from clay sediment formed on the ancient sea bottom. The find is the remains of a wooden (*Alnus* sp.) pot, found during excavations in the town of Turku and radiocarbon dated to 2030 ± 25 (Poz-1843, Poz-1844), *i.e.* 110 cal BC-30 cal AD or 40-60 cal AD (Saloranta & Tuovinen 2004).

[129] A C_4 ski from Sysmä gave the result 2220 ± 100 (Hel-1329), *i.e.* 550 cal BC – 50 cal AD, and one from Kiukainen the result 1950 ± 50, *i.e.* 60 cal BC – 220 cal AD (Jungner & Sonninen 1983: 14; Harjula 1996; Naskali 1999: 304).

5.4. Main site types

5.4.1. Cairns

Cairns are discussed in several parts of this book, starting from chapter 3 with a general overview related mainly to Bronze Age cairns. Throughout the book the significance of Iron Age cairns is also considered, some aspects of which are summarized in chapter 6. From the point of view of the Early Iron Age it can be concluded that the erection of cairns – albeit somewhat different from that of the Bronze Age – continued during the Pre-Roman Iron Age. The common denominators of Early Iron Age cairns seem to be that they are of modest height, sometimes mixed with earth, and have a less prominent topographical location than cairns of the Bronze Age. Features sometimes occurring are four-sided structures (Meinander 1969: 32-35; Salo 1970: 83-94; Edgren 1999b: 318) and the use of red sandstone in the grave constructions (Miettinen 1986; 1994a: 159-161; Edgren 1999b). In many cases one gets the impression that there is a closer connection between settlement sites and cairns during the Pre-Roman Iron Age than during the Bronze Age (*e.g.* Edgren 1999b: 317-319). Even if it has not been possible to examine this more closely within the present study area, the impression remains that Pre-Roman cairns more often relate to a permanent settlement site and cultivated land than, for example, to travelling routes and marine landscapes. People's place in the world was becoming more associated with sedentary immobility, no longer defined in relation to motion. It also seems as though the character of the cairns developed during this time into a more distinctive shrine or cult site for the family, farm or kin group.

In the archipelago (outside the present study area) some cairns dated to the Pre-Roman (and Roman) Iron Age also occur. These can be described as low cairns or stone settings, typically occurring in groups (*e.g*. Edgren 1993b; Miettinen, M. 1998). The locations of such cairns may still be closely related to a marine environment. Within the archipelago of the study area there are no confidently dated Pre-Roman cairns, but (as stated already earlier) most probably some cairns close to the Pre-Roman settlement sites in Tappo and Makila are contemporary. If this is the case, these combinations of cairns and settlement sites – presumably farms with agricultural land nearby – are rather comparable with Iron Age features of the mainland than with archipelagic cairns.

Cairns and stone settings thus still marked places where the bones of buried ancestors connected the living with land and landscapes, but the landscapes of the Early Iron Age cairns are often different from that of the Bronze Age. While the old cairns, situated on heights, overlook big parts of landscapes, Iron Age cairns – at least on the mainland – seem more related to the immediate surrounding of the cairn, probably also connected with the location of the settlement site and the cleared fields. Cairns may in fact have appeared as the result of field clearance. It is possible that in some cases clearance cairns in suitable locations could have been activated to manifest the unity between the cleared fields and the people utilising the land, but traces of clearance must still have originated that were not used as graves or in other rituals. These are poorly known, but they occur for example in the province of Uusimaa – quite near the present study area. Also in Uusimaa Pre-Roman cairns differ from Bronze Age cairns with regard to structure and topographical location (Laurén 1993; Maaranen 2000: 186-187). They are built of stone and earth on mineral soils – not on bedrock – and in many cases groups of cairns are associated with the occurrence of Morby Ware. Some cairns might be graves, while others are most probably connected with field clearance (Forsén & Moisanen 1995: 31-32; Maaranen 2000: 187).

Regardless of the general continuity of cairn building, the modest Early Iron Age cairns seem to stand for something different than the often big and clearly visible Bronze Age cairns. One traditional explanation has been that the stratified Bronze Age society developed into a more egalitarian social order of the Pre-Roman Iron Age. As has been stated earlier in this book, it can be questioned whether the big Bronze Age cairns, often built far from the settlements, can be directly interpreted as representing stratification, *i.e.* as being erected for powerful individuals or families. It is as likely that the cairns actually represented larger communities; albeit the building may have been supervised by leaders, the cairns could have been erected as public monuments and came to symbolize (among other things) the collectivity of the builders. In comparison, the Early Iron Age cairns – built closer to the settlement site (farm) by the settlers of that particular site – have the more genuine character of a private shrine.

A similar development has been described by Björn Feldt (2005) in the case of Södermanland in Sweden (where Bronze Age cairns were replaced during the Late Bronze Age and Pre-Roman Iron Age by smaller stone settings and cemeteries). He has interpreted the development of the Late Bronze Age and Pre-Roman Iron Age grave ritual as reflecting increased private approaches and priorities. The development is compared with developments in economy, production and settlement (Feldt 2005: 179-201). For example, indications of more stationary and permanent cultivation as well as stabled animals stimulating new forms of ownership are discussed, as are houses of reduced sizes indicative of smaller social units than before. Feldt emphasizes the importance of a new attitude towards ownership and the development of social relations into a more "limited, narrow and introvert attitude". This could have meant an undisputed right of the farms to use or possess arable land, a notion perhaps strengthened by the erection of graves in the vicinity of the settlement sites.

The social organization described by Feldt (2005) is in a way egalitarian, but in reality these autonomous farms and families taking care of their private interests could also have meant competition. Laying emphasize on one's own needs could have meant suppressing those of others. In that case, social equality of the Early Iron Age could come close to the cliché of an egalitarian society where some people are more egalitarian than others. It must be admitted that competition and tension are difficult to manifest in the archaeological material of the earliest centuries of the Iron Age, but somewhat later such phenomena start to occur. This has been acknowledged also by Feldt, who points out the increased need towards the end of the Pre-Roman Iron Age of social units (farms) to defend the interests of their own – particularly visible when the first Iron Age weapon graves occurred. In southwestern Finland similar interpretations – both regarding the farm / cemetery relationships, increased emphasis on private ownership as well as a change in mortuary rituals – would seem plausible concerning the development. This probably started during the Pre-Roman Iron Age, but became more visible in the Iron Age AD.

5.4.2. Late Pre-Roman and Roman Period cemeteries – an issue of identity?

In the very end of the Pre-Roman Iron Age and during the Roman Iron Age new types of graves containing foreign grave goods appeared, reflecting increased contacts with areas around the Baltic. Salo (1968) has interpreted these contacts as including immigration. On the basis of an analysis of find materials, Salo (1968: 204-210) has shown that the different grave forms of the Early Roman Iron Age show connections with the *tarand* grave area of Estonia and Latvia as well as with Scandinavia and the area of the Vistula river in northern Poland, the direction of influence differing between different grave types. According to Salo (1968: 228-229; Abb. 119; *cf.* Kivikoski 1939; Pihlman 1987), this heterogeneity of find materials and grave types suggests that at least part of the new materials and practices were brought to Finland by immigrants mainly from Estonia, Latvia and eastern Sweden. More recently, Salo (2003: 54; 2004a: 9; 2005b) has specifically pointed out that the acceptance of the theory of a continuous Early Iron Age Finnish settlement does not mean that the theory of colonization must be rejected – general settlement continuity does not mean to exclude foreign immigrant settlement on the coast.

Salo thus maintains the idea that the cemeteries containing grave goods of the Roman Period have for the most part been built by foreigners.[130]

Another explanation could be that the graves merely reflect a period of increasing contacts and interaction due to new contact networks opening up all over Europe. New ideas as well as items spread and were accepted by the people of southwestern Finland. New forms of material culture were introduced especially during the Roman Iron Age and used in diverse social contexts, including mortuary rituals of a variety of forms. This is to some extent similar to the Estonian Early Iron Age, where a variety of grave forms were present during the Pre-Roman Iron Age. This "ideological pluralism" continued in parts of the country during the Roman Iron Age, while in others it changed into "ideological monism" characterized by only firmly structured typical *tarand* graves (Lang 2000b).

The idea of changes in the Roman Iron Age without exclusive immigration has been acknowledged by other Finnish archaeologists as well. Sirkku Pihlman (1985; 68-69) has suggested that the changes visible in the cemeteries of the Early Roman

[130] One of the most significant Early Roman Iron Age cemeteries is that of Kärsämäki in Turku, introducing a burial custom involving the deposition of cremated bones and grave-goods in pits. Salo (1968: 232-234; 1984b: 94) has interpreted cemeteries of the Kärsämäki type (as well as the so-called Untamala and Koskenhaka types) as indications of Scandinavian immigration during the Early Roman Iron Age. These cemeteries contain relatively rich graves with weapons. Salo (*e.g.* 1995a: 9) has suggested that this reflects an immigration mainly of groups of armed men who settled among the Finnish population, possibly as tax collectors and merchants. The weaponry in the graves is interpreted as Scandinavian, but as the (female) fibulae, bracelets and necklaces are similar to those in other Finnish grave types, they have been interpreted as belonging to local people (Salo 1968; Salo 1984b: 94; 1995a: 9). It is, however, not at all certain whether the gender relations or the idea of the origin of the immigrants can be that straight forward. Within the Kärsämäki material there is, according to an osteological analysis, at least one man who had a bracelet (Raninen 2005c: 54). Whether the origin of the people buried in Kärsämäki should be sought in some specific area is not self-evident either. According to Raninen (2005c), it is possible that the origin was both in eastern Sweden and the southeast Baltic area (more specifically the Wielbark culture in the Vistula area), instead of either of them. Thus Raninen thinks in the same manner as Kaliff (2001), pointing out the interaction between these two areas. One step further would be to focus on the old connections throughout the Baltic, like between Estonia, southwestern Finland and eastern Sweden, visible already during the Pre-Roman Iron Age. Contacts and bonds may have existed between far away areas that made the difference between local people and 'immigrants' a secondary issue. More interesting than the possibility or probability of immigration is the question of why the Kärsämäki people buried their dead in such an expressive manner in the first place? The most plausible explanation is that the rich weapon graves are related to the expression of identity in an attempt to consolidate or promote the position of the Kärsämäki people in relation to their neighbours. The idea of consolidation could be linked with immigration (*cf*. Pihlman 1985: 27; 1992: 48), while a more general expression of power and wealth may well have come about due to local competition. This is probably the case also with regard to many other rich cemeteries occurring throughout the Roman Iron Age.

Iron Age reflect an innovative period, characterized by increased interaction and openness to both new ideas as well as foreigners. This is a view shared also by Raninen (2005c: 45, 55-56) who sees this as one reason for the many mortuary practices of the period, which in addition to immigration would have involved changes of ideologies, religious beliefs and identities among local individuals and groups. The beginning of the Iron Age AD was a period characterized by increasing interaction between societies, which led to different forms of encounters, including the development or increased use of contact networks and the construction of new identities.

The quantification of finds regarded as representing foreign contacts is problematic. A comparison of finds from different areas of origin could be based on the use of relative frequencies, but what should be counted – single artefacts or artefact types? The cemeteries from the early periods of the Iron Age contain many artefact types, each one found only in small numbers, while during the Late Iron Age some main artefact types are dominant with regard to the numbers of finds. The best way to proceed would thus be to count relative frequencies of occurrences, which in the case of the Late Iron Age is difficult as there are thousands of finds to be evaluated. A coarse subjective evaluation, however, can be made, based on the most easily interpreted ornaments from different periods (*cf.* Asplund 1999: 45-47). If really trying to base the discussion on some calculation of objects or types, the simplest way of proceeding would be to count object types from the Finnish Iron Age atlas by Kivikoski (1973), where the interpretation of the origin of objects is generally found in the text. For example, in the case of 214 types of fibulae, around 60-80 % of types per period are defined as to their area of origin. Such a comparison of the occurrence of ornament styles representative of different areas can be combined with considerations of identity, due to the fact that style and especially body signals can in principle also be regarded as a possible means of conveying information concerning identity to others.

From a long-term perspective there is a change after the Scandinavian-influenced Bronze Age. During the Pre-Roman Iron Age the Bräcksta type necklaces associate the Swedish, coastal Finnish and Estonian materials. After that – during the Early Roman Iron Age at the latest – it is quite obvious that East Baltic ornament forms became predominant in southwestern Finnish burial grounds. No native ornament styles have been found, and Scandinavian ornaments are rare exceptions. This East and South-East Baltic dominance either has nothing to do with the expression of identity, or the people buried in Finnish cemeteries were signalling an association with the East Baltic cultural sphere. In the Late Roman Iron Age and especially during the Migration Period the material culture started to change. East Baltic ornaments were still frequent, but Scandinavian forms increased in number and the first few local style ornaments appeared. Such ornaments were introduced in Ostrobothnia, the area most strongly influenced by Scandinavia at the time. This may have been a case where increased contacts led to the expression of a local group identity in opposition to the Scandinavian influence, or (perhaps more likely) the general flourishing of the region simply stimulated craftsmanship and led to new variations and inventions. Later, during the Merovingian Period, 'Finnish' ornament forms occurred also in southwestern Finland. Local forms increased in number in the Viking Age, as did the Scandinavian ones, while the number of East Baltic forms diminished.[131]

From the point of view of the Early Iron Age the key question is, whether objects like fibulae were an important part of the individual habitus, or just traded goods. Considering the dominance of East Baltic forms, it is tempting to suggest that the acceptance of these ornaments during the Roman Iron Age was a conscious choice, which made the ornaments part of the habitus and symbolic repertoire of the people using them (Asplund 1999). Meanings were attached to them, and they probably came to signify a special relationship with people wearing ornaments of the same origin. This does not exclude Scandinavian contacts and elements, which are suggested by the Roman Iron Age weaponry. During the Late Roman Iron Age some luxury objects of Scandinavian origin as well as Roman imports also occur, which most probably entered Finland through Scandinavia (*e.g*. Kivikoski 1955; Raninen 2005b). Nor the general tendency of wearing East Baltic style ornaments or the occurrence of Scandinavian luxuries does, however, mean that the relationships indicated by these objects were necessarily due to immigration. The appearance of new grave forms and 'foreign' ornaments and weapons is most of all an indication

131 The concepts of group identity and ethnicity are problematic, not least the concept 'Finnish' in the context of Iron Age material culture. This has been discussed by, for example, Raninen (2005a: 233-236), pointing out the problem of how the ethnic name used in connection with the categorisation of material culture can give a wrong impression; it is most probable that no ethnic Finnish consciousness like in the modern nation state existed during the Iron Age. There are, however, many other reasons to be critical as regards interpretations suggesting that ornament styles are ethnic markers or signals of group identity. In contact situations, some individuals and groups may choose strategies of integration, while others may retain distinct identities (even without reference to material culture, with the result that their boundaries will be invisible to archaeologists). It is also possible to change one's identity in situations where this is advantageous; for example ethnicity may be socially stigmatised and one may deliberately choose not to signal ethnicity at all. There is also the possibility of not one but several overlapping identities. We may belong to an ethnic category, but within this category we may define ourselves as belonging to a specific subgroup, the members of which deliberately distinguish themselves from other subgroups. Finnish Iron Age society was not a unified entity, with common aims and with just one code for the expression of identity. If we look more closely at the picture, combining ornaments with other materials, like weapons (*e.g.* Pihlman 1990), there is actually a great deal of variation.

of a period of change, which affected societies locally, although closely connected with overseas contacts and probably furthered by general economical-political transformations in Europe. In the northeastern Baltic area this became visible as changes in material culture as well as in mortuary rituals.

5.4.3. Pit-shaped hearths

Among the features found at Pre-Roman sites there are two that seem to be of special importance. These are post-holes (discussed in the following chapter) and large pit-shaped hearths. Pre-Roman fireplaces usually tend to be rather big and sooty – often deep – and may contain pieces of pottery. A common interpretation is, that these features are cooking pits, like in the case of deep Pre-Roman fireplaces excavated at the Vermuntila Kallio site in Rauma (Salo 1983; 1984b: 92-93).[132] Such hearths occur in different parts of Finland. Within the study area the best examples of big sooty Pre-Roman hearths are the ones at Moisio in Piikkiö, mentioned in chapter 3.4.3. The observations made at the Kyynäräisen mökki site in the village of Pappila in Sauvo also indicate the same type of feature. Most commonly, the Bronze Age or the Pre-Roman Iron Age pit-shaped hearths are on the Bothnian coasts – both on the Finnish side as well as in Sweden (*e.g.* Forsberg 1999: 258-261; Korteniemi 2002; Okkonen 2003: 212-213). On the southern Ostrobothnian coast deep pit-shaped fireplaces containing soot, charcoal and burned stones are commonly found in connection with Bronze Age and Early Iron Age cairns as well as on settlement sites (Miettinen, M. 1998: 72-73, 110-113). Further north, some of the Bronze Age and Early Iron Age sites contain over a hundred pit-shaped large hearths, indicating the large-scale use of heat in connection with some economic activity (Ylimaunu 1999: 7-8; *cf*. Okkonen & Äikäs 2006). In one of the excavated pits at Hangaskangas in Ii there were almost 1.5 tons of burnt stones. In this area the youngest pits of this kind have been radiocarbon dated to the Viking Age. Pit-shaped hearts dated to the Early Metal Period also occur in the inland, like in Central Finland (Taavitsainen *et al*. 2004).

[132] Included in the Vermuntila Kallio material are fragments of at least one pot which might be dated to the Late Neolithic or the Bronze Age (Asplund 1997a: 35-36), but the main part of the material supports the Pre-Roman dating. Four radiocarbon dates are available. These have given the results (in order of age): 2300 ± 70 BP (TKU-003; Pihlaja & Haihu 1991), *i.e.* 800-650 or 550-150 cal BC (the latter period giving a 91,7 % probability), 2270 ± 110 BP (Hel-1884; Jungner & Sonninen 1989: 56), *i.e.* 800-1 cal BC, 2190 ± 110 BP (Hel-1885; Jungner & Sonninen 1989: 56), *i.e.* 550 cal BC – 100 cal AD, and 2090 ± 60 BP (TKU-009; Pihlaja & Haihu 1991), corresponding to the calibrated date 360-290 cal BC or 260 cal BC – 60 cal AD (the latter period giving a 91,7 % probability).

The function of these big and deep fireplaces is not known. The term cooking pit has been regarded as too simple and inappropriate as this type of feature probably includes pits of different functions (*e.g.* Taavitsainen *et al*. 2004: 15-16; Äikäs & Ikäheimo 2005). Several suggestions for the function of the type have been presented, one possible explanation being that they would have been a sort of oven for the drying and smoking of different kind of game; other similar explanations are that they may have been used for extracting seal blubber or for preparing skins (*e.g.* Korteniemi 2002; Okkonen & Äikäs 2006). Okkonen (2003: 213) has pointed out that the shape may have been related to a general possibility of regulating the burning process using a turf cover, thus being able to keep the heat longer and saving firewood.

Cooking pits are a typical feature of Late Bronze Age and Early Iron Age sites both in northern and southern parts of Sweden. In Norrland they have been interpreted as related to sealing, while in the southern part of the country they have been discussed as maybe related to ritual cooking (*e.g*. Carlsson 2001: 50). One point is that the use of fire in ritual contexts seems to increase during the Pre-Roman Iron Age. Large numbers of hearths dating to this period are found in the landscape, graves contain more soot and charcoal than before, and fire-cracked stones together with soot and charcoal have been spread out at settlement sites as well as at rock-carving sites (Hauptman-Wahlgren 2002: 151-153, 245). Summing up, it seems that in recent Scandinavian discussion (*e.g*. Gustafson *et al*. 2005) the function of pit-shaped hearths has been interpreted in various ways. The ranges of dates (mostly the Late Bronze Age and Early Iron Age in Southern Scandinavia while the Roman and the Migration Period in Norway) as well as types (from single pits to large fields of pit-shaped hearths) and probable functions (from normal preparation of meals to specific forms of cooking and the production of ritual smoke) signify that this group of features is difficult to interpret and may contain a variety of possible categories of use.

5.4.4. Building remains

During the 1990's Stone Age and Early Metal Period buildings were in the focus of Finnish research (*cf*. Ranta 2002). New results (concerning, for example, semisubterranean houses) have been obtained from the inland and northern parts of the country, while southwestern Finnish building remains have been discussed in just a few cases. One of these is a summary of Early Iron Age building remains (Asplund 2002), which the following text is for the most part based on. The starting point is the questioning of the general conception of the form of living in southwestern Finland during the Early Metal Period. This has been closely related to the Late Bronze Age house excavated at Rieskaronmäki in Nakkila in the early 1960's (Salo 1962: 49–54; 1976; 1981: 64–68; 1999: 26–27; *cf*. Salo & Söyrinki-Harmo 2001: 71-73). This house has become a sort of icon of the idea that the Finnish 'house' and 'farm' (both *talo* in Finnish) developed in the Bronze Age (Asplund 2002). As drawings of the Rieskaronmäki house have found their way into schoolbooks, this has also started to become part of common knowledge and all-round education in Finland (Salo & Söyrinki-Harmo 2001: 72). The rectangular shape, the broad stone foundation supporting the walls, the east-west direction, and the combination of one end for living and the other for a byre are all features comparable with Bronze Age houses in Scandinavia. For this reason the idea of Finnish Bronze Age and Early Iron Age buildings is often related, consciously or unconsciously, to the image of a Scandinavian-type longhouse. There has not been much consideration of the possibility that the Rieskaronmäki house may actually have been merely a short-term peculiarity rising from local contacts, or an isolated instance of a house built by an immigrant family. This question should, nevertheless, be raised, since no parallels to this type of house have been discovered in Finland (*cf*. Asplund 2002).[133]

If Early Metal Period long-houses were found in Finland, one would expect them to be three-aisled longhouses similar to the type occurring in southern and central Scandinavia (Uino 1986: 174–175; Tesch 1993: 174–183; Göthberg 1995: 69–73). In central Sweden these houses can be almost identical with, for example, houses in Denmark (*e.g.* Reisborg 1994). Farther east, like in the southeastern Baltic area, the techniques of building were evidently different, since this type of house does not seem to occur. This is the case in Finland as well; apart from Rieskaronmäki, Early Metal Period longhouses of the Scandinavian type are so far not known except for a couple of more or less speculative cases. The few reliable finds of longhouses in Finland are all from the Iron Age AD. Thus one major question is, what were

[133] The occurrence of a foreign house on the Finnish coast would seem quite possible, especially during the Bronze Age, when western contacts are indicated by imported Scandinavian bronze objects. Still the builders of the house must not necessarily be traced in the central areas of manufacture of the bronze objects or directly related to the bronze trade. The house may represent some other form and direction of contacts. The Rieskaronmäki long-house has, for example, been included in a discussion of the special contacts between east and west within the Bothnian region, suggesting that parallels can be found in more northern parts of the Gulf of Bothnia (Forsberg 1999: Fig. 20, 275, 281-284). One Finnish example referred to in this dicussion is the Vitmossen settlement site in Vöyri, southern Ostrobothnia, where an oblong area cleared of stones is encircled by a structure reminiscent of the wall fundaments of a house. Whether this actually could be the remains of a house is not certain. The Vitmossen site is dated to the time of the Kiukainen Culture or the Early Bronze Age (Kotivuori 1993: 19-21).

Finnish Early Iron Age buildings like, if not long-houses? This is a question not easily answered as there is very little information concerning Finnish Early Iron Age buildings in general, and the few cases that can be described form at first sight a heterogeneous group difficult to interpret. One type of building remains occurs in the form of stone foundations for huts.[134] Another type is building remains revealed by post-holes and burnt clay daub. In one case, Mikkelä in Espoo, the distribution of clay daub has been analysed statistically, and the result has been interpreted as indicating the presence of a four-sided structure (Hiekkanen & Seger 1988). In most cases the distribution of daub alone cannot be used for interpretations of house forms. It is thus the post-holes that have to be used for interpretation in cases where stone constructions (fundaments) or other indications of size and form of the building are not present.

Two rectangular houses or longhouses from the Late Bronze Age or the Early Iron Age have been identified on the basis of post-holes. These are house A at the Ketohaka 1 site in Salo (*e.g.* Uino 1986: 85-89), and the Kaunismäki house remains in Harjavalta (Meinander 1954a: 17–25). House A at Ketohaka 1 has been dated to

[134] Such remains have been investigated at Trofastbacken (Seger 1986a) and Orrmoan (Seger 1986b) in Mustasaari (*cf*. Seger 1986c). Both of these sites have been interpreted as temporary sealing camps (Seger 1987). The Trofastbacken site has yielded Morby Ware, and one radiocarbon date of 2300 ± 110 BP (Su-1485; Seger 1986a: 180–181), *i.e.* 800-50 cal BC, confirms that the site dates to the Late Bronze Age or the Pre-Roman Iron Age. A comparable date of 2220 ± 70 (Su-1486; Seger 1986b: 26–30), *i.e.* 400-90 cal BC, is available from the Orrmoan site. Both sites lay on islands. Another stone foundation, in semicircular shape, has been investigated at the Panelia Kuninkaanhauta site in Kiukainen. A pit-shaped hearth lay within the circle and was radiocarbon dated to 2470 ± 110 BP (Hel-2538), *i.e.* 850-350 cal BC. The structure was interpreted as a hut foundation (Purhonen & Ranta 1991: 148–149). When the excavations were later continued, additional stone structures were found (Purhonen & Ranta 1994: 103). A hut foundation with a hearth, encircled by a stone construction, has also been excavated at the Sundom Djupkärrsbacken settlement site in Vaasa. A radiocarbon date from the fireplace places it in the Pre-Roman Iron Age (Miettinen 1994a: 163–164). There is also some information concerning a possible hut structure cleared in a stony area at the Petolahti Brännskogen site in Maalahti, and a similar structure has been identified at the Tallmossen B site in the same area (Miettinen 1982: 41–46; 1989: 103; 1994a: 162–163). For comparison, the remains of a building with a stone foundation excavated in northern Finland at Jatulinsaari in Kemijärvi (Siiriäinen 1964) may be mentioned. The building is considered to be of an Early Iron Age date, but a more detailed dating is problematic. A socketed axe and a finger ring have been used to support a dating to the Late Roman Iron Age or the Migration Period (Carpelan 1976: 32), but radiocarbon dates from the site give a broad range between 1500 BC and 600 AD (Nuñez & Uino 1998: 144). Other hut remains identified through the presence of stone structures are also known from northern Finland, some of which might date from the Early Iron Age (Carpelan 1976). Furthermore one should remember the Late Bronze Age hut foundations at Otterböte in the Åland Islands (*e.g*. Meinander 1954b: 121-136; Gustavsson 1998). Regardless of whether they were built by local people or foreigners they are morphologically reminiscent of hut fundaments in other parts of the Finnish coast.

the last centuries BC or the beginning of the Roman Iron Age (Uino 1986: 93–94; Hirviluoto 1991: 73–74). This partly destroyed house was identified on the basis of post-holes, interpreted as representing the wall posts of a rectangular house with the approximate dimensions of 10 x 6 m. Other post-holes in the area have either been impossible to interpret or represent the remains of younger buildings. In the case of the house remains at Ketohaka 1, however, both the interpretation of the house shapes (Liedgren 1989: 39, Fig. 6a–b) and the chronology are problematic (*cf.* Nuñez & Uino 1998: 146–147).

Neither is the Kaunismäki longhouse without problems. The site is dated to the Late Bronze Age on the basis of the pottery found (Meinander 1954a: 17–25; Salo 1970: 14–17; *cf.* Uino 1986: 140–141). Together with the Rieskaronmäki house, Kaunismäki has been regarded as one of the most important archaeological sites of the coastal Bronze Age culture (Salo 1984a: 117, 119), probably because it has been seen as an embodiment of the appearance of the rectangular or longhouse type of building during the Late Bronze Age. Special attention has been paid to a 7 metre-long row of post-holes. Whether this single strip of posts is evidence enough to indicate a Scandinavian (or other form of) longhouse can be questioned. It has actually been suggested that the Kaunismäki post-holes just as well could have belonged to some other type of building, where the main characteristics are certain dimensions of the structure (Fig. 111). The idea is based on other indications of post-built constructions, more hut-like than in the shape of a longhouse, found at a few Early Metal Period sites (Asplund 2002). These constructions seem to have had a double construction containing an inner structure of roof-supporting posts and an outer structure of posts supporting the walls. The inner posts lie about 3 metres apart, while the diameter or the breadth of the whole construction is about 6-7 metres. A more detailed interpretation of the building shape is not possible. The buildings may have been round, polygonal or even rectangular; moreover the main structure may have been extended or supplemented by additional parts, further complicating the interpretation of building types (Asplund 2002: Fig. 10-11).[135]

135 The idea of Early Iron Age hut-like buildings based on pole constructions has been criticized by Muurimäki (2004: 139-140). He has understood the main point, *i.e.* the questioning of whether there is evidence of Early Iron Age Scandinavian-type long-houses in Finland. What is slightly misunderstood is whether the proposed hut-like buildings are always round – this is actually questioned also in the original article, where circles mainly show dimensions of the proposed inner and outer structures. Otherwise Muurimäki's (2004) criticism is good, pointing out, for example, that a circle always can be drawn through three points (thus creating an optical illusion where even rows of post-holes becomes part of a round structure) and that rows of post-holes (or whole parts of buildings) may extend outside the borders of excavation areas. Muurimäki's final point seems to be – with reference to Scandinavian long-houses with rounded ends – that the post-hole structures still may be parts of long-houses.

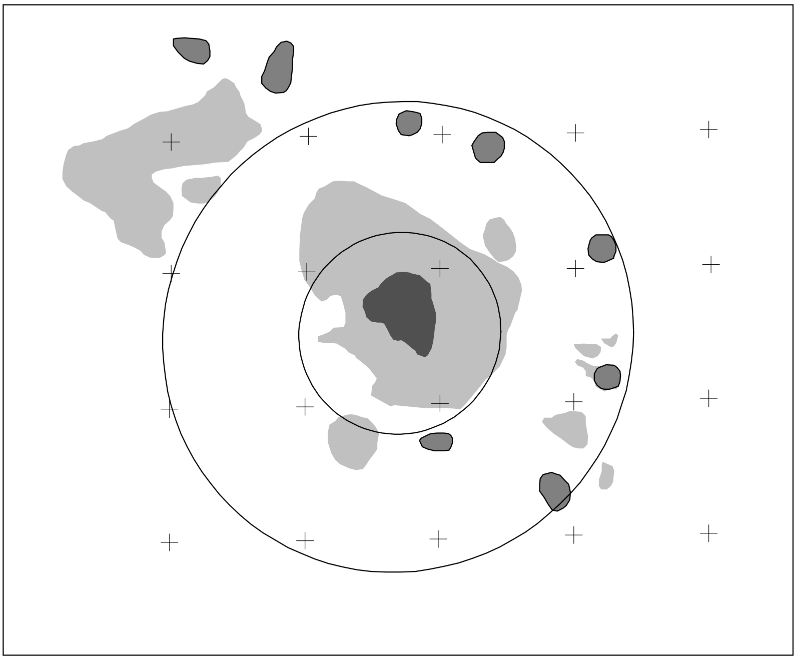


Fig. 111. Fireplace, coloured soil and post-holes at Kaunismäki in Harjavalta; redrawn from Meinander (1954a: Fig. 10). The diameters of the concentric circles added are 3 and 7 metres (cf. Asplund 2002: Fig. 9).

The best preserved Early Iron Age building remains identified through groups of post-holes have been discovered at the Borgmästars Storåker site in Karjaa and the Böle site in Porvoo. The Borgmästars site is difficult to date properly, since finds associated with the structures are sparse; striated ceramics, however, suggest a Pre-Roman or Roman Period date (Uino 1986: 146). The Böle excavation area yielded Morby Ware (Meinander 1954b: 164–165, Tafel 25a), as well as textile impressed ware and asbestos tempered ware.

At Borgmästars a couple of fireplaces were discovered between two rows of post-holes about 7 metres long (Uino 1986: 146, Fig. 7:9; *cf.* Honkanen 1981: 14–15, 112), possibly indicating some kind of longer house construction. These posts as well as another post-hole feature at Borgmästars have been interpreted as representing the remains of two "rectangular house-floors" (Uino 1986: 168). There is, however, no additional information as to what size or kind of buildings these may have been. More interesting is a pattern resembling two concentric circles of post-holes around a hearth. This post-hole pattern resembles the arrangement at Böle (Meinander 1954b: Fig. 91), where, again, a double construction can be identified – perhaps an inner structure of roof-support posts and an outer structure of posts supporting the walls. The inner posts in both cases lie about 3 metres apart, while the diameter of the whole construction is about 6 metres in the Borgmästars case and about 7 metres in the Böle case (*cf*. Asplund 2002: Fig. 2-3). Based on post-holes outside the main construction, the Böle building has been been interpreted as having a rectangular antechamber in addition to the otherwise round construction (Meinander 1954b: 162; Uino 1986: 154; Nuñez & Uino 1998: 147). Post-holes also occur at some other sites, often in the vicinity of fireplaces. None of these cases are as distinctive as the ones described above, but a few could in principle be explained as based on the same pattern and dimensions.[136]

One important, more recently excavated site with Early Iron Age building remains is the Hulkkio site in Kaarina, where the extensive excavation areas revealed numerous post-holes (Strandberg 1998; 2002: 218-221). The interpretation of the several identified buildings has been based chiefly on the distribution of different types of daub and the position of the post-holes and other structures. A major problem seems to be that only some 4.5 kg of burnt daub has been recovered. The problem of interpretation is further accentuated by the fact that two quite different interpretations of the location of the buildings at the site have been presented. The

[136] A combination of a fireplace and post-holes at the Kärsämäki site in Turku (formerly Maaria) is difficult to interpret. The broad dating of this construction is based on the Morby Ware found in a nearby fireplace. Earlier, the focus of scholars was decisively on the discernible rows of posts, and the size of the building was thus suggested to be 4 x 5 metres (Nuñez & Uino 1998: 146; *cf*. Uino 1986: 150). However, this case could also be explained through the same pattern and dimensions as in the Borgmästars and Böle cases, *i.e.*, that some of the posts might have been part of an inner structure and some of an outer structure of the same dimensions as described above (Asplund 2002: Fig. 4). Another example of the remains of a post-built structure associated with a fireplace and containing Morby Ware is found at the Kirkkomäki site in Turku, excavated in 1992. In this case the structure was badly damaged by ploughing and by a later cemetery at the site. Near the fireplace seven stained spots, interpreted as the possible remains of post-holes, formed a group, within which a light-grey area of stained soil was preserved (Asplund 2002: Fig. 5). The dimensions of this structure may indicate an inner structure as in the Borgmästars and Böle cases, but no traces of an outer structure were found. It is also unclear in what way the fireplace might have been associated with the post-built construction; if it is part of the same building it seems not to have been at the centre of the structure. The fireplace is radiocarbon dated to 2395 ± 35 BP (GrN-25136). The hypothetical interpretation of a hearth and post-holes at the Borgmästars 1951 excavation area may show a similar fireplace location (*cf.* Uino 1986: Fig. 7:8). Here postholes around an area of stained soil seem to match the dimensions of an outer structure, but only a hint of the inner roof supporting posts can be seen (Asplund 2002: Fig. 6). In this case, again, the association of the hearth and the post-holes is, of course, quite problematic, since there is no evidence that they are contemporaneous.

common feature of all of the hypothetical buildings is, however, that they represent a shape resembling the Scandinavian longhouse.[137] Doubts have been raised concerning the interpretation of the houses also by Muurimäki (2004: 139). He has pointed out that the post-holes are randomly distributed within (and outside) the proposed houses. He also wonders about the small amount of burned clay; daub should have been preserved as clay layers or lenses if the houses were not destroyed by fire. Thus it seems that not a single one of the proposed longhouses at Hulkkio can be taken for granted. There is, however, one group of post-holes matching the model of inner and outer structures with certain dimensions, which can be found at excavation area B at Hulkkio (Asplund 2002: Fig. 7-8). Here some post-holes surrounding an area of stained soil may represent an inner structure and other outlying post-holes the outer structure of the appropriate dimensions (Fig. 112). In the earlier interpretation of Area B the same posts have been regarded as forming a small part of a large longhouse (Strandberg 1998: Fig. 6; 2002: Fig. 11).[138]

New observations related to Pre-Roman building remains have also been obtained in connection with excavations performed at the Böle site in 1997. The revealed features have been interpreted as including the remains of two rectangular houses with rounded corners; the dimensions of the houses would have been 9 x 7 m and 11 x 7,5 m (Standberg 2002: 221-223). The reliability of the interpretation is difficult to confirm as the published excavation map (Strandberg 2002: Fig 12) does not show identifiable constructions like rows of post-holes, stone constructions or other marks indicating on what basis the potential houses were outlined. Furthermore it can be noted that if the scale added to the published map is correct, the dimensions of the drawn houses do not fit the dimensions mentioned in the text. If the width of the buildings however were 7 or 7.5 metres, it would fit the proposed basic dimensions of the Early Iron Age huts discussed above. The inner

[137] In a similar fashion, though somewhat more source critically, features at the Naarankalmanmäki site in Lempäälä have been interpreted. Here a group of postholes occurred mainly within an area about 6 x 8 metres wide, in addition to which a lot of features containing stained soil occurred. Different suggestions involving possibilities of one or several constructions of different sizes have been discussed, but the interpretation presented on the general maps of the site is the one involving a 23-25 metre longhouse (Raike & Seppälä 2005). The features of Naarankalmanmäki – including the building remains – are mainly dated to the Late Roman Iron Age and the Migration Period.

[138] In connection with the reinterpretation of the structure at area B, it has been pointed out that there is also a four-sided stained structure present at the area, somewhat reminiscent of the four-sided building remains previously known mainly in inland Stone Age contexts (Asplund 2002: 231). This possible structure has not been discussed further. A combination of different forms of building remains would, however, be highly interesting, as Hulkkio is a site with a finds assemblage containing a mixture of coastal and inland ceramics (*cf.* Strandberg 1996).

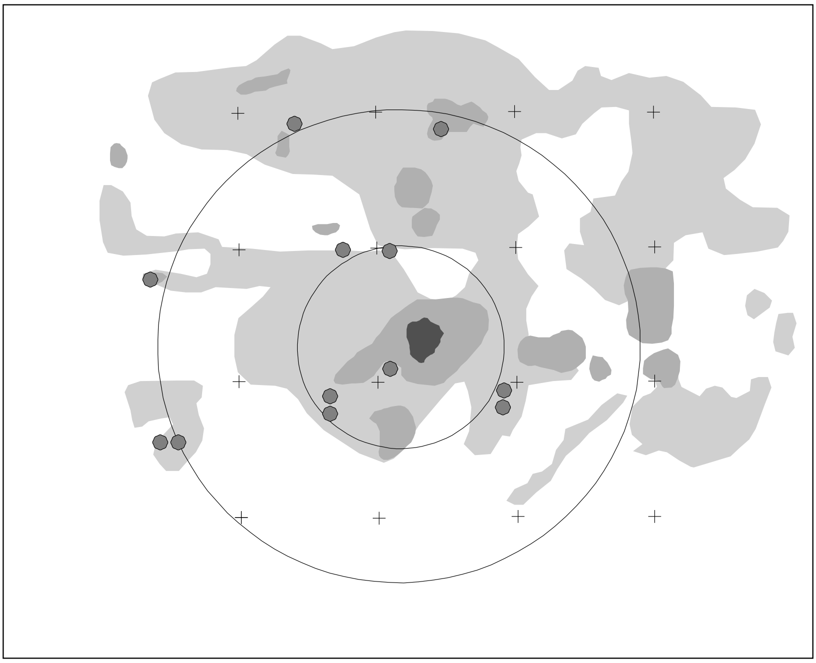


Fig. 112. Post-holes surrounding an area of stained soil at Excavation Area B at the Hulkkio site in Kaarina. Redrawn from the excavation report. The diameters of the concentric circles added are 3 and 7 metres (cf. Asplund 2002; Fig. 8).

and outer post-hole structures suggested to be typical for this type of buildings are unfortunately not possible to identify in the new material from Böle – at least not on the basis of the publication.

Regardless of the small and seemingly heterogeneous material, it has been suggested that there may be common traits with respect to dimensions and probably also construction techniques within the group of Late Bronze Age and Early Iron Age post-supported buildings (Asplund 2002). The hut-like buildings of the type discussed above seem more primitive than actual rectangular houses, but they are not particularly small, as the floor area exceeds 30 m^2. Thus the construction technique must have been fairly developed. This might well have been one basic form of building in southern and southwestern Finland in the Early Iron Age. What seems to be important is that these buildings are not Scandinavian longhouses, but could represent a type for which no good parallels exist in Scandinavian or East Baltic materials. Round or rounded houses from the Bronze Age or the Early Iron Age seldom occur in Scandinavia. Remains of one house from the Late Bronze Age site Stafsinge 116 in western Sweden is maybe the best Scandinavian parallel to the building type discussed above, but it is somewhat bigger and there are only four roof-supporting posts (Nicklasson 2001: 35-38). In the East Baltic area, on the other hand, Late Bronze Age and Early Iron Age house remains are often identified on the basis of post-holes, but they are usually interpreted as belonging to four-sided houses.[139]

The development of building types from the Stone Age to the Bronze Age and Early Iron Age still remains unclear. When the modest traces of buildings from the Early Iron Age are compared with some of the house-like constructions present in inland Stone Age contexts, one cannot help thinking that the earlier idea of development should be inverted. It actually seems that one line of development might have been from big rectangular Stone Age houses to huts of the Early Iron Age, and not the other way around (Asplund 2002). One problem with such a model is, however, that the Stone Age building type of the coastal area is not as well known as that of the inland. It is possible that the rectangular Stone Age building type flourished and prevailed mainly in the inland area and the north, while other shapes developed on the southern and western coasts.

In discussing the development of new building types in the Bronze Age or Iron Age, the importance of economic factors – especially the growing importance of farming – has often been stressed. With this in mind, it is interesting to note that changes also took place in areas where agriculture was not adopted. It may seem a farfetched example, but in northern Norway the large houses of the Gressbacken type fell out of use during this time. Among the reasons for this change may have been increased mobility as well as new social and economic conditions (Olsen 1994: 135). The excavated buildings at the Slettnes settlement sites are also intriguing,

139 A thorough discussion on the East Baltic material has been provided earlier by Uino (1986: 169, 176, 180–183). Examples of Lithuanian cases include the four-sided houses reconstructed on the basis of post-holes at Narkūnai and Kereliai (Grigalavičienė 1995: 47–49). One example from south-eastern Latvia is the open settlement site Kerkūzi, where a pole-construction is found in the oldest buildings, dated to the Late Bronze Age; in one case the size of the house was 4 x 4 metres (Vasks 1994b; Vasks 1995: 60, 73). The later building phases all included different types of log houses. Those dating from the last quarter of the first millennium BC were identified by the contours of a dark cultural layer; here, too, the dimensions of one measurable house were 4 x 4 metres (Vasks 1995: 73). In Estonia no Early Iron Age house remains have been identified at open settlements; the only examples derive from fortified contexts. One interesting detail is the remains of log houses built with a corner-jointed technique. This practice has been recorded at the Koila hill-fort (Schmidehelm 1983: 165, Kuva 148; *cf*. Uino 1986: 169, 180) and at the Late Bronze Age fortified settlement Iru in northern Estonia (Lang 1996: 38–39, Plate II:2). This is interesting as indications of this technique are practically unknown in coastal Finnish Bronze Age or Early Iron Age contexts, but it was later to become the prevalent mode of building. The earliest Iron Age feature interpreted as the remains of a log building, at the Ketohaka 2 site in Salo, can be dated to the 4th century AD. There is a four-sided streak of discoloured soil also at the Ketohaka 1 site, which can possibly be dated to the middle of the first millennium BC, but the interpretation of this feature as deriving from a log building has been regarded uncertain (Uino 1986: 179).

since their size seems to diminish towards the Iron Age. The Late Neolithic buildings were still large and rectangular in shape, but in the Late Bronze Age and Early Iron Age smaller oval and round buildings occur (Hesjedal *et al.* 1996: 222–229). These changes in the types of houses must be related in one way or another to changes in the size of the family or social group sharing the house.

One difference between the Scandinavian type longhouse and the building of the Borgmästars and Böle type is that the latter lacks any signs of a byre. If this was a common way of living in southwestern Finland during the Early Metal Period, it probably means that cattle were not regularly kept inside the house during the winter, as has been suggested (*e.g.* Salo 1997: 84).[140] This has earlier been questioned also in the light of ethnographic evidence from northern Europe (Uino 1986: 192). Keeping animals inside the house just due to climatic conditions (and for the collection of dung) is not necessarily the only explanation for the occurrence of byres. All traditional forms of livestock can in principle stand outwintering if using shelters and taken care of properly (and dung could be collected otherwise, if regarded important) (Zimmermann 1999).[141] Regular indoor stalling – a change in the relationship between people and their animals – might have evolved due to other reasons, such as, for example, cattle being associated with status (Barker 1999; Rasmussen 1999: 286-287; *cf.* Olausson 1993). Still, if the Finnish Early Metal period buildings lacked specifically built byres, this does not mean that animals were not kept or that herds did not represent status. Most probably animals were regarded as important and thus representative of welfare and prosperity, but as it seems, this was not manifested in the form of the building.

140 In the Rieskaronmäki house, it has suggested that one end of the house was a byre. Another feature discussed in connection with stalling is a stone pavement possibly datable to the Late Neolithic or the Bronze Age, excavated at the Uotinmäki site in Kiukainen. With reference to Bronze Age parallels it has been suggested that the pavement was part of a house and probably a byre (Salo & Söyrinki-Harmo 2001: 62).

141 One positive effect of having the animals inside during wintertime may, however, have been the warmth produced by the animals and the accumulating dung. Due to this, the same space – regardless of being a proper byre or not – could have been actively used during wintertime by the family for other purposes as well (Vilkuna 1976: 20-21).

5.5. Climate and environment

5.5.1. An ecotonal shift?

Up till the 1970's, many North-European archaeologists spoke of a probable crisis at the mid-first millennium BC at the transition from the Bronze Age to the Iron Age. The rich archaeological material from the Bronze Age was seen in contrast to that of the Early Iron Age. Some scholars saw the crisis as the result of an internal development, provoked primarily by changing climatic conditions. The period was interpreted as involving a sudden transition to a moister and colder climate. Since then, the idea of a major crisis has been re-evaluated and mostly abandoned, but the fact remains that climatic fluctuations did occur during the period in question. These fluctuations, known from different types of proxy data, are not easy to figure out as different studies focus on different types of materials and give somewhat incompatible results.[142] In order to understand the large-scale pattern of climate transformations, an illustrative presentation by Crumley (1995) has proved helpful. Her starting point is that ecotones, *i.e.* boundaries between biomes and communities of organisms, show high correlations with the position of climate-driven air-mass activity. In the case of Europe, three major climatic regimes strongly related to biotic provinces can be distinguished: 1) the Oceanic (Atlantic), carrying moisture inland from the ocean, 2) the Mediterranean, bringing dry, desert winds northward, and 3) the Continental, carrying dry air west from the interior (Crumley 1995: 125-127).

From around 1200 BC to about 500 BC there is evidence from everywhere in Europe which, according to Crumley (1995: 128), indicates a cold period of particularly severe winters. The Atlantic climatic regime continued to bring moisture to northwestern Europe – particularly wet conditions are indicated in this area between 750 and 500 BC. The increased water level in lakes indicating increased precipitation during this period has been documented in southern Sweden, for example, but has been indicated in Finland as well (Eronen 2002: 68). The picture regarding moisture is, however, not quite clear. For example, peat humification analyses from two raised bogs in Värmland, south-central Sweden,

142 In climate research, a proxy variable is data gathered from natural records of climate variability, *e.g.* tree rings, ice cores, palynological data, ocean sediments etc. Information of this kind is called 'proxy data' because it acts as a proxy for the actual changes of climate.

indicate a prominent dry period about 2700-2250 cal BP (Borgmark 2005). In this case, the periodicity seems to be close to that of other proxy records, but perhaps due to the analysed material or local circumstances the climate effect turns out differently. This is comparable to parts of central Europe, where the ecotone pattern resulted in severe drought (*cf.* Jäger & Ložek 1982). This is due to the effects of the continental regime as the ecotone between wet northwest Europe and dry central Europe was somewhere in what is now southern Germany.

By 300 BC and lasting until 300 AD there was a change in climatic conditions: the Mediterranean climatic regime became dominant over a large part of southern Europe, resulting in hot, dry summers and winter rains. The ecotone between the Atlantic and Continental regimes and the Mediterranean climatic regime may have reached as far north as northern France and the southern coast of the Baltic Sea (Crumley 1995: 128, Figure 3). Between AD 500 and approximately AD 900, according to Crumley (1995: 129), the climate could be characterised as unstable. The ecotone between the Mediterranean, the Atlantic and the Continental systems shifted back far to the south, lying along the northern fringe of the African continent. In northern Europe the Atlantic regime dominated, resulting in cold snowy winters, cool wet summers, frosts and floods.

Within the framework of these ecotonal shifts, Crumley tries to explain (or at least discuss) long-term cultural developments in Europe in an environmental deterministic fashion. During the Roman period the Mediterranean agricultural economy, featuring extensive production of relatively few crops, spread through central Europe, probably not entirely due to Roman conquests. The Celtic system of multi-species agriculture and pastoralism, much more suited to an uncertain climate, disappeared (Crumley 1995: 130). According to Crumley, the later reappearance of the more characteristically European climatic pattern probably led to problematic adjustments in agriculture, as knowledge of the old system had already been lost. A period of unstable conditions may have led to the challenge of traditional authority and the emergence of the new socio-political structures familiar from historical sources.

This discussion, of course, also has some relevance for northernmost Europe. A favourable 'ecotonal shift' during the late Pre-Roman Iron Age could have affected the possibilities of farming and the general mode of subsistence. What is problematic, however, is that agrarian communities actually seem to have expanded around the Baltic during the whole of the last millennium BC. If the earlier change into a more unfavourable ecotonal pattern did lead to changes in settlement and subsistence, this apparently did not take the form of a dramatic crisis. Unfavourable environmental effects related to the Bronze Age (changes interpreted as a drop in average temperatures and a probable increase in annual rainfall) have more lately been considered seriously mainly in the south-eastern Baltic area. Even with regard to this area, however, other explanations have also been foregrounded within settlement archaeology.

According to one view, climate deterioration in northern Poland may have led to noticeable changes in settlement patterns and in methods of land exploitation. The assumed increase in rainfall would have caused a rise in the water table in lakes and rivers over the entire lowland zone of the Oder and Vistula basins. The water may have rose so sharply that the land lying close to large bodies of water was abandoned (Ostoja-Zagórski 1989a: 18). This hypothesis is supported by archaeological evidence of sites of the Lusatian culture being buried under mineral deposits containing quantities of humus and fractions typical of soils in drainage areas. The climatic changes were accompanied by surface outwashing of the soils, and the vegetation underwent economically significant changes. The general idea of the hypothesis is that economic activity among the populations inhabiting the territories of northern Poland during the final phase of the Bronze Age coincided with a complex series of climatic and ecological transformations. According to Ostoja-Zagórski (1989a; *cf.* 1989b), we can assume that unfavourable changes in environmental conditions must have had considerable effect on the direction of changes that occurred both in settlement structure and in the socio-economic system at the transition from the Bronze Age to the Iron Age. Interpretations of the relative weight of causes of change, however, seems to vary. In a more recent discussion (Harding & Ostoja-Zagórski 1993), the impact of environmental factors has been left in the background and social and economic processes underscored.

Ideas of environment-induced change have also been presented in the case of Latvia, where changes in the development of settlement occurred during the Bronze Age. This can be seen especially in the formerly densely populated Lubāna lowlands, where only 10 out of 23 Late Neolithic or Early Bronze Age settlements survived into the Late Bronze Age (Vasks 1994a: 113). Two explanations have been given for this development. One is a rise in the water level, accompanied by the spread of marshes in the lowlands. Due to these circumstances there was a movement of settlement, including the settling of previously unoccupied areas. Single finds – especially simple shaft-hole axes – show expansion to moraine ridges and areas of raised relief of various sorts outside the lowland area during the Bronze Age (Vasks 1994a: 113, 120). On the other hand, the period of change seems to coincide with changes in the economy as hunting, fishing and gathering were replaced by stock-keeping and agriculture. This meant that previous settlements and their surroundings were now less suitable for settlement. It has even been suggested that one reason for the development of food production (in addition to population increase) in Latvia and neighbouring countries would have been that the cold and more humid climate would have decreased the amount of available wild food (Graudonis 2001).

Instead of a crisis, the period characterised by the cold wet 'Atlantic ecotone' witnessed the intensification of agriculture. Despite this, the conclusion that the cooler climate did in fact speed up the development is probably taken too far. Instead the long-term development of farming gradually continued throughout the period, despite times of harsher conditions. In some remote areas or areas in the early stages of the development of farming, as in the case of southwestern Finland, one could assume that development may have slowed down, compared to what it would have been during a period of more suitable climate. Whether the subsequent more favourable climatic change (above dated to the Pre-Roman Iron Age) later accelerated the development, or otherwise affected societies around the northern part of the Baltic, is not quite clear, but it seems plausible that this could have happened both locally and through foreign contacts. Locally, farming would have benefited from the possibility of getting bigger yields. An indirect effect may have been intensified trade and contacts, promoted by a more stable economical and political structure in Central Europe.

5.5.2. Environmental proxy data: some examples and problems

In the 1970's, studies of peat growth and transgressions in Denmark based on radiocarbon chronology indicated possible cyclical climatic variations lasting about 260 years (*cf.* Barber 1982: 109). This periodicity, however, was not general, as in some cases there was a double distance between registrations of climatic change. This periodicity has been approached in various ways. First of all, the boundary horizons identified in peatlands were regarded as indications of changes in the moisture of the environment. Wetness, however, may reflect a complex combination of temperature, humidity, precipitation and even wind speed (Charman & Mäkilä 2003: 16). This is still a problem regarding many proxy data records – climate change may involve variations in both temperature and moisture, often difficult to interpret separately. According to the general view there is evidence of a fall in summer temperatures during the first millennium BC. The cyclic data, however, do not suggest a constantly falling trend but several oscillations. At first there seemed to be no clear correlation between information from different wetlands in various parts of Europe (Barber 1982). It has also been pointed out that the periodic changes show surprisingly little correlation with the archaeological record (Jensen 1994: 111).

More lately, periodicities of proxy data have again gained interest, due to comparisons with athmospheric residual ^{14}C-records picturing variations in solar activity. The idea is that changes in the carbon cycle are dependent on solar variability, galactic cosmic ray influx and/or geomagnetic field strength. The hypothesis according to which variations in solar activity were a major factor of climatic oscillations in Europe during the Holocene has gained more and more support (*e.g*. Goslar 2003; Blaauw *et al*. 2004; Borgmark 2005: 393; Holzhauser *et al*. 2005: 797-798). Either the climatic changes have been directly linked with temporal changes in atmospheric ^{14}C-records or the studies refer to cycles with periodicities close to those of solar variability. For example, rapid major increases in atmospheric ^{14}C, as during the 'Little Ice Age' or during the Late Bronze Age, have been attributed to decreases in solar activity.

Numerous reconstructions based on different types of proxy data have been made, which exemplify climate change. For example, investigations of raised bogs in The Netherlands indicate wet-shifts corresponding to periods of major atmospheric ^{14}C-rise. Such periods have been recorded for 1465-1365, 845-755 and 415-345 cal BC, the period 845-755 coeval with a major climatic change recorded in many proxy records around the world (Blaauw *et al.* 2004). The periodicity indicated in the study of two bogs in Värmland (already referred to in the previous chapter) does not, however, seem to match the Dutch results, with the exception of a major dry shift at about 2700 cal BP. Wetter shifts were in this case indicated at 3700-3500 and 2250 cal BP, for example (Borgmark 2005). A somewhat better correlation is found regarding glaciers in the Swiss Alps, which show nearly synchronous advances at about 1000-600 BC (as well as 500-600 AD, 800-900 AD, 1100-1200 AD and 1300-1860 AD); these glacier fluctuations furthermore show strong correspondence with lake-level variations reconstructed in eastern France (Holzhauser *et al*. 2005). The correlation between different sets of data is, however, on a quite general level. What seems evident already from a few examples is that no overall European climatic reconstruction with detailed precision can be presented. Local climate may vary and thus produce different effects to be recorded, or the climate proxy data may turn out differently in different regions (*e.g*. Holmgren 2005).

Sometimes climate reconstructions are, on the other hand, left extremely broad. For example, an interesting analysis of the oxygene-isotope ratio in diatome biogenic silica from lake sediments from Swedish Lapland has been presented merely as a methodological study. The results are noted to resemble the average air temperature reconstructed for a Greenland ice core, especially during the past 4000 years, with a double peak between 4000 and 2000 cal BP and a pronounced cooling starting at about 2000 cal BP (Shemesh *et al*. 2001). This is, however, a rather coarse picture. In fact the oxygene-isotope ratio curve shows fluctuations that seem to correlate rather well with more detailed climate variations detected in other proxy records, like the pine tree-limit altitude in northern Scandinavia (*cf*. Shemesh *et al*. 2001: Fig. 5). Within both of these records the Late Bronze Age decline is visible as well as an Early Iron Age period of more favourable climate.

One potential means of studying detailed climatological variations in the past is the use of dendrochronology, where tree ring widths can to some extent be regarded as representing weather conditions. Promising Finnish results concerning the technique of estimating past climatic conditions have been presented by Lindholm *et al.* (1995). The series studied cover the 19th and 20th centuries and originate from the coniferous tree limit in Finnish Lapland, where tree growth is a good indicator of past climatic variations. The study shows quite close agreement between the estimated and observed values of July temperatures (Lindholm *et al.* 1995: 96-100). From this recent comparison, however, it is a long step to the reconstruction of prehistoric climate. Other studies have indicated that there is no direct correlation between temperature or precipitation and the radial growth of trees (Pilcher & Hughes 1982). The best correlation with climate is found in extreme areas, as in the Finnish example.

The pine tree-ring series from Finnish Lapland covering about 7500 years gives a possibility for studying prehistoric summer temperature fluctuations. As far as the Early Iron Age is concerned, it seems evident that the Pre-Roman Iron Age does not form an uniform climate period. There are fluctuations indicating cooler summer temperatures during the early part of the period, and warmer summers during the middle part; centennial cool periods in the series, like 484-385 BC, are noted to correlate with glacier advances in northern Sweden (Helama *et al.* 2002: 684-685; *cf*. Eronen *et al.* 2003). Also indicated is another cooler period pre-dating the Roman Iron Age. With regard to the early Pre-Roman Iron Age, the most extreme decrease of growth visible in the long-term series occurred in the year 330 BC when there was practically no growth at all (Eronen 2002: 71; *cf.* Helama *et al.* 2002: Table 4). The recovery seems to have taken 20-30 years. There is so far no single explanation for the phenomenon, but it must in some way be related to climate or other severe changes in the environment. The impact must have been significant as such dramatic changes cannot be seen in the growth of pine during the historically documented periods of unfavourable climate oscillations from about 1550 to 1850 AD (Eronen 2002: 69-71).

Another form of detailed proxy records for reconstructions of past climate and environmental change are varved lake sediments, which due to the annually accumulated varves contain a continuous calendar-year timescale, comparable to that of dendrochronological series. This increases the chronological precision compared to other lake- or peat-samples as the varved sediment time-scale is more reliable than simply radiocarbon dated series (or even ones with wiggle-matched datings for high precision). Varved sediments have also provided a possibility of constructing palaeomagnetic master curves, which can be used for further stratigraphic correlation and age control (Ojala & Saarinen 2002). Climate reconstructions from varved sediments are based on the physical properties of the sediment, which is mostly dependent on the annual influx of mineral matter into the basin. As this is above all related to climatic conditions that prevail over the winter months – primarily temperature and the amount of snow – varved lake sediments best reflect variations in winter climate (Ojala *et al*. 2003: 11).

Solantie (2005) has especially highlighted one varved lake sediment site, Lake Nautajärvi, in the interior of Finland. The sediment series from Lake Nautajärvi is so far the longest continuous varved record in Fennoscandia, covering nearly 10 000 years (Ojala & Saarinen 2002; Ojala & Alenius 2005). With reference to a short paper by Ojala *et al.* (2003), Solantie has used data on the accumulation of mineral and organic matter as a basis for a discussion on past climate change. In his opinion, the Lake Nautajärvi data indicates particularly mild winters during the period 4000 to 3200 BC, after which a period of variable winter climate then followed till 2300 BC. The winter temperatures had minima around 3100 and 2500 BC, and favorable maxima around 2800 and 2300 BC; after that the temperature fell rather steadily until 500 BC. After a short, slightly milder, period (less secure than the two earlier) the lowest winter temperatures were reached around 100 BC. If taking the interpretation of Solantie literally it thus seems that the Pre-Roman Iron Age would coincide with a short milder period of winter climate, which in the late Pre-Roman Iron Age turned into a cooler phase. Solantie (2005: 29; *cf.* Ojala *et al.* 2003: 12) points out, however, that these conclusions are somewhat risky, as the flux of mineral matter into the basin is dependent on many interacting factors, obviously not all of them dependent on the climate. Furthermore, the diagram showing the accumulation of minerogenic and organic matter in Lake Nautajärvi (*cf*. Ojala *et al.* 2003: Fig 3) seem to indicate not one but two fluctuations during the period in question.

Solantie has used the Late Nautajärvi data to explain features of southwestern Finnish settlement and subsistence since the Middle Neolithic. According to him, the cooling of the Finnish climate since 2800 BC may have caused the gradual retreat southwestward of the Battle Axe Culture as well as subsequent western Finnish cultures, so that at the beginning of the Iron Age AD western Finnish settlement was to be found only on the southwestern coast. Solantie especially emphasizes the cooling of winters, leading to a longer period of permanent snow cover and problems with regard to the collection of winter hay fodder for cattle. Solantie (2005: 37) also reaches the conclusion that cultivation could have been only a secondary livelihood till the end of the Early Roman Iron Age. The whole scenario seems a little too simplistic, considering that it is mainly based on just one proxy record. As stated and explained above, a reconstruction of the whole climate pattern is extremely difficult and would require the analysis and critical comparison of several types of proxy data. What seems very risky is to combine the mineral matter influx with temperature alone, as variations in the snow cover are dependent on precipitation as well.

With regard to the Early Iron Age, the most interesting feature in the Lake Nautajärvi series is the double fluctuations during the Pre-Roman Iron Age. This periodicity seems comparable to that of other proxy records, like the tree-ring series from Finnish Lapland (Helama *et al*. 2002; Eronen *et al*. 2003). What is surprising, however, is that (following the general interpretation by Solantie) the correlation is negative. If this really reflects climate, it thus might indicate cold summers and mild winters during the early Pre-Roman Iron Age and a period of warm summers and cold winters during its middle part, followed by a change back to cooler summers and milder winters during the late Pre-Roman Iron Age. Within this reconstruction, it should, however, be noted that "mild" and "cold" winters may actually represent differences in precipitation in addition to variations of temperature. Yet again, the interpretation is probably too straightforward, but interesting, as such a scenario could contain elements of oscillations between different climatic regimes (Atlantic and continental) if using the terminology by Crumley (1995). At the same time the oscillations during the Early Iron Age, of course, challenge Crumley's scheme where the period 300 BC to 300 AD is presented as an uniform climate period.

Information concerning the environmental effects of climatic change can also be obtained from pollen analyses, which depict both climatic conditions and human activity. This has been discussed, for example, in the case of southern Scandinavia, where indications of a moister climate are seen in the spread of beech and spruce. During the first millennium BC, pollen analyses indicate more intense human activity, hazel becoming less common, probably because of intensified land-use and, above all, the greater pressure on grazing (Jensen 1994: 111). Similar results have been obtained from various pollen analyses in Denmark and southern Sweden. In Finland palynologists have usually discussed climate change just in general terms, for example combining the diminishing fraction of deciduous tree pollen since the Neolithic with the cooling of the climate. Regarding human activity, the growing impact of agriculture can be seen since the Bronze Age, but on a much smaller scale than in southern Scandinavia. The increasing impact during the Bronze Age and the Early Iron Age is rather reflected in the increasing indications of sporadic agriculture than as evidence of large-scale landscape change.

In addition to pollen analysis, agricultural expansion has also been recorded in lake sediments in the form of increased alkalic nutrition and minerals washed out from nearby fields.[143] In Scandinavia there are examples of both phenomena beginning to occur during the Bronze Age (*e.g.* Welinder 1998: 38-40). In Finland such indications have been discussed mainly regarding the Iron Age AD and the Middle Ages (*e.g*. Tolonen *et al*. 1976; Alhonen 1978; Tolonen 1978b).

Summing up these examples and scattered thoughts, it is first of all important to point out the indications of climate fluctuations during the Pre-Roman Iron Age, meaning that the period was not uniform with regard to climate. It seems that the most evident cooling in a long-term perspective happened during the Late Bronze Age, while the Pre-Roman Iron Age probably saw periods of both favourable and unfavourable climate. The beginning of the Iron Age coincides with an unfavourable climate period, but – what is important – not with its beginning. Furthermore, it also seems impossible at the moment to correlate other changes in the archaeological (or palynological) record with recorded indications of climate change during the Early Iron Age. If climate fluctuations during the Pre-Roman Iron Age had an impact on settlement and subsistence, this can at present not be distinguished with good enough precision as to correlate it with climate proxy data. The Roman Period, on the other hand, evidenced changes indicating prosperity and a new settlement pattern. Whether a more favourable climate could have had a direct impact on the development is, however, uncertain. As already indicated in the previous chapter, there are other possible explanations as well.

In a long-term perspective the continuous and even increasing land-use during the first millennium BC in most areas around the Baltic suggests that climate oscillations did not lead to major setbacks within agriculture. As referred to above, the development in other geographical areas or within some distinctive environments, like lowlands, may have been dissimilar. In the Netherlands (as in certain lowland areas of the southern part of the Baltic), for example, one interpretation of the changes in agriculture during the Late Bronze Age has been that it was due to climate change (*cf*. Berglund 2005: 52; Holmgren 2005: 43; Widgren 2005: 63-66). In Scandinavia, on the other hand, a strong view is that climate was not the driving force behind changes in agriculture and settlement (Pedersen & Widgren 1998: 246-253; Widgren 2005). One point is that the vulnerability of the Late Bronze Age

143 Another possibility would be to study small-particle fallouts that indicate the extent of wind erosion, *i.e.* the increase in the size of fields and open land. This would, however, require lake sediments occurring in special ombrotrophic environments, with the sample site pools situated in bogs. Under these conditions, the samples do not contain outwashed minerals.

agriculture was still comparably low as it was based on a variation of resources, farming included crop growing as well as cattle breeding, and the cultivated crops were of several types. Steadily increasing exploitation, with no sudden changes, can be seen in southern Scandinavia, especially in Denmark, reflecting a constantly growing need for land (Jensen 1994: 114). Farming also developed in the East Baltic area, as will be shown in the next chapter. In Finland, the environmental impact of agriculture was still small, but the scattered evidence of cereal cultivation in the form of Cerealia pollen seems to increase throughout the period.

This general long-term development does not exclude fallow years or shorter periods of reduced harvest due to a difficult climate. Such climate effects could have had something in common with the consequences known from historical sources related to the 'Little Ice Age' from the late 16th century onwards. During this period Finnish records show the decrease of harvest by at least a fifth, and possibly by as much as a third. The decline is indicated both by the decrease in the amount of tithes (*cf.* Orrman 1986: 193) and the reduced harvest yield calculated from accounts of Crown estates (Tornberg 1989: 62-71). This comparison could illustrate the effect within areas already practising developed agriculture. Along the Finnish coast where field cultivation was still in a stage of development, effects on the crops could have been more severe, but on the other hand, the economy was probably more flexible and suited for adjustments year by year.

5.6. Food production

5.6.1. The development in the East Baltic area

5.6.1.1. Long-term background

When we start looking at cultural and economic development in closer detail, the eastern part of the Baltic can be regarded as more important for this study than that of Scandinavia or areas east of Finland. During the Pre-Roman and Roman Iron Age, the Finnish material changed from forms indicating western influences to ones reminiscent of the East Baltic area. This gives reason to assume a familiar development in other aspects of the society and the economy as well.

In the East Baltic area, the first acquaintance with food production occurred during the Middle Neolithic, about 3500-2900 BC, but agricultural land-use did not become extensive until the second millennium BC (Lang 1998: 96-97). For the Middle Neolithic (2900/2700 - 2300/2100 BC, uncalibrated), there is evidence of mixed farming at a number of settlement sites belonging to the Narva Culture, although the principal mode of subsistence was still hunting and gathering (Daugnora & Girininkas 1995: 44; Griciuvienė 2000). At the same time there was also an increase in the number of flint microlith blades, interpreted as belonging to scythes and used for hay production. In the western and southwestern areas of the Narva ceramic tradition, some finds – an ard from Sventoji 6, grains of hemp (*Cannabis sativa*) and millet seeds (*Panicum miliceum*), for example – indicate a greater importance of agriculture (Daugnora & Girininkas 1995, 44; Loze 1997b: 23-24).

In Latvia major changes in the economy seem to coincide with the Bronze Age, but archaeological indications of the practice of agriculture already in the Middle Neolithic have been discussed. Loze (1997a; 1997b) has seen the evidence of early agriculture in the Lake Lubāna area represented in agricultural implements, such as axes for slash-and-burn cultivation and harvesting and grinding implements, as well as tools for spinning and processing the fibres of cannabis and flax. The palynological and palaeobothanical evidence is sparse, represented by a single pollen of barley (Loze 1997a: 40), and one grain of barley (*Hordeum vulgare*) found at the Kreici site (Vasks 1999: 23). This suggests that cultivation was practised, although some of the tools presented by Loze are not more than vague indications of it. Loze (1997a: 40; 1997b: 24) suggests a model according to which the introduction of farming was a local process of diffusion, involving influences from the Funnel Beaker Culture; the further stimulation and intensification of agriculture during the Late Neolithic resulted, however, from infiltration by small groups of immigrants belonging to the Battle Axe Culture.

Vasks (1994a: 120-121; 1999: 30-31) has discussed the transition to a food production economy in Latvia in terms of settlement density, a possible increase in population, and the idea of the increased carrying capacity of the environment due to food production. Indications of a developed agriculture can be seen especially in data from Late Bronze Age hill-forts (Vasks 1999: 36-37). The new form of economy, according to Vasks, could have produced a surplus and thus also opened the way for an unequal development of society. One outcome of this development could be the differentiation among Bronze Age occupation sites. Along with the common open settlements, fortified settlements were also erected. Vasks also has tried to explain why the fortified settlements were abandoned at the end of the first millennium BC. He suggests that the intensive agricultural exploitation of limited areas to gain surplus and prestige for a social elite led to a decline in both production and exchange activity; soil fertility was unable to recover because fallow periods were too short, and the large population centres declined.

Similar trends of cultural change can also be seen in the area of present Lithuania (*e.g.* Grigalavičienė 1995). The general picture of Bronze Age development in Lithuania is close to that for Latvia; open settlements are known, but the period involves the frequent use of fortified settlements. Stock-keeping seems to have been a principal element of the economy during the Bronze Age, but at the same time also agriculture was actively practised (Steponaitis 2000: 58).

In Estonia too, the earliest indications of interest in or knowledge of farming date to the Middle Neolithic. Pollen diagrams often show Neolithic human impact, even if the growing of cereals seems to become more common from the Late Bronze Age onwards (*e.g*. Piiper 1988; Pirrus & Rõuk 1988). Four or five pollen diagrams show cereal cultivation already prior to 3000 cal BC, but if Late Neolithic and Bronze Age dates are added, the total number of pollen sample sites with evidence of early agriculture is more than a dozen (Kriiska 2000: 73). A main change coincides with the Battle Axe Culture, evidenced by imprints of cereals on pottery, bones of domestic animals, agricultural tools and a re-location of settlement to areas suitable for agriculture.

Lang (1999d; *cf*. 1999c: 327-328) – arguing that the Battle Axe Culture does not represent an immigration but a local development – regards the transition to a framing subsistence as happening internally. According to him, the transition process can be divided into three stages: A) the acquirement of primitive farming within previously settled areas, B) the gradual relocation of primitive agriculturalists to new areas, and C) a primary extensive land-use in those new areas. Stage A is represented by Middle Neolithic sites with evidence of farming, but located in environments favorable for hunting, fishing and gathering (Lang 1999d: 365-366). In stage B new sites occur outside former hunter-gatherer areas. The extensive land-use of stage C is indicated by small and semi-permanent sites and fluctuating indications of human impact in the pollen diagrams. Cultivation based on slash-and-burn, as well as the relatively sparse settlement, resulted in the mobility of sites and fields. The principal mode of subsistence was farming and during this period the last entirely hunter-gathering sites were abandoned. This stage can be dated to the second millennium BC in northern and western Estonia, probably parts of Latvia (particularly the Daugava river valley), Lithuania and some coastal strips of southwestern Finland; in many areas this stage continued into the first millennium BC (Lang 1999d: 367-368).

The process of settlement re-location was not uniform throughout Estonia, but happened in different forms and at a different pace, depending on different possibilities for farming in different areas. Three geographically and ecologically diverse zones have been distinguished by Lang (1999c: 330-333): 1) the strip of *loo* type soils some kilometers from the coast, 2) the immediate coastal zone and small islands, and 3) the interior of Estonia. Within the first zone, soils were suitable for agriculture and the sparse forest offered natural opportunities for both cattle breeding and field cultivation. Here, territories established during the

Middle Neolithic continued into the Late Bronze Age and Pre-Roman Iron Age. In addition to a certain continuity in the division of land, this indicates, according to Lang (1999c: 330-331), that the shaping of a settlement pattern based on farming subsistence had already happened during the time of the Battle Axe Culture.

Within the second (coastal) zone either an economy based predominantly on marine resources or some kind of mixed economy with elements of farming probably existed during the Neolithic and the Early Bronze Age. After that, Lang (1999c: 331, 335) regards the coastal zone as abandoned as there is very little evidence of permanent settlement prior to the 13th century. The reason given for this desertion is the leading position of farming in the subsistence and a decrease of seal resources starting with the Early Bronze Age. The earlier coastal population thus relocated to areas suitable for farming, and the immediate seacoast without permanent settlement was divided between the farming communities living at some distance from it (*cf*. Vedru 2001: 123-126). The third zone, characterized by a thick soil cover, dense forest, lakes and rivers offered good conditions for hunter-gatherer societies. Within this area relocation of settlement to soils suitable for agriculture also started in the period of the Battle Axe Culture, but it took a much longer time than in the *loo* zone and evidently farming communities and hunter-gatherer communities coexisted within the same area.

5.6.1.2. Field systems

In Estonia the first field plots surrounded by stone baulks were discovered at Rebala in the 1980's and dated to the turn of the Pre-Roman Iron Age and the Iron Age AD (Lõugas & Selirand 1989: 89). Before that only some clearance heaps had been studied and usually dated to the beginning of the first millennium AD (*cf.* Lang 1994a, 22). The situation changed in 1992, when the large system of ancient fields at Saha-Loo was discovered and partly excavated. The field remains resemble the Celtic fields well known from Scandinavia, North Germany, The Netherlands, Britain etc., and were radiocarbon dated to the middle of the first millennium BC., *i.e.* the Late Bronze Age and Early Iron Age (Lang 1994a; 1994b). A number of similar sites have since then been studied and dated. During later investigations the age of the oldest fields proved to go back to the late second century BC, *i.e.* the Early Bronze Age (Lang *et al*. 2005a). In addition to clearance heaps and baulks ard-marks have also been revealed at some sites. Among the oldest are the ones preserved beneath a cultural layer from the Late Roman Iron Age at the Ilumäe II site (Lang & Konsa 1997: 69; Lang 2000a: 178-180).

In Estonia ancient field remains of different types are known throughout the Iron Age, providing material possible to use for studies on the development of agriculture as well as settlement and society. For example, in the Vihasoo-Palmse study area (Lang 2000a; 2003) the majority of fossile fields belong to the last quarter of the first and the first half of the second millennium AD – this applies to both clearance cairn fields as well as strip fields. The strip fields have been interpreted as reflecting the division of common field within a settlement unit, *i.e.* indicating the existence of hamlets, as well as the introduction of the forked plough, able to turn over the earth (Lang 2000a: 244-249).

Some remains of ancient fields are known from Latvia as well. Ard-marks underneath the earthen wall of the Dievukalns fortified settlement are quite early, from the Late Bronze Age at the latest (*e.g.* Lang 2007a: 67). Another possibly early remain has been found at the settlement site of Indricā, where remains of a cross-ploughed field occurred underneath a cultural layer formed during the last millennium BC and the first half of the first millennium AD (Zariņa 1996). No specific dating for this field has been suggested. A couple of other cases have been investigated as well, such as the possible ancient field remains of Rucava and Pokaiņi. Until more recently, ancient clearance heaps and stone settings have not attracted much interest from archaeologists in Latvia, one exception being a special project researching the ancient agrarian landscape of the Abava river valley. In connection with this project possible ancient field remains were discovered near the hill-forts of Matkule and Sabile. In addition, trial excavations have been made at a site consisting of 60 stone heaps near the Valgale hill-fort, where radiocarbon dated charcoal from the bottom of one of the heaps dates back to the 3rd to 7th centuries AD (Ritums 2000).

A larger number of fossile fields with stone baulks and/or clearance heaps are known from Lithuania. Such sites were found and described (and even excavated) already during the first half of the 20th century, but it was not until the 1980's that the meaning of the sites was established. After that more sites have been revealed, one interesting one being that of Padvariai, containing a system of stone and earth baulks, reminiscent of typical Celtic fields (Merkevičius & Nemickienė 2003). Radiocarbon dates from the Padvariai site are from the Middle Iron Age (Lang 2007a: 213).

5.6.1.3. *Domestication*

A synthesis of domestication from the point of view of the southeastern part of the Baltic (mainly Lithuania) has been given by Daugnora & Girininkas (1995). During the Early Neolithic, the only domesticated species identified is the dog. During the Middle Neolithic (2900/2700 - 2300/2100 BC, uncalibrated) especially sheep (*Ovies aries*) and goat (*Capra hircus*) appeared. Cattle and pig bones also occur. Middle Neolithic cattle, pig and sheep (or goat) bones have been found at the Lithuanian sites of Kretuonas, Sarnele and Sventoji as well as the Latvian ones of Zvidze, Kreici and Sārnatė (Vasks 1999: 23). During the Late Neolithic (2300/2100 - 1800/1600 BC) further advances in agriculture took place. The percentage of domesticated animals was greater in the western part of Lithuania (up to around or 30-40 %) than in the east. The most significant changes – especially with regard to eastern Lithuania – occurred during the Bronze Age, when a steady increase in the percentage of domesticated animals in bone assemblages can be seen – a trend that is supported by data from fortified settlements in eastern Latvia (Daugnora & Girininkas 1995: 46-47).

Regarding Latvia, the Late Neolithic development is difficult to interpret as there is not much data on the role of farming (Vasks 1999: 27). Bronze Age materials are more numerous, including, for example, bones of horse and sheep as well as cattle, found both inside the graves and in the earth layers of the barrows of the Kalnieši cemetery (Vankina 1962). One of the largest bodies of material comes from the fortified settlement site Brikuļi, where 86.7 % of the bone materials from the earlier layers, dating from the first millennium BC to the first quarter of the first millennium AD, are from domestic animals (Vasks 1994a). The percentages are: cattle 39.3, sheep/goat 22, pig 19.3 and horse 18.6 %. In the discussion by Vasks (1994a: 58-59, 118), the assumed average slaughtering age of the different animals (four years for cattle, three years for horses, 1.5 years for sheep and one year for pigs) has been taken into account in order to bring the quantities nearer the actual number of living animals. In the herd-corrected results, cattle seem to dominate (with a nearly 60 % proportion if given as the percentage of the whole herd), but the number of horses is also rather high (21 %), even when the seemingly low estimated age for horses is used in the calculation. There are, however, finds from Brikuļi of split young horse bones, supporting this conclusion and showing that horses were used for meat (Vasks 1994a: 118). [144]

[144] Vasks (1994a: 58-59, 118) has given the herd-corrected result only as the bone percentage multiplied by the correcting factor. Comparing the quantities is easier if they are given as percentages of the whole herd. One should also be aware of the fact that (in addition to the very long period of accumulation) formation processes related to slaughtering practises (including possibly differing slaughtering ages) and, for example, variation in the use and disposal of different parts of the animals add to the uncertainty of the result.

In Estonia too, finds of bones from domesticated animals have been dated (according to Finnish chronology) to the Middle Neolithic.[145] The earliest finds are bones from domesticated and semi-domesticated pig, found at the Late Comb Ware sites Tamula and Loona. There are a total of about 50 bones, one of which (from the Loona site) has been radiocarbon dated to 2870 (2620) 2498 cal BC (Lõugas *et al.* 1996; Maldre 1999). These finds probably indicate local domestication. The earliest materials do not, however, contain evidence of cattle breeding, the earliest indications of which occur in connection with the Battle Axe Culture. Evidently all the main domestic animals (cattle, pig, sheep and goat) were kept during this period, if one relies upon animal bones and bone artefacts found in graves (Maldre 1999). It has proved more problematic (as in the case of Latvia) to find data on Late Neolithic / Early Bronze Age domesticates. One assemblage of finds discussed in this connection was found at the Early Bronze Age site of Kaseküla in western Estonia, dated to the second half of the second millennium BC. This material included all important species, *i.e.* cattle, sheep or goat, pig and even horse (Mandel 1993: 21). The dating of this material is, however, difficult. At first the finds were connected with the Late Neolithic or the Bronze Age, but later excavations and materials do not support this opinion (Lõugas 1997: 17; Kriiska *et al.* 1998: 40).

Better osteological materials are available from Late Bronze Age contexts. The amount of bones from domesticated animals is in many cases high enough to allow the interpretation that cattle breeding became predominant during this period. Bones of domesticates have, for example, been counted to constitute 77 % of the total osteological material from the Asva fortified settlement, 79 % at the Ridala site and an even higher proportion of the bones from the Iru hill-fort (Maldre 1999: 322). The most well-known of these cases is the Late Bronze Age and Early Iron Age site of Asva (Indreko 1939), where there is a rather large body of bone material available. The Asva fortified settlement was in use mainly from the 9th to the 6th century BC, and later in the second half of the first millennium AD. The bone finds from the latest excavations in 1965-66 have been analysed by Lõugas (1994). The bones are interpreted as portraying the subsistence of the Asva people in the Late Bronze Age, but the dating of the bones remains somewhat unclear, since Lõugas (1994: 72) mentions that the bones analysed came from both early and late layers of the settlement. Within the 1965-66 material, bones from domesticated animals accounted for 57 % of the total material, the largest amount of domesticates being sheep or goat (44 %) and cattle (31 %). Among the cattle bones are four large bones,

[145] According to Estonian chronology the beginning of the Late Neolithic is dated earlier. In Estonia, the Late Neolithic is regarded as beginning with the Battle Axe Culture *(e.g.* Lang 1999b), while in Finland this stage, as well as the Late Comb Ceramic Culture, represent the Middle Neolithic.

interpreted as probably belonging to castrated bullock used as draught animals (Lõugas 1994: 75-76). One third of the cattle and sheep (or goat) bones and more than half of the pig bones come from juveniles. One third of the horse bones likewise come from juveniles. It is thus assumed that horse-meat was used for food at Asva (Lõugas 1994: 75).[146] Bone materials, including domesticated species from the Late Bronze Age or Early Iron Age, are also found at other sites in Estonia, but there often seems to be the possibility of confusion with materials from later stages of settlement (*e.g.* Jaanits 1994; Lõugas 1997: 74).

5.6.1.4. The "second landnam" in northern Estonia

The "first landnam" in northern Estonia, as distinguished by Lang (1996), is archaeologically connected with the Battle Axe culture. This was according to Lang the first colonization of agricultural land. The "second landnam" involved an increase of territories and building of stone graves during the Late Bronze Age and Pre-Roman Iron Age or (in other areas) during the late Pre-Roman and Roman Iron Age. Lang has interpreted this as a period of change in several aspects of life – religious, social, and that concerning property rights. The second landnam probably included the establishment of private ownership of cultivated land. The first intensification of agriculture started when the possibilities for the earlier extensive system were exhausted, due to increase in population, reaching the limits of resources for shifting agriculture, or something else. This meant, first of all, a stronger division and fixation of agricultural land between settlement units. This, in turn, caused more intense territorial behavior from the communities, which (in archaeological terms) found expression in the building of monumental graves, the

146 Estonian prehistoric and medieval horse bones have been more closely surveyed by Maldre (1998). In Estonia both the wild and the domesticated horse is found, but according to Maldre there is no reason to expect that the horse was domesticated locally. At the Abora site in the Lake Lubāna area in Latvia a horn object from as early as the Middle Neolithic has been interpreted as a bridle cheek piece, indicating that horses were already used for riding at that time (Loze 1997b: 25). This evidence is not totally convincing, but it is interesting to note that bones from seventeen horses have also been found at sites in the same area, dated to the Late Neolithic. According to Maldre (1998), the bones from wild horse decrease at the end of the Neolithic, while the domesticated horse is first present during the Late Bronze Age, when horse bones are frequent. The introduction of the domesticated horse may have happened earlier, but there is no suitable osteological material to be studied, for example, from the Early Bronze Age in Estonia (Maldre 1998: 204). In the Late Iron Age the number of horse bones decreased, probably due to the changing function of the horse; rather than a source of meat, it was increasingly used as a draught animal and for riding, even if butchery waste shows that horse-meat was still used for food (Maldre 1998: 206-208).

erection of fortifications and the establishment of a permanent field system (Lang 1996; 1999d: 368).

In the Late Bronze Age stone-cist graves were built within the zone of *loo* type soils along the coast, but very few have been found in the interior area. Other distinct features occurring in the first zone are the remains of fossil fields dated to the first millennium BC as well as fortified settlements dated to the Late Bronze Age. The stone-cist graves have been interpreted as indicating a dense settlement pattern consisting of single farms, while the fortified settlements have been local centres of power, which controlled access to trade, the distribution of bronzes and the surplus of farming products (Lang 1999c: 333-334). Most of the fortified settlements belong to the same period of time, periods V and VI of the Bronze Age, while only a few have been dated to the Pre-Roman Iron Age (Lang 1996; Lang *et al.* 2005b). In the interior area the development looks different. An increase in field cultivation and cattle breeding can be concluded from palynlogical data, but it is not seen in the archaeological data as clearly as in the first zone. The explanation given by Lang (1999c: 334-335) is that the settlement pattern of the interior area was more sparse, there were still enough resources for agricultural land and therefore there was "no need to express territorial behavior". Furthermore, the good conditions for slash-and-burn agriculture favoured a semi-permanent mode of life. Not until the Early Roman Iron Age stone graves occur in the interior area, probably indicating the end of colonization, "division of agricultural lands between the settlement units, and the territorial behavior of these units competing for the lands".

One of the most important results achieved in Lang's (1996) analysis of settlement areas in northern Estonia is the interpretation of continuity in the development of territories, starting from either the Late Neolithic or the Late Bronze / Early Iron Age, and lasting at least up to the Roman Iron Age or even longer. Investigations of cemeteries show continuity from Bronze Age settlement, but also an increase in the number of territories. As Lang has interpreted the territory as the geographical expression of social power, the interpretation of territorial stability would be that the power that created and re-created these territories was likewise stable. A decrease in territories and rearrangements recorded during the Roman Iron Age is thus an indication of instability of power around this time. The decrease in the number of territories during the Roman Iron Age, under conditions of estimated population increase, can be explained according to Lang (1996) as the establishment of territories where settlement units consisted of several households. The same situation has become apparent from the location of Roman Iron Age graves, which in some places were erected close to each other, indicating the existence of several farms. Settlement sites proving this hypothesis, however, are still lacking. This is similar to the situation in southwestern Finland; some cases like this within the present study area – Spurila in Paimio, Lupaja in Perniö and perhaps Isokylä in Salo – have already been described. These settlement units probably did not form true villages or hamlets but consisted of several single farms situated close together.

5.6.2. Food production in a long-term perspective in Finland

5.6.2.1. Stone Age agriculture and domestication

No proof of animal husbandry or cereal cultivation connected with the Comb Ceramic Culture have so far been detected in southwestern Finland. According to palynological data, cereal cultivation was, however, practised during the period of the Comb Ceramic Culture both on the Russian Plain (Khotinsky 1993) and in the vicinity of Novgorod (Königsson *et al.* 1997) – possibly also in the northern Lake Onega area (Vuorela *et al.* 2001).[147] These occurrences can be dated to the fourth (Bolshaya Berezovka) and the third millennium BC (Rabelik fen and Pegrema), roughly corresponding to the period of the Late Comb Ceramic (Ka III) and Pyheensilta (KaP) phases in southwestern Finland. The question of whether cultivation was practised in Finland during this period is still open, as these millennia are covered by rather few pollen sample series and no Cerealia pollen have been detected. For example the Labböleträsket series from Västanfjärd, analysed by Teija Alenius and presented in Appendix 2, contains indications of human impact during the period of the Comb Ceramic Culture, but no decisive proof of agriculture.

Elsewhere in Europe – including Scandinavia and Estonia – there is evidence of cereal cultivation and husbandry related to the Middle Neolithic Battle Axe Culture, but in Finland such data is still lacking. The Finnish Battle Axe Culture has nevertheless traditionally been regarded as a culture, the economy of which included farming. One point in this discussion has been the occurrence in the Finnish language of Baltic loanwords related to farming, interpreted as introduced during the time of the Battle Axe Culture, probably due to immigration (*e.g.* Salo 2005a: 21-28). In the 1970's doubts were raised, as – contrary to previous expectations – no proof of a Neolithic economy had been found. Rather, it was suggested, hunting and fishing was of crucial importance for the people of the Battle Axe Culture as

[147] In the case of Pegrema in the Lake Onega area, the result has been discussed in relation to contacts with more southern or south-eastern regions where cultivation was already known. Thus the cereal pollen need not necessarily represent local cultivation but anthropochores transported from other regions (Vuorela *et al.* 2001: 135).

well (Edgren 1970: 53-56; 1984; 1993a: 95; Meinander 1984a: 5-7). Thus there are views suggesting that the economy of the Finnish Battle Axe Culture was different from that of the Battle Axe Culture in the East Baltic area (*e.g.* Lang 1999d: 366). This is still an open question – one can only present indices and arguments in favour of or against the idea of a subsistence strategy involving food production.

One indication in favour of agriculture often referred to is that the northern boundary of the Finnish Battle Axe Culture follows approximately the -8 °C average curve for the present-day January temperature, thus restricting the distribution to the climatologically most suitable agricultural areas in Finland (*e.g.* Edgren 1970: 53). Another point has been the supposed occurrence of Battle Axe Culture sites in connection with clayey soils suitable for agriculture and not necessarily close to water as in the case of Comb Ceramic sites. This picture has since then changed, as the relation to clay soils is not at all as clear as previously thought (Edgren 1970: 53; 1993a: 94). Some differences in the general location of Comb Ceramic and Battle Axe Culture sites in the landscape, however, can still be pointed out. At least in the Turku area this seems obvious: Battle Axe culture sites show a different areal pattern compared to Comb Ceramic sites (Sartes 1994: 110-114). The main difference seems to be the evenly scattered distribution of the sites – perhaps according to proportional resource areas – rather than the marine-oriented clusters of sites found for the Comb Ceramic Culture. This has been interpreted as indicating a different relation of the people of the Battle Axe Culture towards the environment, probably because of the practice of food production. A hint towards a similar pattern can also be seen on Kemiönsaari, where the location of Battle Axe Culture sites differ from that of typical Comb Ceramic sites.

Attempts to elucidate the subsistence economy of the Battle Axe culture have also made use of palynology and palaeobotany. There are only few findings positively associated with the Battle Axe Culture: one such is the evidence of forest clearance in the vicinity of the Perkiö settlement site at Hauho, which might indicate herding (Alhonen 1970). Occurrences of Cerealia pollen in sediments from lake Ahvenaisenjärvi in Koski may also have a date corresponding to that of the Battle Axe Culture (Siiriäinen 1982b: 216). In addition to these studies, grain imprints in ceramics have been systematically searched for, but without success (Edgren 1984: 11). The question of the role of animal husbandry has also been difficult to determine, as bone finds are rare on Battle Axe Culture sites. Some single bones from cattle and sheep or goat have been identified on Stone Age sites (Forstén 1973: 76; Nuñez 1995: 61; Luoto 1996: 49-50; Ukkonen 1996: 75-76), but they cannot be unequivocally associated with any specific period or cultural group – in some cases they may be suggested as being recent in comparison to the settlement site materials (*e.g.* Katiskoski 2004: 112-113). In what is thus far the largest bone material associated with the Battle Axe Culture that has been studied, the Jönsas settlement site in Vantaa, the major part of the material consisted of seal and fish (Forstén & Blomqvist 1977; Edgren 1984: 14; Purhonen & Ruonavaara 1994: 93-96). One factor possibly reducing the importance of this result, however, is the Mesolithic period of use of the same site. Some of the bones investigated might be considered rather to represent that stage of occupation.

5.6.2.2. Late Neolithic and Bronze Age breakthrough

On the Åland Islands there is evidence of both cattle and sheep dated to the early part of the Late Neolithic, whilst the oldest pig bones are from the very end of the Late Neolithic or the Bronze Age (Storå 2000: 71-72, Table 4). There are, however, only sparse indications of cultivation, as the cultural context and dating of the only charred grain of barley (*Hordeum* sp.) from the Neolithic Kolsvidja I site (Lindqvist 1988: 15-16) has been questioned (Nuñez 1989; Stenbäck 2003: 91). The oldest unquestionable evidence of farming comes from mainland Finland and is related to the Late Neolithic and Early Bronze Age Kiukainen Culture. At the Niuskala Kotirinne site in Turku charred cereal grains, one of which is identified as barley (*Hordeum vulgare cf.* var. *nudum*), was found in the 1980's and radiocarbon dated to 3200 ± 170 (Ua-338), corresponding to the calibrated date 1900-1000 cal BC, the 1 sigma (62,2 %) probability range being 1690-1260 cal BC (Pihlman & Seppä-Heikka 1985; Vuorela & Lempiäinen 1988; Vuorela 1990: 119; *cf.* Lempiäinen 1999a). In addition, a number of pollen analyses show the earliest occurrence of Cerealia in the Late Neolithic or the Early Bronze Age (Vuorela 1972; 1975; 1990; Tolonen 1978a; Siiriäinen 1981; 1982b; Donner 1984). Sites mentioned from within the present study area are Lalaxkärret in the Nauvo archipelago and Ilsokärret in Kemiö (Asplund & Vuorela 1989; Vuorela 1990: 119-120; 1999: 147-148) as well as Labböleträsket in Västanfjärd (Appendix 2). It seems clear that during this time, if not earlier, small-scale cultivation was being practised in Finland.

Presumably related to this early agriculture are also the flint sickles discussed above. Another stone implement from the period of the Kiukainen Culture – the narrowbladed axe – has also sometimes been suggested as being related in some way to cultivation (Meinander 1954a: 101; Edgren 1993a: 110; Salo 1997: 64-65). Thus far this is purely hypothetical; under closer examination these items at least have not proved to bear use-wear marks of the kind typical of stone ardshares (Brady 1990: 162-163). Simple shaft-hole axes have also been suggested to have actually been stone ardshares. One good point in the discussion has been that the shaft-holes of these axes often seem to be too small for shafting a functional axe (Salomonsson 1958: 27-28). Stone tools with use-wear in the form of striation may have been parts of ards, but finds connecting specifically shaft-hole axes with wooden parts of ards are so far lacking. On the other hand, properly shafted axes of this type have been found, showing that they have been used as proper axes.[148]

Regardless of the indications of cultivation, the Kiukainen Culture sites mostly have a marine-oriented location without any noticeable tendency to favour soils suitable for cultivation (Zvelebil 1981: 123, 132). On the contrary, their locations often resemble those of the marine sites of the Comb Ceramic hunter-gatherers. Likewise the bone materials from Kiukainen Culture sites support the idea of the dominant importance of marine hunting (Lahtiperä 1970: 202-203; Salo 1981: 398-399; Edgren 1984: 94; Asplund *et al.* 1989). One often described find is the remains of fishing nets from Tuorsniemi in Pori, containing more than 800 bark floats (Luho 1954; Kauhanen 1974). This must have been a system comprising a number of big nets, indicating a large-scale organised undertaking. A radiocarbon dating (I-3243) from one of the floats has given the calibrated result of 2460-2140 cal BC.

The Kiukainen Culture thus is characterised by a mix of elements of both hunting-gathering and agricultural cultures. The farming component may have derived from the preceding Battle Axe Culture, or it might be associated with escalating western contacts during the Late Neolithic (Siiriäinen 1981; 1982a: 24). These contacts are manifested in some Scandinavian flint objects as well as in a general resemblance of artefact materials. Regardless of the Late Neolithic indicia of farming, the Bronze Age has in many cases been regarded as the main period of "economic domestication" (Zvelebil 1993) of the hunter-gatherers in southern Finland and the East Baltic. According to this way of thinking, the Late Neolithic indications of farming are considered to be of only minor importance. The trigger for the adoption of agriculture during the Bronze Age has been suggested as being a decrease in resources (Zvelebil 1993: 151-155). Some form of "economic imperialism" has also been proposed as a reason for the adoption of farming (Matiskainen 1998: 114). According to the latter theory, the Bronze Age involved a certain extent of Scandinavian colonization and the creation of a vassal system linking coastal Finland with Indo-European regions. A thought-provoking idea is that one reason for the adoption of cereal cultivation as well as domesticates could have been the use of beer (Taavitsainen *et al.* 1998: 240) or bread and animals in rituals or in relation to status. A similar idea has been proposed, for instance, with

[148] Possible stone ploughshares have also been discussed in Estonia and Latvia. In Estonia, such stone artefacts have been tentatively dated to the Late Neolithic or Early Bronze Age (Lang 1999c: 328, 333, Fig. 2, Fig. 4; 2000a: 71-73; 2003: 133-134), and in Latvia a couple of Early Metal Period stone ploughshares have been presented (*e.g.* Graudonis 2001: 90 att.).

regard to landscape changes in southern Scandinavia around 1000 BC, which could have been related to a growing interest in the ownership of livestock. Here signs of increased pasture areas occur during a period which lacks monuments and marked symbols in the material culture; this may indicate that at this time the maintenance of herds of livestock symbolised wealth and status (*e.g.* Larsson 2000: 65-66).

5.6.2.3. Early Iron Age agriculture and domestication

Palynological evidence, in the form of pollen diagrams for southwestern Finland, offer indications of Early Iron Age farming. The increased importance of farming is further stressed by the continuous geographical expansion of agriculture in inland areas during the Bronze Age and Early Iron Age. During the Late Bronze Age and the Pre-Roman Iron Age, Cerealia pollen are found as far north as Keminmaa, as well as in Southern Ostrobothnia in the west and Outokumpu in the northeast (Vuorela 1999: 148-149). During the same time period, there also seems to be an increase in domesticates, identified osteologically from settlement site materials as well as some cairns. The main emphasis has been on the occurrences of cattle and pig found at several sites (Edgren 1999b: 327), but in the Late Bronze Age Nakkila Rieskaronmäki house, for example, sheep and goat have also been identified (Lahtiperä 1970: 208; *cf.* Salo 1997: 84).[149] A couple of horse teeth are also known from possible Bronze Age contexts (Lahtiperä 1970: 202, 208). To previously published materials one can add domesticates identified from within the present study area, discussed in chapter 4.4.[150]

No Early Iron Age fossilised field-systems with clearance baulks have so far been identified in Finland. In fact, younger field remains of this kind have not been investigated either – with a few exceptions. One is a case in the village of Salo in Laitila, where parts of a prehistoric field system have been investigated and dated to two stages about 350-600 and 1020-1250 AD (Roeck Hansen & Nissinaho 1995; Salo

[149] The best dating available for Pre-Roman cattle comes from the Hevossuonmäki site in Rauma. A cattle bone found has been radiocarbon dated to 2330 +/- 35 BP (Hela-1228), *i.e.* 520 – 230 cal BC (Lesell 2007: 71-72). Another radiocarbon dating was earlier performed on a bone from Leväluhta in Isokyrö, with the result of 2100 +/- 210 BP (St 9854) (Formisto 1993: 140). The error margin is, unfortunately, rather large, resulting in the calibrated date of 800 cal BC – 400 cal AD.

[150] Most of the materials come from the southern and western part of Finland. In Bronze Age or Early Iron Age materials from eastern Finland the occurrence of domestic species is sparse. Only three sites occupied during this time show domestic species in the faunal material, and in all cases the bones have been interpreted as possibly recent (Ukkonen 1996: 75-76).

1997: 97-98). Clearance baulks have furthermore been investigated at Retulansaari in Hattula, in the province of Häme (Taivainen 2005). Also the probable clearance remains discussed in the case of the Tappo site in Västanfjärd (chapter 3.4.2.1) could be mentioned in this context, but it has so far not been possible to connect the clearance with agriculture. In addition to the few cases containing proper stone baulks, many sites with clearance cairns (usually considered to date from the Historical Period) have been surveyed, mostly in the inland and the eastern part of Finland.

Ard marks in the form of cross-ploughed parts of fields are known from a few sites. These remains are in many cases difficult to date, but the impression is that most of them are from the Late Iron Age. On the southwestern Finnish coast cross-ploughed ard marks in prehistoric contexts have been identified on the sandy hillslopes of Kirkkomäki (Katiskoski 1992: 84, Map 2) and Kärsämäki in Turku (Roeck Hansen & Nissinaho 1995: 27; Salo 1995a: 22) as well as at a site called Kappelniitty in Yläne (*e.g.* Mikkola 2005: 49). The Kärsämäki case was not identified during excavations in 1951, but has subsequently been interpreted from photographs. If the Kärsämäki case is accepted, there are around ten to fifteen prehistoric fields with ard-marks known in Finland, the Åland Islands included (*e.g.* Vikkula *et al.* 1994; Roeck Hansen & Nissinaho 1995; Huurre 2003: 42-43; Mikkola 2005; Pellinen & Pälikkö 2006).[151] The most thoroughly investigated ancient field remains in Finland are the Rapola Matomäki cross-plowed field in Häme, dated to 780-1217 cal AD (Vikkula *et al*. 1994; *cf.* Lempiäinen 1999b; Seppälä 1999: 100-101) and the cross-ploughed fields at Mikkeli Orijärvi in Savo, the oldest phases of which are dated to the Viking Age (Mikkola & Talvio 2000; Mikkola 2001; 2005; Mikkola & Tenhunen 2003). The most evident southwestern Finnish case is that of the field remains at Kirkkomäki. In addition to the first observations, published by Kaarlo Katiskoski (1992), further parts of a field, originally probably as extensive as the

[151] In addition to the sites mentioned in the text above, Iron Age field remains have been identified at Maalahti Kalashabrännan in Ostrobothnia and at Hartola Joenrantapelto in southern Häme (Liedgren 1991: 126-129; Kotivuori 1992: 71; Mikkola 2005: 49). Ard-marks have also been found under medieval cultural layers in the midst of the city of Turku; the oldest urban layers on top of the field remains have been dated to the end of the 13th century and the 14th century (Pihlman 2005; Pihlman & Majantie 2006: 46-49). Plough-marks are also mentioned at the Niuskala Kotirinne site in Turku (Saloranta 2000: 25-26); whether these can be interpreted as remains of a prehistoric field is unclear. Other possible cases are Torttolanmäki in Hattula and Kalkkinen in Asikkala (Palo 2001; Mikkola 2005: 49). Furthermore ard-marks have been identified at Vainionmäki in Laitila, where they have been interpreted as ritual ploughing (Söyrinki-Harmo 1996: 116). On the Åland Islands one well-preserved cross-ploughed field remain, dated to 900-1300 AD, has been detected at the Kastelholms Kungsgård site in Sund; other field-remains are known from Borgboda Ribacken and Kvärnbo in Saltvik as well as Kattby in Hammarland (Núñez 1993: 64-66; 1995: 116; Mikkola 2005: 49-50).

500-600 m^2 field at Rapola in Häme, were revealed during the excavation seasons of 1991-92. The field has a broad stratigraphic dating, as it must be younger than a Pre-Roman fireplace disturbed by the ard-marks and older than a 11th century inhumation cemetery at the site.

Considering the early fields in northern Estonia, with a close resemblance to the general development of farming in western Europe, raises questions concerning ancient farming techniques on the other side of the Gulf of Finland. It would seem odd if major differences were to occur in two areas so close to each other. Given the present stage of knowledge, however, there is no material to compare with the early Estonian field systems. This may partly be due to the specific soils, geological conditions and recent land-use in Estonia when compared with the conditions in Finland. For the sake of comparison it could also be pointed out that fossilised fields have been considered rare in Latvia as well. Due to new surveys, some field remains have been revealed (Ritums 2000), but mainly in the form of clearance heaps and with later dates than the Estonian Early Iron Age field systems.

Early field cultivation is also difficult to exemplify with reference to agricultural tools (other than sickles and scythes, as mentioned above). In southern and central Europe iron ploughshares were already common during the Pre-Roman and Roman Iron Age. In the Baltic Sea area, on the other hand, they are surprisingly late. For example, in Denmark there is no real evidence of their use before the Viking Age (Levinsen 1989: 451). The few earliest occurrences in Finland are also dated to this period. Earlier pieces are found in Gotland, but in mainland Sweden, in Norway and for example in Ireland they occur only slightly earlier (Brady 1990: 175; *cf*. Myrdal 1999: 53-56).

5.6.2.4. Palaeoethnobotany – some general lines

Within palaeoethnobotany evidence of cereal cultivation is of special importance.[152] The most important cereal in southwestern Finland during the prehistoric period seems to have been barley. The first occurrence at Niuskala Kotirinne in Turku, dated to the Early Bronze Age, is of the naked type (*Hordeum vulgare cf.* var.

[152] In addition to cereals, not many remains of cultivated plants occur in Finnish prehistoric palaethnobotanical records. One exception is Pea (*Pisum sativum*), which is present in archaeological finds in the form of impressions in ceramics from a grave mound in Vammala, dated to AD 400-500 (Luoto *et al.* 1983). Some other finds from the Iron Age are also known (Kivikoski 1946: 68; Seppä-Heikka 1983). Peas are known to have been cultivated already during the Neolithic in Europe; the plant in fact arrived with the Neolithic economy (*e.g.* Onnela *et al.* 1996: 251).

nudum) (Pihlman & Seppä-Heikka 1985; Vuorela & Lempiäinen 1988). Naked barley decreased gradually during the first millennia BC, probably due to climatic deterioration, or because of the beginning of more intensive cereal production with thorough soil preparation and heavy manuring (Onnela *et al.* 1996). During the Iron Age, four-rowed hulled barley (*Hordeum vulgare* var. *vulgare*) became the staple crop in northern Europe.

Since the classic find of Early Bronze Age barley at Kotirinne, it has proved difficult to find additional Bronze Age macrofossile materials. There is one Early Bronze Age date available, 2990 ± 60 BP (Hela-167), *i.e.* 1400-1020 cal BC, from the Kitulansuo site in Ristiina (Lavento 2001: 139) as well as one Late Bronze Age date 2560 ± 60 BP (Hela-208), corresponding to 830-510 or 470-410 cal BC, from the Luistari site in Eura (Lehtosalo-Hilander 1999: 42). The biggest Bronze Age body of macrofossile material is that of the Peltola Alatalo site in Laihela, Ostrobothnia. An investigation of the site yielded material consisting of altogether 41 cereal grains, 19 of which identified as barley (*Hordeum*). Included in the assemblage is also one grain of Oats (*Avena*), which is unusual. One barley grain has been radiocarbon dated (with a two sigma consistency) to 830-550 cal BC (Holmblad 2007: 153).

Neither are Pre-Roman dates many. There is one probable Pre-Roman find of barley (Häkkinen & Lempiäinen: 1996: 148) from the Hannunniittu site in Turku (*cf.* Laukkanen & Vuorinen 1985); barley also occurs at the Huilu 2 settlement site in Lappi, dated to the Pre-Roman Iron Age (Raike & Haimila 2003: 18). An even better indication of Pre-Roman barley, however, was discovered in connection with the investigation of the Riihivainio Orhinkarsina site in Turku in 1996. One grain of *Hordeum*, identified by Terttu Lempiäinen, was AMS-dated to 2180 ± 35 BP (GrA-14134), *i.e.* 380-150 or 140-110 cal BC.

Other species also occur rather early. The earliest find of club wheat (*Triticum compactum*) was discovered in connection with the excavation of the prehistoric field at Rapola in the province of Häme. The find has been dated to the Pre-Roman Iron Age, *i.e.* earlier than the actual field remains (Vikkula *et al.* 1994). Club wheat is present in some finds from the Late Iron Age and the Middle Ages as well, but wheat cultivation during that time was still rare and was concentrated in southwestern Finland (Onnela *et al.* 1996). Hulled emmer wheat (*Triticum dicoccum*) was also known in Finland in the Iron Age (*e.g.* Seppä-Heikka 1985), but it is lacking in Late Iron Age macrofossil materials. This has been interpreted as indicating that the cultivation of emmer wheat declined during the Merovingian Period (Onnela *et al.* 1996: 251).

The cultivation of oats described in pollen diagrams has been dated differently depending on the interpretation (Onnela *et al.* 1996: 251). Macrofossil evidence from Katajamäki in Salo seems to indicate that oats (*Avena sativa*) were already known in Finland AD 300 (Aalto 1982). An even earlier occurrence is that of the Peltomaa Alitalo site in Laihela mentioned above (Holmblad 2007: 153), if the grain of oats can be regarded as belonging to the same context as the Late Bronze Age barley found at the site. The identification of cultivated oats, however, is difficult, as the de-husked grains of wild species resemble those of cultivated oats in their morphology, and the difference in size cannot be reliably measured (Onnela *et al.* 1996: 251). Oats are mentioned for the first time in written sources in 1387; they were grown mainly for animal fodder and played a minor role in agriculture.

The first occurrences of rye (*Secale cereale*) in Finland have been detected in pollen analysis. Such finds have earlier been dated to the Early Iron Age at the earliest (Tolonen 1978a: 195; Vuorela & Lempiäinen 1988), but at Söderbyträsket in Dragsfjärd the occurrence of a single grain of rye identified by Teija Alenius (Appendix 2) is even older, from a layer confidently dated to the Early Bronze Age. Additional proof for the early occurrence of rye on Kemiönsaari comes from the Labböleträsket series, where a similar dating is suggested by interpolation from radiocarbon dated horizons. The earliest AMS-dated macrofossile rye so far was found at the Naarankalmanmäki site in Lempäälä (Raike & Seppälä 2005: Appendix 1). The dating result 1975 ± 175 (Hela-283) unfortunately has an extremely broad error margin, giving the calibrated date 400 cal BC – 450 cal AD. According to an unpublished report written in 1986 by Merja Seppä-Heikka early macrofossile rye – suggested as dating to around 100 BC – 100 AD – has also been found at Spurila in Paimio (Lempiäinen 2005: 111; 2006: 36). These grains occurred together with grains of barley and emmer-wheat. This is similar to early occurrences of rye in paleoethnobothanical samples from Northern Germany and the Rhine area, where rye occurs together with other cereals and has been interpreted – like the early Finnish rye – as not grown as such but occurring as a weed amongst the other cereals (Behre 1992; Lempiäinen 2005: 110).

The Early Metal Period is the time when rye became common throughout Central Europe (Behre 1992; Onnela *et al.* 1996). The distribution of macrofossil rye caryopses in Central Europe is, however, peculiar; during the early Pre-Roman Iron Age there seems to be a more northward distribution (including, for example, the Polish coast) than during the late Pre-Roman Iron Age and the Roman Period, when finds in the area around the Baltic appear to be sparse (Frenzel 1999: Abb. 6-8). This may indicate fluctuations in the spread of rye, maybe due to changes in climate and cultivation methods. Still after the Roman Iron Age the cultivation of rye was of minor importance in Europe in general as well as in Finland. This is indicated by the sporadic occurrences of rye, the amount of which in macrofossil finds dated to the Early and Middle Iron Age is very small (Aalto 1982; Onnela *et al.* 1996; Lempiäinen 2005; 2006). During the 8^{th}-10^{th} centuries an increase in rye cultivation is to be seen in pollen diagrams from Germany, the Netherlands and southern Scandinavia. This development is supported by macrofossile data (Behre 1992: 151-152). In Finland the expansion can be seen in pollen samples as well as in palaeoethnobotanic samples from along the coast. In macrofossile materials, the proportion of rye is as high as 15 %; in one somewhat later find from Sievola in Paimio, dating from the Crusade Period, rye is already dominant (Seppä-Heikka 1983). A supply of cereals discovered at the Rähälä Ryökäs settlement site in Lieto and dated to the 13th century was almost entirely made up of rye (Lempiäinen 1996).

The rate at which specialisation of cultivation developed during the Iron Age in southwestern Finland is so far difficult to determine. Macrofossil finds from certain sites depict farming practices and the most common cultivated plants, but different formation processes also have to be taken into account in dealing with palaeoethnobotanical material. The separate dates of single grains help to construct a chronology of cultivation of different plants, but large and archaeologically well documented materials are needed for an interpretation of the importance of various cereals and other plants in different contexts. Large materials, however, are rare. In the extensive Late Iron Age macrofossil material from Pahamäki in Lieto, consisting of a total of over 9000 macrofossils, barley (*Hordeum vulgare*) was still the dominant cultivated plant, comprising 54 % of the identified material (Onnela *et al.* 1996). Rye (*Secale cereale*) followed, with 14.6 %. Poorly represented species were wheat (*Triticum aestivum*), oats (*Avena* sp.) and pea (*Pisum sativum*).

5.7. The Early Iron Age turning point – a summary

In the first chapters of this book, seen from the perspective of Kemiönsaari, the Early Iron Age emerges as a period of change, the settlement development of the island differing from that of the mainland. The Roman Iron Age in particular reflects a change because of the clusters of cemeteries evolving on the mainland. This "turning point" can be seen from different angles: either the development in the mainland river valleys took a new direction, the situation on Kemiönsaari prevailing as it was, or the change was more specifically related to the conditions on the island, where the development started to diverge from that of the mainland more than before. Causes for change may have evolved locally or been due to more general factors affecting societies further away. As the last period of indisputable permanent settlement before the change is the Pre-Roman Iron Age, the preceding chapter has focused most on this particular period, exploring various topics of Finnish and general Early Iron Age archaeology.

Since the old theory of a major Early Iron Age Finnish immigration was abandoned during the 1970's the general opinion has been that Pre-Roman settlement sites in southern and western Finland may be associated with the ancestors of the population later living in the same area. The detection of these sites is largely due to the identification of pottery representing the style known as Morby Ware. As metal objects are sparse in both settlement and cemetery contexts, this type of pottery is the best material with regard to the general chronological framework of the Finnish Pre-Roman Iron Age. In this chapter, the possibility of a major Late Bronze Age period of use of Morby Ware is rejected and the idea of an essentially Pre-Roman Iron Age dating for this pottery style is maintained. Late Bronze Age dates obtained by the means of radiocarbon dating are rather the result of poor source materials and calibration problems.

The problem of Early Iron Age calibration is a general one, making the use of single radiocarbon dates problematic for the specification of the demarcation of the Iron Age. The most problematic period is the Nordic Bronze Age Period VI; Morby Ware may, in principle, occur as early, but closed contexts combining Morby Ware and Period VI objects are still lacking. This is comparable to results obtained elsewhere, supporting the traditional general boundaries 500-1 BC for materials related to the Pre-Roman Iron Age. With regard to the inner chronology of the period from a Finnish point of view not much can be added. One can identify some early and late Pre-Roman finds and features, the former in many respects related to continuities from the Bronze Age and the latter to new influences preceding the Roman Iron Age. With reference to Finnish materials alone, no absolute chronological boundary between the Early and Late Finnish Pre-Roman Iron Age can as yet be drawn.

With regard to Pre-Roman pottery in southwestern Finland it can be noted, that although Morby Ware in its typical form is dominating, other pottery types – rusticated ware, fine-grained pottery, textile impressed ware as well as undecorated striated pottery – may date to the same period, or (especially the undecorated striated pottery) may represent styles occurring in some stage of the development of Morby Ware. As there are only few archaeometric datings available, the chronologies of these pottery types are poorly known.

Throughout the preceding discussion, comparisons between Finnish and East-Baltic – especially Estonian – materials and interpretations are stressed. With regard to pottery, there is a clear resemblance between Bronze Age pottery in southwestern Finland and Estonia, albeit on a general level. For the Pre-Roman Iron Age, special importance is attributed to the Estonian Ilmandu style pottery. The similarities between the Ilmandu style and Morby Ware seem more specific than the Bronze Age pottery similarities. For at least part of the Ilmandu style pottery found in northern Estonia one could actually use the classification Morby Ware as well. The similarity of pottery styles may be due to increased contacts, which later (during the late Pre-Roman Iron Age and the Early Roman Iron Age) become apparent in other materials as well. This intensification of contacts in the northeastern part of the Baltic also encompassed the eastern part of central Sweden. This western area of East Baltic influence is characterized by the occurrence of striated ceramics and cemeteries related to the Estonian *tarand* graves, as well as grave finds of Estonian-Finnish character.

In addition to pottery, the preceding review contains some thoughts on other types of Pre-Roman objects. Bronze objects presented prove the existence of Pre-Roman ornaments, but the number of items is rather small. It seems evident that a few cemeteries containing grave goods in the coastal areas of Finland have their roots in the Pre-Roman Iron Age. When discussing iron objects, this interpretation gains further confirmation. Still, especially with regard to bronze ornaments, the increase of quantities of objects as well as an increase in object forms happened later, during the first centuries AD.

The introduction of iron and iron technology, discussed in this chapter from the point of view of Finland, is a development that coincides with the transition period, but does not apparently in itself explain shifts in economy or settlement pattern. Among the first objects to be manufactured were sickles and scythes, indicative of the importance of agriculture, as well as axes, more effective for clearance than before. The impact of iron tools may have been one factor speeding up the development of agriculture, but it was just one element in a long process where the very beginning of the Iron Age does not stand out. With regard to early iron production, the picture is rather complicated, as the oldest iron extraction furnaces and other traces of ancient iron working have been found in the northern part of Finland. It seems evident that iron was introduced to the northern and eastern parts if Finland along the same routes that had brought bronze technology to the north. In the more southern parts of Finland, iron is present in the form of objects found in cairns and cemeteries or as stray finds. Several types of objects can be compared with East Baltic parallels.

One conclusion of the review of Finnish Pre-Roman material is that there exist cemeteries with metal objects possible to discuss in a Pre-Roman context. A prediction is that the possibility of dating cremated bones will, in the future, give an opportunity of refining the chronology. Even before that, some chronological adjustments regarding the deposition of metal objects in cairns and cemeteries are possible. The chronological interpretations of artefacts have in many cases been hampered by the fact that the theory of settlement continuity has not influenced the chronological interpretation of cemeteries as much as one would have expected.

Many potential Pre-Roman artefact types have been dated primarily to the Early Roman Period, one point being that cemeteries containing grave-goods started to occur during that period. Already a brief review of some artefact types points to the fact that objects were deposited in some cemeteries as early as the Pre-Roman Iron Age. Even if the main increase of artefacts relates to the first centuries AD, the idea of an abrupt start of deposition of grave-goods during the Early Roman Iron Age cannot be supported.

With regard to Pre-Roman cairns, it is implied that they more often are related to a permanent settlement site and cultivated land than, for example, to travelling routes and marine landscapes, as during the Bronze Age. Pre-Roman cairns are also smaller. It seems that one line of development was that cairns developed during this time into a more distinctive shrine or cult site for the family, farm or kin group. Pre-Roman cairns in the archipelago may, however, still be closely related to a marine environment. The reason for changes in the location and size of cairns should not only be discussed with reference to the traditional theory according to which the stratified Bronze Age society developed into a more egalitarian social order of the Pre-Roman Iron Age. As stated already in a previous chapter, it can be questioned whether Bronze Age cairns, often built far from the settlements, can be directly interpreted as representing stratification, *i.e.* as being erected for powerful individuals or families. It is as likely that cairns could have been erected as public monuments and came to symbolize the collectivity of the builders, whereas Early Iron Age cairns – built closer to the settlement site by the settlers of that particular site – have the more genuine character of a private shrine.

In the Early Iron Age – particularly during the Roman Iron Age – several new types of cemeteries containing grave goods occurred in southwestern Finland. Some archaeologists still maintain that these cemeteries were for the most part built by foreigners. The preceding discussion instead foregrounds the idea that the cemeteries reflect a period of increasing contacts and interaction due to new contact networks opening up all over Europe. This led to the spread of new ideas as well as items, used in diverse social contexts, including mortuary rituals of a variety of forms. This does not exclude the possibility that objects deposited in cemeteries were related to the expression of identity and attempts to consolidate or promote the position of groups of people using the cemeteries. The main point is, however, that expression of power and wealth may not necessarily have come about due to immigration but also due to local competition.

When trying to conclude something about identity from the objects deposited in Early Iron Age cemeteries, it seems evident that most cemeteries evidence a strong East and South-East Baltic connection – at least if looking at ornaments alone. Objects evidencing Scandinavian contacts are fewer, but, for example, some

Roman Iron Age forms of weaponry, some luxury objects of Scandinavian origin as well as Roman imports have probably entered Finland through Scandinavia. One possible reason for the dominating East Baltic elements could be that the people buried in Finnish cemeteries were signalling an association with this cultural sphere. If ornaments like fibulae were an important part of the individual habitus, the ornaments probably came to signify a special relationship with people wearing ornaments of the same origin. This is interesting also from the point of view of immigration as there may have been bonds, bridging the Gulf of Finland, which may at times have included movement of individuals or families from one shore to the other, without involving the idea of immigrating foreigners.

House remains and other structures excavated at Pre-Roman settlement sites still pose problems with regard to their interpretation. Two types of structures can be emphasized, *i.e.* sooty and often deep fireplaces, as well as post-holes. Pit-shaped hearths have often been referred to as cooking pits, but their function can be interpreted in various ways, ranging from normal preparation of meals to more specific forms of cooking, heating and production of smoke. Post-holes, on the other hand, are problematic with regard to interpretations of the types of structures they have belonged to. This problem is closely related to that of Finnish Bronze Age houses, often suggested to have resembled Scandinavian-type longhouses. In the discussion above, this idea is questioned, as indications of such houses are few. Instead, the debate proceeds with a presentation of a theory according to which post-holes in many cases may represent another type of building, where the common characteristics are certain dimensions of the structure. The idea is based on indications of post-built constructions, more hut-like than in the shape of a longhouse, found at some Late Bronze Age or Pre-Roman settlement sites.

Seeking explanations for changes in settlement patterns during the Early Iron Age inevitably leads to considerations of palaeoclimate as one possible factor. Climate reconstructions based on proxy records are, however, difficult. This is due to the fact that different proxies picture different elements of climate – humidity as a combination of precipitation and vaporization, summer or winter temperature, local factors etc. European climate is not just about north or south, warmth or coldness, humidity or dryness, but a complex web of elements. During different time periods, different elements or combinations of elements – referred above as related to Mediterranean, Atlantic and continental ecotones – have had an impact on local climate. One conclusion that can be drawn from some of the reviewed data is that the Pre-Roman Iron Age was not a uniform period with regard to climate. The most evident cooling in a long-term perspective happened during the Late Bronze Age, whilst the Pre-Roman Iron Age probably saw periods of both favourable and unfavourable climate.

These climate oscillations may, in principle, have had effects on settlement and subsistence, but the poor chronological precision of features of the Pre-Roman Iron Age does not permit a detailed correlation with climate proxy data. In a long-term perspective, the increasing land-use during the first millennium BC suggests that climate oscillations did not lead to major setbacks. In many areas around the Baltic the Late Bronze Age and the Pre-Roman Iron Age was a period of already developed agriculture. In Finland the environmental impact of agriculture was still small, but the scattered evidence of cereal cultivation in the form of Cerealia pollen increased throughout the period. The greater number of sample sites containing evidence of agriculture, as well as their continuous geographical expansion, stresses the increased importance of farming. During the same time period, there is also an increase in the amount of bone finds from domesticates.

The expansion of agriculture is difficult to follow in detail, as the 'empiric limit' (the period of increased cultivation) is often hard to define. Rather than a concurrent step-wise development, the traces of early cultivation detectable in palynological samples are site-specific until the stage of continuous cultivation is reached. In most pollen diagrams this limit is dated to the Late Iron Age or the Middle Ages. One important feature in this long-term development is the increased importance of rye, visible in both pollen and macrofossile records – in Finland as well as in other parts of northern and central Europe.

With regard to the development of farming, special emphasis has been given to interpretations concerning the "second landnam" in Estonia. This process included an intensification of land-use during a period starting with the Late Bronze Age and ending in the Pre-Roman or (within some areas) the Roman Iron Age. Arable land was divided between settlement units in a more organized way than before and private ownership of land was probably established. Increased claims on land and land-use privileges led to more intense territorial behaviour, visible in the building of field systems and the erection of new types of cemeteries. In Finland practically no remains of field systems in the form of clearance baulks have been found and the dating (with regard to the Early Iron Age) of cross-ploughed field remains has proved difficult. Nevertheless, this cannot mean that fields did not occur. The lack of 'Celtic' or 'Baltic' fields is probably mainly due to differing geological conditions, like different types of soils, as well as to a more intense clearance and recent land-use when compared to areas where field remains have been preserved in Estonia. What is similar, however, is the occurrence of Early Iron Age cemeteries, indicative of a similar territorial behaviour and sociocultural development.

In the preceding discussion, the impact of immigration was questioned, but otherwise the impact of foreign influences reaching the northern shores of the Baltic has been stressed. This was a reality already during the Bronze Age when the two main transmitters of influences were the Scandinavian Bronze Culture and (during the Late Bronze Age) the Lusatian culture in the area of present Poland. It should also be considered whether contacts to the southern part of the Baltic could have continued during the Pre-Roman Iron Age, although less evident in the archaeological material. The idea of a close connection between Morby Ware and pottery from the southern part of the Baltic is, however, rejected. The similarities that exist may to some degree follow general stylistic ideas of its time, but the differences are more obvious than the resemblances. A new period of interaction – or an intensification of prevailing contacts – later became visible during the Roman Iron Age, when imported objects from the southern part of the Baltic occur in cemeteries in the East Baltic area as well as in eastern Sweden and on the Finnish mainland.

In a simplistic model presented by Brun (1994), three concentric hierarchically organised semicircles depict the economic situation in central and northern Europe in relation to the Mediterranean economy, which is represented by the innermost circle. Northern Europe belongs to the third zone, which was cut off from its former connections with central Europe as a result of the second zone's integration into a Mediterranean economy in the Late Bronze Age. Northern Europe subsequently entered a period of economic devolution. This changed in the late second century BC, when the second semi-circle became the zone of Celtic centres, and trade functions again shifted to the north. In some areas the result was the rise of a new elite, marked by the display of wealth in burials, and a new prestige economy that can be seen in the rich imports of Celtic goods. Somewhat later trading possibilities were further improved by the stable conditions of the Roman Empire. Brun's model could hypothetically be extended by a fourth zone, encompassing southwestern Finland. In this zone, incorporation into European trade networks – and probably the development of a new socio-political structure – occurred somewhat later, starting with the Roman Period.

6. Iron Age settlement development – a discussion

6.1. From individuals to society

In the previous chapters the archaeological material from Kemiönsaari has been presented, along with comparative material from the archipelago and the mainland. The difference between Iron Age archaeological data from Kemiönsaari and that of the mainland has been underlined, stressing a change occurring during the Pre-Roman Iron Age or soon afterwards. The Early Iron Age has been discussed more specifically, both from a general point of view and with a focus on the Finnish material of the period. One of the conclusions of this discussion is that the adoption of agriculture as a means of subsistence did take place before changes reflected in the archaeological material. A sedentary way of life, with the farm, the fields and pastures, and the nearby cairns of the ancestors as main elements – the general surroundings of the Iron Age mode of life – presumably arose on Kemiönsaari before the change. This hypothesis – especially regarding the early introduction of agriculture – gains support from the environmental considerations addressed in chapter 4. As a conclusion, the settlement development of Kemiönsaari, as reflected in the archaeological and environmental data, seems to have followed general lines of development comparable with mainland settlement up until the Iron Age AD. The materials, however, do not give any explicit reason for the divergence taking place after that. What the palynological evidence suggests, showing sporadic cultivation during both the Bronze Age and the Iron Age, as well as soil types, present climate, and agricultural qualification rates is that the area would also have been suitable enough for a similar type of agriculture and settlement pattern as on the mainland during the Iron Age AD. This suggests that the causes of change should be looked for in terms of changes taking place in some other aspect rather than environment, technology and subsistence. This should not be understood as a rejection of the ecological approach, which has been important for the understanding of settlement and land-use on Kemiönsaari, but the development cannot be understood simply from a focus on ecology and economy. Furthermore, the human being and societal factors should be foregrounded due to the fact that even economy, technology and utilisation of the environment are fundamentally social.

Society in general, or basic social organization can be thought of as based on a set of informal, unwritten rules by which human life is structured (Mignon 1993: 295). This means that society, as well as culture, is dependent on communication. Communication is about meaning and coherence, which is formed in relation to and together with other people – communication can be thought of as coordinated management of meaning (Axelsson 2001: 85). Understanding communication is one means of understanding society and processes of social change. Although society or social organization as such does not refer directly to individuals or communication between individuals, a society is nevertheless based on a specific group of people who act jointly, bound together by the exchange of information and by common ideas. This is probably not a proper definition of society, but the idea is that a change in the archaeological material is a reflection of individuals in a society acting in a certain way. Motives for change-oriented behaviour, as well as the making of the final decision, can be individual or societal to a varying degree, but the link between the individual and the society is always present.

The following discussion starts with an attempt to understand the possible size of the population constituting the Iron Age society within the study area. After that, the idea of clustering – or aggregation – of sites is examined more closely, as is the possibility of abandonment of sites as a cultural process. Finally, an explanation of changes in the settlement pattern is sought on the level of socio-political development; the concept of power is introduced, and the possible relationship between power and the emergence of a new geographical distribution of settlement archaeological data is addressed.

6.2. Palaeodemography

6.2.1. An Estonian example

It is impossible to understand cultural processes without some idea of the density of population in a given study area. Assumptions concerning population might not necessarily be thought of in terms of numbers, but in our mind we often translate archaeological concepts into images of a living population. The use of the archaeological record to estimate population numbers, however, is a highly complex and dangerous task; the empirical data are scanty and of uneven quality (Hassan 1981: 261), and the methods of palaeodemography have in fact been severely criticised. This criticism of the methodology points, for example, to the numerous causes of statistical error in demographic calculations based on cemeteries, even if based on well preserved skeletal materials (Bocquet-Appel & Masset 1982; Marciniak 1995). Even more difficult do the interpretations become, if based on other types of archaeological data, theoretical birth and death rates or extrapolations from historical sources. It would be a mistake, however, to discard the whole methodology, as this is the only way of expressing explicit calculations of population size and density. Exact numbers are impossible to achieve, but it may be possible to work out some lower and upper limits.

Lang and Ligi (1991; Lang 1995b) have discussed Early Iron Age populations in northern Estonia, using demographic calculations to estimate the number of people and the kinds of settlement units related to certain Early Iron Age grave types. The main starting point is their criticism of an earlier interpretation, according to which groups of stone-cist graves and *tarand* graves were cemeteries used by several families, *i.e.* one stone-cist grave or one cell in a *tarand* grave would represent one family (*cf.* Jaanits *et al.* 1982: 200, 242-243). The calculations indicate that this interpretation is impossible (if not assuming that only a small minority of the population was buried in the cemeteries). Applying a simple demographic formula, K = M / SA, the number of people in such a unit of several families can be shown to produce too many burials (Lang & Ligi 1991; *cf.* Lang 1995b; 1996). In this formula, K represents the size of the population, M the number of burials, S the death-rate and A the length of the period during which the cemetery was in use. The death-rate applied by Lang & Ligi is 40 ‰, which is a figure used earlier for similar calculations in Scandinavia (Ambrosiani 1964: 204-205; 1973; *cf.* Hyenstrand 1974: 87).

Another interesting method of estimating the number of people buried in *tarand* graves during the Early Iron Age has also been discussed by Lang & Ligi (1991: 221-225; *cf.* Lang 1995b; 1996). Here the numbers of brooches, bracelets and finger rings found in the cemeteries were used as a basis for estimating the probable number of individuals buried. The numbers of ornaments found in cemeteries where the number of burials is known provide coefficients which can be applied in cases where the number of burials is unknown. These calculations give further reason to believe that the primary settlement unit in Early Iron Age Estonia was the family or the single farm – not an unit consisting of several farms. Similar calculations have not been made for Finnish materials (except for a case from Ketohaka in Salo, included in the Estonian calculations). As stated at the beginning of this study, however, the general idea of Finnish Iron Age communities is that single farms were dominant at least until the Merovingian period, when large cremation cemeteries may be indicative of village formation.

6.2.2. Iron Age population in Finland

Another way of approaching the question of Iron Age population is by extrapolation, starting with information on population figures found in historical sources and using probable population growth rates to calculate backwards. This method has several obvious biases as the growth rate may have altered due to changes in various aspects of life, including the economy, technology, or health and nutrition.

Despite the uncertain outcome, such calculations offer one way of estimating the number of people that produced the archaeological record of a certain area.

Information on medieval Finnish population numbers, density and growth rates are sparse. Estimates can only be based on information in tax records giving the numbers of villages and farms. This information must be combined with interpretations of the types and ages of different taxation systems. By this means Orrman (1996) has attempted to calculate the number of farmsteads in the mid-14th century, relying partly on the assumption of a constant rate of settlement growth from the 14th to the mid-16th century. The actual development was presumably much more complicated, as there were probably periods of faster or slower settlement growth. Regression may also have occurred, even if there is no direct evidence, for instance, of an impact of the 14th century plague.[153] The occurrence of deserted farms in the 15th century, however, indicates some difficulties in agrarian settlement during that century (Orrman 1996: 140). Orrman's calculation thus gives a somewhat simplified but still interesting idea of the number of farms in medieval Finland. According to these calculations, in the mid-14th century there were 12,200 farms in Finland (excluding the Åland Islands); in the mid-16th century there were 32,800. Taking 6-10 people as an average figure for inhabitants per farmstead, the 16th century population of the mainland reflected in the tax records could be around 200,000 – 330,000 (*e.g.* Lehtosalo-Hilander 1984: 274). It is possible to count backwards from these estimates, using for example an average demographic growth figure of 3 ‰. There would thus have been about 6,000 – 10,250 inhabitants around 400 AD and about 50,000 – 85,000 inhabitants by the end of the Iron Age.[154] An increase rate of 3 ‰ or even 4 ‰ is rather modest; if it had been higher it could

153 In both Denmark and Norway the plague of the mid 14th century has been used as an explanation for a break in the population growth; as far as Sweden and Finland are concerned, the picture is unclear, but, for example, the fact that the price of land fell (Pitkänen 1994: 29), and donations to pious institutions reached a peak (Myrdal 1999: 116), suggests a smaller 14th century population pressure also in Sweden.

154 The total population of present-day Finland before the introduction of food production (*i.e.* the Neolithic) has been estimated to be some thousands of people. The amount could have been 5,000 – 10,000 at the most (Pitkänen 1994: 22-23). If using an estimate of 1 inhabitant per 100 km^2, which is often applied when estimating hunter-gatherer settlement of the boreal forest zone, the number of inhabitants of present-day Finland (covering 337,000 km^2) would have reached 3,000-3,500 people (*cf.* Grünthal 2002: 12). When these figures are compared with the estimates concerning the Iron Age it becomes obvious that population growth must have been extremely slow, maybe due to a short average lifetime or a low birth rate (Pitkänen 1994: 23-24). Another comparison has been made with regard to the number of people living within the area of identified Late Iron Age settlement in the mid 18th century when calculated from ecclesiastical parish registers. According to this material, about 150,000 people then lived within the area (Pitkänen 1994: 26). The population at the end of the Iron Age must, however, have been considerably smaller.

mean that the population of the Late Iron Age maybe was not as big as 50,000 people but somewhat smaller, such as only a few tens of thousands (*cf.* Pitkänen 1994: 26, 39). These figures have been compared with estimates for the Swedish central settlement area in Uppland, Västmanland and Södermanland, where the number of inhabitants around 500 AD could have been 3,000-10,000 persons (*e.g.* Lehtosalo-Hilander 1984: 274; Miettinen, M. 1998: 152). In Estonia the medieval population – probably also the Iron Age population – was bigger than that of Finland. For example, the 12th century total population of Estonia has been estimated to be about 150,000 whereas the Finnish population would have been around 100,000 (Grünthal 2002: 12).

6.2.3. The population of the study area

In Sweden and Finland reliable population statistics are available from the mid-18th century onward. From this period to the present the population increase was rapid, with an annual growth rate of around 10 ‰, which is quite a high figure. During the last century, however, population growth has slowed down, indicative of the "third stage of the demographic cycle" (Welinder 1979: 17-20), characterised by the falling birth rate typical of industrialised societies. Within the study area, the present number of people is a little more than 86,000, approximately 14,000 (16 %) of whom are Swedish-speaking (Suomen tilastollinen vuosikirja 1998).

Published information on the number of people in the same area around 1750 is more difficult to find and interpret. One difficulty lies in changes in the borders of parishes and chapel-units in the eastern part of the study area, meaning that counts according to present municipalities are not easily presented. According to information on hand, the total number must have been about 25,000 people. This can be concluded from a count based on published information concerning single parishes and areas (Fig. 113) as well as the original population statistics concerning approximately the same area. In the latter case (Jutikkala 1945: 90-91) the number is more than 25,000, but the statistics include some areas outside the present study area, like Kiikala. The total number counted this way for the year 1749 is 26,475 people, if including a correction concerning the Perniö parish proposed by Pitkänen (1979: 39). These results mean that the average population growth inside the study area since 1750 has for some reason not been as fast as in other parts of Finland. The average annual growth rate has been around 5 ‰, *i.e.* about half of the figure for Finland in general.

District	Amount
Halikko	2419
Kemiö	4597
Kuusjoki	555
Muurla	500
Nauvo	1551
Paimio	2359
Parainen	2854
Perniö	3228
Pertteli	334
Piikkiö	1500
Salo (Uskela)	1500
Sauvo	2720
Särkisalo	389
Sum	**24506**

Fig. 113. Numbers of people inside the study area around 1750 according to information gathered from several sources (Smeds 1948: 534; Oja 1958: 95; 1961: 173; Lehto 1959: 18; Granholm & Häggblom 1969: 27; Innamaa 1973: 384; 1982: 14; Suistoranta 1985: 76; 1997: 29-41; Villstrand 1987: 15-17; Havia 1989: 436; Alifrosti 1990: 183; Pitkänen 1992: 255; Aminoff-Winberg 2001: 321; Vähäkangas 2006: 389). The information regarding Kuusjoki is for 1786. The figures for Dragsfjärd and Västanfjärd are included in the figure for Kemiö. The figure for Muurla is based on an estimate of 378 people for the year 1643 (Oja 1945: 70).

If the total number of people inside the study area in 1750 was, in round numbers 25,000, this figure could be a starting point for extrapolations concerning Iron Age population. There is, however, some information concerning population growth rates even prior to 1750, indicating a very rapid growth already during the early 18th century. In the whole of Finland the population seems to have increased between 1721 and 1749 from 306,000 to 405,000 (Mäntylä 1988: 337). In Salo (Uskela) the number of people rose from 1,211 in 1721 to over 1,500 around 1750 (Vähäkangas 2006: 389). An even faster rate of increase has been calculated for Kemiönsaari, where the population increased from roughly 3,000 in 1722 to 4,597 around 1750 (Villstrand 1987: 15-17; Suistoranta 1997: 29-41). If the population growth had been close to the average – let us say 35 % – the early 18th century population of the study area could have been around 18,500.

The 17th century, on the other hand, was not a period of rapid population increase. On the contrary: the impact of the wars Sweden fought from the end of the 16th century to the early 18th century as well as some severe years of famine resulted in a long period of fluctuation and even stagnation of the population growth (*cf*. Pitkänen 1994: 34-39). Large areas were too poor to pay tax; many farms were abandoned, the villages grew smaller and the population diminished (Harju 1995: 65). The 16th and 17th century stagnation can also be exemplified within the study area (Hiltunen & Luoto 1985: 446). This means that the figure of 18,500 people may actually be a reasonable figure to use as a 16th century population estimate for the study area. This, of course, is where estimates start to be more in the nature of a guess than something based on real calculations.[155] When we move further back, into the Middle Ages, we also need to try to estimate the impact of Swedish colonization. One way to do this would be to use the present-day 16 % figure for Swedish-speakers in the population, but this is most probably too low. If we assume that in the mid-18th century the population of the archipelago parishes on Kemiönsaari as well as Nauvo and (partly) Parainen for the most part had a Swedish-speaking population, a figure like 30 % would seem more appropriate. According to this estimate, perhaps 13,000 people living in the area in the 16th century could have been descendants of the Iron Age inhabitants. If one would like to go even further, the count could be made considering only the population of the mainland municipalities, *i.e.* leaving out all islanders according to the mid-18th century proportion (38 %). This would leave the number 11,500, which is suggested as being the minimum number of 16th century people with roots in the Iron Age of the area.

In calculating prehistoric or early historical population increases, annual growth rates of 3 ‰ (*e.g.* Lehtosalo-Hilander 1984: 274; *cf.* Miettinen, M. 1998: 152), 2 ‰ (*e.g.* Hyenstrand 1974: 87-88) or 1.6 ‰ (Friberg & Friberg 1974: 7-9, 15) have been used. Using similar figures, growth curves for the study area can be constructed extrapolating from the 16th century estimate. The formula for population increase in the case of a known initial population $P(t) = P(0) \bullet (1 + r)^{t}$ (Welinder 1979: 36) can be altered to $P(0) = P(t) \bullet (1 + r)^{-t}$ in order to calculate the initial population from the known outcome. In these formulas, P(0) refers to the initial population, t to time, P(t) to population after a time t has passed, and r to the growth rate. A comparison of the constant annual growth curves of 3 ‰, 2 ‰ and 1.5 ‰ shows a considerable difference (Fig. 114). What seems evident, however, is that the curves (except the 3 ‰ growth, which is evidently too high on the average) point to an Early Iron Age population comprising something like a few hundred people rather than thousands, and that the Late Iron Age population within the study area may have consisted of a few thousand people. This is about as far it is possible to interpret these rough estimates. In reality the annual growth has not been constant; there was probably an increased growth rate towards the Middle Ages. Modelling this,

[155] One problem is that consistent 17th century population statistics do not exist. The best source concerning the population within the study area is a document counting all population of the Uskela ecclesiastical parish in 1643, except the under 12 year olds. The total number of people mentioned is 1,754. By taking into account the probable number of men taking part in the war of the time, as well as the probable number of children, an estimate of 2,652 people for the total population of the area has been reached (Oja 1945: 70). This population has (based on the calculation) been distributed inside the area according to present municipalities as follows: Salo 882, Perniö (the Kirjakkala part only) 91, Muurla 378, Pertteli 563, Kuusjoki 209, and Kiikala (outside the study area) 529.

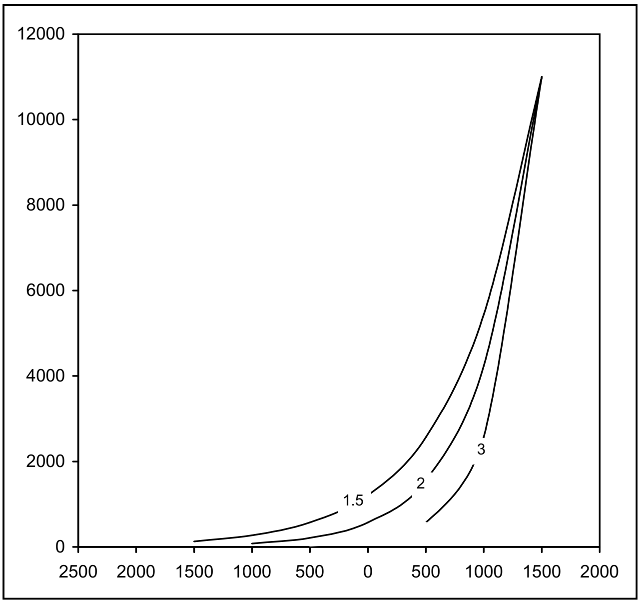


Fig. 114. A comparison of tentative annual population growth curves (‰) for the study area based on an initial population of 11 500 people in the 16th century.

however, is beyond the scope of this study. Lang & Ligi (1991: 217, Joon. 1) have assumed a 1 ‰ growth from 500 BC to 200 AD, a 2 ‰ growth 200-800 AD, and a 3 ‰ growth during the period 800-1200 AD. Although these figures may produce a plausible population growth curve, the calculation is still purely hypothetical.

The extrapolation concerning the study area can be compared with a discussion by Pihlman (2004: 62-68) on numbers of farms and inhabitants in the Turku area (comprising the Lieto, Maaria and Raisio parishes). Pihlman has hypothetically tried to calculate the number of settlement units at the end of the Iron Age by multiplying the number of cemeteries by two, and counting the number of inhabitants at 5.5 people per unit. In other words, each cemetery would represent two farms, while 5.5 people, on the average, would inhabit each farm. The calculation gave the numbers 165, 154 and 121 inhabitants for the Lieto, Maaria and Raisio parishes, respectively, *i.e.* altogether 440 inhabitants. When the same calculation is performed on the material of the present study area, the 34 Late Iron Age cemetery sites registered (uncertain cases included) would indicate a total population of only 374 people within the whole area, *i.e.* less than in the much smaller area studied by Pihlman, and dramatically less than a few thousand people suggested by the extrapolation.

The fact that this cannot be the case is illustrated by a comparison of the number of early medieval villages paying tax according to Finnish law. Within the area studied by Pihlman there are a total of 194 such villages, while there are 370 within the present study area (*i.e.* the Halikko, Paimio, Perniö, Piikkiö, Sauvo, and Uskela parishes). How many farms there were within these villages is difficult to conclude, but everything suggests that the number was low. Pihlman (2004: 64) has presented data indicating 1-2 farms per village and, for example, according to tax records, the number of farms per village in the Halikko, Paimio, Perniö, Piikkiö, Sauvo and Uskela parishes was still in 1556 as low as 2.4 on the average (Oja 1955: 86-87). If using the quite low number of 4.5 inhabitants per early medieval farm, as suggested by Pihlman, the early medieval population number for the present study area would have been in the range of 1,665 – 3,330 (basing the calculation on the numbers of 1 or 2 farms per village). These numbers are somewhat closer to what could have been expected from the extrapolation, but still rather low. One factor greatly affecting the outcome of the calculation is the amount of people regarded as belonging to each farm. If the number had been considerably higher than suggested by Pihlman, the results would change significantly. If hypothetically using the number of 9.4 people per farm as calculated from Aulis Oja's (1945: 70) estimation concerning the Uskela ecclesiastical parish in 1643, the early medieval population of the study area would have been in the range of 3,478-6,956 (basing the calculation on the numbers of 1 or 2 farms per village). This would be more in line with the extrapolation, as would the same calculation based on the number of farms in 1556 within the mainland parishes of the present study area. If using the number 9.4 inhabitants per farm, the 1514 farms in the area (Oja 1955: 86-87) would give the result of 14,232 inhabitants, which is somewhat more than suggested in the extrapolation above, but still a plausible number.

If something can be concluded from this comparison, it is first of all that the number of inhabitants per medieval farm suggested by the extrapolation is very high in comparison with the number used by Pihlman (2004). If the numbers presented in this study are too high, this could be due to several factors, one being the difficulty of estimating the early 18th century population growth, another the problem of estimating the impact of immigration. Still, it is unlikely that the population numbers presented are significantly excessive. Rather, the average number of people per farm within the early medieval villages reflected in the tax records of this area must have been higher than 4.5.[156]

[156] With regard to Pihlman's (2004) calculations, the main point seems to be the idea that the medieval farm or household consisted of fewer persons than that of the Iron Age, which would be one factor explaining the seemingly massive settlement and population growth from the Iron Age to the Middle Ages. The exact figures used by Pihlman (and foregrounded in the discussion above), on the other hand, are to a certain extent only a play with numbers and evidently not meant as a model to be applied for all areas.

Regarding the Late Iron Age, it is unthinkable that the population numbers of the study area would have been as low as in the outcome of the calculation based on Pihlman's (2004) hypothesis. Thus the number of farms represented by the cemeteries within the study area must have been much higher than 2, on the average, if using Pihlman's number of 5.5 inhabitants per Iron Age settlement unit. This is true at least when taking into account only the cemeteries registered and dated to the Late Iron Age so far. Just a few cemeteries have been thoroughly excavated and there may even be cemeteries that have not yet been found. Some cemeteries dated to earlier periods might in reality have a longer continuity and some of the 28 undated cemeteries (uncertain cases included) may also belong to the Late Iron Age.

Returning to the estimation of population growth within the study area, a final comment should be made concerning the Late Iron Age and the early Middle Ages. This time span as a period of faster population increase is indicated by calculations according to which there was a big population increase in Europe in general from about 700 AD (or at least from 900 AD) to the 14th century. During the period from about 1000 to 1300 AD, the population increased threefold in the central and western part of Europe. In England, the population rose from about one million in 1086 to almost four millions in 1347; in Denmark population increase has been estimated as 40 % and in Sweden the population increased threefold during the period 1000-1350 (Olsson & Thomasson 2001: 12). The Late Iron Age and early medieval population growth thus is an issue relevant for both central and northern Europe.[157] Also regarding Finland, the acceleration of Late Iron Age population increase is a factor that probably was a reality. As exemplified earlier concerning the present study area, the archaeological and palynological materials suggest the Late Iron Age – especially the Viking Age – to be a period of expansion. One possible aspect of this development is that it was related to population increase. It could have been a case of rapidly accelerating population growth, or steady growth in the range of normal development, which over time exceeded some carrying capacity threshold, with the consequence of increased utilisation and colonization of new land.

157 The acceleration of population growth could be questioned only in the sense that a rapid increase in land utilisation, and probably also population, may in certain areas have happened already prior to the Late Iron Age. In the case of Uppland, in the eastern part of Central Sweden, for example, this has been discussed in a Roman Period context (Göthberg 2000).

6.2.4. Individuals and settlement units

The idea suggested by the above calculations of a couple of hundred people living in the study area during the Early Iron Age is comparable to the density of settlement suggested by Lang & Ligi (1991: 233) in the case of the Pre-Roman Iron Age in Estonia. If we apply the average density of settlement proposed by Lang & Ligi for the beginning of the Pre-Roman Iron Age (0.15 persons per square kilometre) and the present land area of the study area, the result would be a figure of 467 inhabitants, which may be somewhat high, but is still more or less in accordance with what has been presented above. Starting from the idea of a couple of hundred or a few hundred people, the next question to ask would probably be: what kinds of households were people likely to have lived in? How many people do the settlement sites or cemeteries – the proposed single farms – reflect?

Estimates concerning the number of family members in Central European Bronze Age and Early Iron Age communities differ somewhat, but are generally quite low. A single family may, for example, have consisted of 3.2-4.1 individuals, and a typical Central European prehistoric agricultural community may have been composed of 2-3 (max 6) families (Dreslerová 1995: 150). In another case the average family size has been estimated at 5-6 persons (or slightly less), living in hamlets or dispersed villages of 4-7 farmsteads (Bergmann 1997). Within the Lusatian culture 6-8 persons per house have been estimated (Bukowski 1990: 104). In the case of Bronze Age Scandinavia, Wigren (1987: 101-104) has tried to use the number of settlement sites as a starting point instead of calculating the population from the number of graves. In the light of what has been said earlier in this study concerning Bronze Age cairns, this could be a good choice in cases where suitable settlement site materials exist. With reference to Ambrosiani (1964), Wigren notes that ten persons per household may be relevant for the Late Iron Age, but she considers seven persons as probably more appropriate for the Bronze Age. In Finland an Iron Age settlement unit has hypothetically been interpreted as representing an extended family of 5.5 (Pihlman 2004: 68), 8-14 (Honkanen 1981: 133) or 6-20 persons (*cf.* Miettinen, M. 1998: 150). The term 'extended family' in these cases does not necessarily refer to a family consisting of three generations. Due to the low average lifetime such families were rare.

Within the present study area, Hirviluoto (1991: 137) has suggested 5-7 (evidently adult) individuals as the number of inhabitants per farm in Salo during the 4th century. The number of farms calculated by her is 4-5. Hirviluoto, however, posits a higher number of inhabitants, referring to the presence of different generations, and obtains a final count of 75-80 inhabitants in the Uskela river valley during the 4th century. An earlier approximation for both the Halikko and Salo area together had given a result of 82 persons during the 7th century and 371 persons during the 11th century (*cf.* Hirviluoto 1991: 137), which is lower than Hirviluoto's own count. The grounds for these estimates are somewhat obscure, but the higher figures obtained by Hirviluoto may well be in line with the growth curves discussed above.

From these sporadic examples, we may conclude that the number of people in a family, household or farmstead during the Bronze Age or Iron Age has been estimated as falling within a range between 3 and 20. [158] As the best figure for the Early Iron Age presumably lies somewhere around a range of 5-10 persons per household, it can be concluded that Early Iron Age settlement inside the study area must have consisted of tens of households. This is interesting, as there are not tens of Early Iron Age cemeteries within the study area to indicate this number of households. If we look at the number of cemetery sites from the Late Roman Period (when graves with grave goods are found within the whole mainland part of the study area), no more than 22 separate sites or structures registered as cemetery sites have been found, some of which probably represent the same farmstead. This suggests that either the estimates of population and household numbers are too high, or – more likely – not all people and households are reflected in the cemetery materials. Furthermore, if the cemeteries represent only some of the existing households, this means that the cemetery site distribution does not necessarily depict the pattern of settlement at the time. The existence of settlement sites outside the areas of cemeteries is thus a possibility that cannot be excluded. This is the way in which Iron Age settlement has been dealt with by other researchers lately, the main point of importance being that the distribution of antiquities does not represent the distribution of settlement directly. This has, for example, been pointed out concerning the Estonian Bronze Age and Early Iron Age cemeteries, which evidently picture only the religious and social behaviour of one part of society rather than the location of the whole area of settlement (Lang 2000a: 22-23). The distribution of settlement must have been wider (including interior Estonia) than the location of cemeteries (mainly occurring in coastal Estonia). This is actually proved by the distribution of settlement sites and pollen analytical evidence.

In the same manner Iron Age settlement in southwestern Finland has been regarded as more widespread than the distribution of cemeteries. According to one view, the cemeteries would have been related to old farms practising permanent field cultivation, while there would have been other farms without cemeteries further away, being, however, part of the same economical unit (Pihlman 2004). In such a

[158] This is comparable with figures concerning the historical period. For example, the 2,652 people estimated from the 1643 document concerning the Uskela ecclesiastical parish lived in an area where the number of farms at the same time was 283 (Oja 1945: 70). According to this, the average number of people per farm was 9.4.

scenario the cemetery would represent the landowner or an important family and form the core of an unit of economical co-operation in which several other farms could have participated. The cemeteries were the centres of rituals of the unit, forming a symbolical pact, where an ancestor cult and fertility cult intertwined. In this model, presented by Pihlman (2004), the location of cemeteries would thus not picture the distribution of settlement or economic activities. The rejection of the idea of correlation between cemeteries and the area of permanent settlement also means that the distribution of cemeteries cannot be used for a comparison between the mainland and the archipelago in terms of settlement continuity. This view, of course, does not make the basic problems regarding the archipelago/mainland dichotomy disappear. There are still problems regarding the understanding of the differences between the development on the mainland and in the archipelago.

A further problem is how to actually identify the system (including its geographical distribution) of economical units including outlying farms. One indication may be found in historical sources. In the Historical Period all farms of the former larger units would, according to Pihlman (2004), have started to be taxed as independent units and the former system would have split up. The farms without cemeteries described by Pihlman thus would have been situated within the area that is later discernible in tax records due to paying tax according to "Finnish law". This would mean that the outlying farms would actually not have been situated very distant from the areas where cemeteries occur. Even so, the archaeological identification of outlying farms is still problematic. At present, registered settlement sites and other archaeological traces of Iron Age settlement – permanent or seasonal – clearly outside the distribution area of cemeteries are almost non-existent. What is also important to maintain is the idea that, regardless of the overall settlement distribution not being directly related to cemeteries, the distribution of cemeteries (and settlement site clusters) is not sporadic but indicates important settlement areas. Furthermore, the cemeteries (and cup-marked stones) can be regarded as indicative of areas where special rituals were performed, *i.e.* signifying these areas as a kind of ritual centre as well.

6.3. The problem of aggregation

6.3.1. The general idea

Since the adoption of food production, many populations all over the world have tended not only to increase but also to group themselves on the landscape in denser numbers. Under certain natural and cultural conditions there seem to be advantages for a society or a segment of society in forming clustered settlements. The process that produces spatial clustering of households, communities, or archaeological habitation sites can be called 'aggregation' (Cordell *et al.* 1994: 6). This term is often connected with the formation of villages or town-like communities, but here it refers to the spatial clustering of sites – or certain types of sites – within microregions discernible in the study area during the Iron Age.

The decisions leading to aggregation may have been due to diverse factors, such as the natural environment, technology, social and political structure, ideology, economics, demography, health and disease, or the impact of other cultures (or social groups); the phenomenon of aggregation is often a reflection of changes in the social or natural environment, and may in turn initiate further change (Gumerman 1994: 7-8; *cf.* Cordell *et al.* 1994). When a community increases in size and in the number of interacting individuals, there is an increase in the kinds of social forms that can be produced. The advantages of clustered settlement and closer relationships between members of a community are indicated by the worldwide distribution of this form of life. There may, however, be disadvantages to some segments within the society, as individual, family, occupational, class or other subgroup needs may be sublimated for the perceived greater good of the whole society (Gumerman 1994: 9).

In aggregated communities some kind of higher-level decision-making usually exist, which may have developed before aggregation or be a result of it. Social arrangements have probably been modified to accommodate the increased interaction of people, in order to prevent a degenerated quality and capacity of decision making (Johnson 1982). This behavioural approach towards settlement studies stresses information and communication as main elements of society. Settlement patterns can thus be defined as the spatial configuration of information flows, and boundaries as constraints on information flows (Root 1983: 200, 207). One negative outcome of modified decision-making in aggregated communities is that there will probably be greater discrimination in access to information and resources (Johnson 1982: 409; Gumerman 1994: 9; Gumerman & Gell-Mann 1994: 31). Positive effects of aggregation might include better defence and more effective exploitation of agricultural land, as well as efficient organization of labour and food distribution (Cordell *et al.* 1994: 110-111).

One way of dealing with the organizational dimension of the process of aggregation has been to use Johnson's (1982) theory of 'scalar stress', suggesting that efficient decision-making entails a limit of about six participants. When the number of participants is higher, scalar communication stress increases and decision performance starts to decline (Johnson 1982: 394-395). This may mean that communities of six or more units would need some higher level of decision making. Following these thoughts, an aggregated site or community has actually been suggested to be archaeologically defined as one with evidence of more than six contemporaneous households (Cordell *et al.* 1994: 132). This idea combines two aspects of aggregation – a physical (or geographical) one and a psychological one. These are certainly interrelated, but the archaeological definition has to rely on the identification of physical clustering, *i.e.* it should rely on something measurable in space. The interpretation of social form or organizational level of an aggregated community, on the other hand, can make use of ideas of psychological and social behaviour.

Many studies have suggested a strong correlation between population density and social complexity (*cf.* McGuire 1983: 95-96). What is important to point out, however, is that this correlation is present only if a wide range of both small and large organizational units is considered. Social or political complexity does not seem to correlate with size when organizational units in the range of 50-500 people are considered; in this range significant variation occurs (Johnson 1982: 391). Although there is no straightforward correlation between population size and societal complexity, there seem to be some "pan-human thresholds" of group size regulating organization. Kosse (1990) has suggested that these numerical thresholds relate to underlying regularities in the long-term memory. For example, in classifying the natural environment, human beings usually use a set of items numbering around 500; occasionally the addition of lower hierarchical levels may extended it to 2,000-2,500 items (Kosse 1990: 277). The number 500 (or the range 200-800) has been seriously discussed also in the case of individual knowledge of place-names. There seems to be a strong correlation between toponymic density and population density, suggesting a similar cognitive limitation of the toponymic information possible to possess as limitations suggested by ethnobiological and socio-demographic studies (Hunn 1994). Ethnographic examples suggest that when more than 150 people are considered, information flow begins to be regulated through more formal, ritual channels; in a group of 500 people information can still reach everyone, but in the range of 500-2,500 people the process slows down considerably, and has to be regulated in order to prevent errors in decision making (Kosse 1990: 284; *cf.* Feinman 1995: 260-261).

As significant organizational complexity seems to be associated with communities larger or considerably larger than 2,000 people, there is no reason to assume that in Early Iron Age southwestern Finland a couple of hundred or a few hundred people would have produced a complex societal organization. If the terminology and ideas of Kosse (1990: Table 5) are directly applied to the suggested Iron Age population size of the study area, the Early Iron Age level of integration could have been the “family level”, the settlement pattern of which is usually dispersed and where the regional network comprises 500-2,500 people. During the time span of the Iron Age the level of integration could have shifted to a local group level, characterised by a more aggregated settlement pattern and a regional network exceeding 2,500 people. If clustering or aggregation of sites within certain microregions occurred together with increased societal complexity already during the Early Iron Age, it must therefore have had other causes than just population growth.

6.3.2. Villages and territories

As the formation of villages was not a major question in this study, this level of aggregation has not been examined more closely. There are, however, a couple of facts concerning historical villages that must be briefly described in order to better understand the nature of settlement within the study area. Systematic information on villages in southwestern Finland appears for the first time in cadastral records from 1540. These do not contain information on villages situated on land owned by the church or the nobles. It was ten years later that the first ecclesiastical tax books, containing information on all villages, appeared. From these records it can be concluded that the average number of farms in the villages of the study area is rather low (Fig. 115). It is especially low in the mainland parishes, where most of the villages were founded during the early Middle Ages at the latest, as in Halikko, Paimio, Piikkiö, Perniö and Sauvo. One interpretation of this is that the old villages were founded so close to each other that a large number of farms was not possible, whereas in the new settlement areas, for instance in the archipelago, villages formed larger areal units right from the beginning (Oja 1955: 86-87).[159]

Another aspect concerning the number of farms per village is that some of the villages in the archipelago included farms with a wider subsistence base than those on the mainland, meaning that some farms were more dependent on the sea than on a large land area. This is apparent in the case of the largest villages: Rosala (28 farms) and Hiittinen (20) in the Dragsfjärd archipelago, Attu (13) and Lemlax (13) in Parainen, and Högsar (14) in Nauvo (Oja 1955: 87). In any case, the importance of the archipelago as a favourable settlement zone during the mid-16th century is

[159] Furthermore the borders of younger villages seem to reflect a different planning or way of formation. A tentative Thiessen polygon analysis of areal division in the northern part of Finland Proper, comparing optimal borders (drawn from the location of historical villages) with real village borders, suggests a correlation with age, as the borders of younger villages (including villages in the archipelago) have a better fit with optimal borders than villages in old central settlement areas of the Iron Age (Nissinaho 1997).

Parish	Villages	Farms	Farms / Village	Farms / km2
Halikko	109	250	2,3	0,7
Kemiö	132	618	4,7	0,9
Nauvo	54	186	3,5	0,8
Paimio	111	233	2,1	1,0
Parainen	103	359	3,5	1,4
Perniö	114	275	2,4	0,6
Piikkiö	68	133	2,8	1,2
Sauvo	135	270	2,0	1,0
Uskela	91	353	3,9	0,5

Fig. 115. Number and density of villages and farms according to tax records of the study area for 1556 as presented by Oja (1955: 86-87). The present municipalities of Dragsfjärd, Kemiö and Västanfjärd are all included in the number for Kemiö. 'Uskela' refers to the present municipality of Salo (which at the time had differing borders, including, for example, Pertteli and Muurla).

obvious. This is further underlined by the fact that the density of farms in the archipelago is comparable to that of the mainland parishes. With this in mind, one wonders yet again why Iron Age settlement is so scantily reflected in the archaeological material in this area – is it really due to the difference in the intensity of archaeological research or does it reflect a differing settlement development?

The idea of a different settlement history on the mainland and in the archipelago gains support from historical sources. The oldest documents referring to certain named villages are from the beginning of the 14th century, but historians have shown that a division of villages according to age is possible even where earlier periods are concerned. This has been done above all on the basis of the mid-16th century tax-records, dividing the villages according to their payment of tax in cereals (rye), based on the 'Finnish law' (Sw. *finsk matskottsrätt*) or in butter, according to the 'Swedish law' (Sw. *svensk matskottsrätt*). The tax paid according to these two different systems was the tithes in kind (Fi. *ruokalisävero*) paid to the clergy. This tax was at first claimed in 1266, but there is no knowledge of how it was paid at that time (Oja 1933: 184-185). There is, however, information on crown taxes from the year 1337, according to which pioneer settlements paid tax according to 'Swedish law'. This means that the year 1266 can be regarded as the earliest possible date for settlements paying the clergy tax according to 'Swedish law' (*cf.* Tallgren 1931: 107), while the year 1337 marks the time when the system at the latest was applied by the crown, possibly marking also the time of introduction of the butter tax in the ecclesiastical taxation. In the 1337 case, previously uncleared land was granted a four-year period without tax, after which tax would be paid according to 'Swedish law' (Oja 1933: 184; *cf.* Renvall 1933: 168).[160] The first half of the 14th century actually seems to coincide with the first historical documents mentioning

[160] King Magnus Eriksson had declared the four-year taxfree state just a few years earlier, in 1334.

villages later known to have paid tax according to 'Swedish law'. Old mentionings of this kind from within the study area are, for example, documents related to the village Kyysilä in Paimio from 1326, Siksalo in Perniö from 1329, Lemu in Perniö from 1330 and Finnby in Piikkiö from 1331 (Oja 1933: 184; Renvall 1933: 169).

According to one interpretation, the original basis for the two systems would have been national differences in economy – the Finnish based on slash-and-burn cultivation and the Swedish based on proper field cultivation and cattle breeding. This view was later abandoned. Probably the reason for the different tax was almost the opposite – the areas of established field cultivation paid tax in cereals and pioneer settlements in butter. The system probably originates from the colonization stage, when payment of tax in cereals was unsuitable for settlers moving into previously unsettled areas where field clearance was in its initial stage (Oja 1955: 31-32). This interpretation probably does not give the whole picture, but the fact remains that the division reflects the difference between systems used by old established settlements in comparison with more recently founded farms. The former group of villages has been interpreted as having been founded before the 14th century, and the latter group as indicating later settlement (Oja 1955: 29-33). There has been some discussion of the possibility that the older tax might in fact concern villages that were founded already before the 13th century (Orrman 1983: 283; 1996: 129), but the groups themselves have not been seriously questioned. Although there are examples of villages belonging to the 'Finnish law' that were founded after 1300, and some villages obviously shifted from one taxation system to another (Renvall 1933: 170-171; Hiltunen 1980: 25-26; 1988: 202; Orrman 1983: 290-293), the division of villages according to which tax-system they belonged to is still an important method for dating and understanding settlement development in southwestern Finland.

The ecclesiastical parishes (Fi. *kirkkopitäjä*) within the Halikko jurisdictional district (Fi. *kihlakunta*) in the 16th century were Paimio, Marttila, Halikko, Uskela, Perniö and Kemiö; furthermore the Somero, Lohja and Kisko (Pohja) pastorates belonged to this group of parishes (Oja 1933: 182, 196). Partly the parish borders looked very different from the later parishes and present-day municipalities of the area (Fig. 116). Part of the *kihlakunta* is somewhat outside the study area and, on the other hand, Piikkiö and Sauvo within the study area did not belong to the *kihlakunta* of Halikko but to the *kihlakunta* of Piikkiö. When we look at the different taxation systems in the case of villages within the area, the difference between the archipelago and the mainland is striking. Within the Halikko *kihlakunta* only villages in the central parts of Halikko, Paimio, Perniö and Uskela were paying tax according to 'Finnish law'. In Kemiö the inhabitants were for the most part immigrant Swedes, while in most mainland villages paying tax according 'Swedish

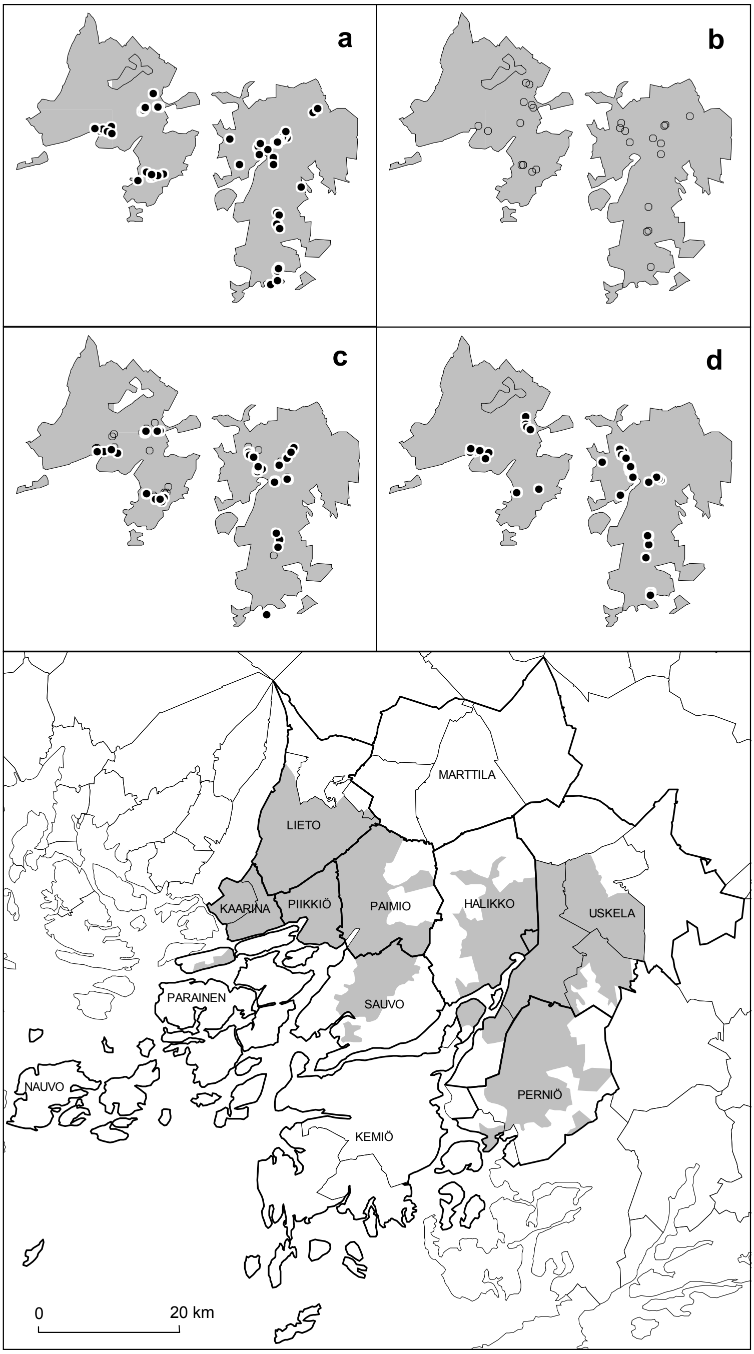


Fig 116. The main 16th century ecclesiastical parishes and the area of villages paying tax according to 'Finnish law' within the Pikkiö kihlakunta (redrawn from Santalahti et al. 1936) and the Halikko kihlakunta (redrawn from Oja 1933: 196). In the upper part of the map the distribution of Iron Age AD cemeteries (a), uncertain cemeteries (b), settlement sites (c) and cup-marked stones (d) within the study area is shown in relation to the area of villages paying tax according to 'Finnish law´.

law' the settlers were Finns. This illustrates how the 'Swedish' form of taxation was applied to pioneer settlement, regardless of ethnicity. In general, most Iron Age cemeteries, settlement sites and cup-marked stones are found within the area of villages' later paying tax according to 'Finnish law'. Only a few villages on the islands, like the northernmost villages of Kemiönsaari belonging to the Halikko parish, paid tax according to 'Finnish law' (Oja 1933; Oja 1955: 36-37; Orrman 1983: Fig. 1). Within the archipelago parishes in the *kihlakunta* of Piikkiö, *i.e.* Nauvo and Parainen, no villages belonged to this cathegory (Santalahti *et al.* 1936). The almost total lack of archipelagic villages belonging to the older taxation system is a marked indication of the difference in settlement history and supports the difference indicated by the Iron Age archaeological data.

The distribution of villages paying tax according to 'Finnish law' is divided into two different areas – one around the Halikonlahti Bay (consisting of the villages in Halikko, Uskela and Perniö) and another comprising the villages of Paimio, Piikkiö and Sauvo (which is part of a larger area including other mainland parishes of the *kihlakunta* of Piikkiö as well as areas further west). According to Oja (1933: 187), the former area most probably in the beginning formed one ecclesiastical parish (Uskela), from which the Halikko and Perniö parishes were separated in the 14th century, at the latest. This view is not in accordance with the current idea that the primary formation of ecclesiastical parishes took place not as a process of successive divisions of some larger area, but as a division where a number of villages and farms agreed to paying the ecclesiastical tax (tenth) for the upkeep of a parish church and services (Hiekkanen 2003: 11-15; 2005: 32). In the Turku area (mostly outside the study area) Pihlman (2004: 62-65) has suggested that the number of villages forming the original parishes was about 50, basing the conclusion on the number of villages paying tax according to 'Finnish law'. In comparison, the idea of an original parish in the size of the whole eastern part of the present study area thus seems unlikely. Probably the parishes within the study area were originally formed as different entities, with a number of villages comparable to that of the Turku area. The number of villages, if counting the villages paying tax according to 'Finnish law' is a little more variegated than those in the Turku area, ranging from around 50 to 80 (Fig. 117), but still in a range which could be expected if the idea was an even count of villages for the upkeep of each parish church.

Parish	Villages
Halikko	70
Paimio	81
Perniö	60
Piikkiö	49
Sauvo	53
Uskela	57

Fig. 117. The number of villages paying tax according to 'Finnish law' within the study area (Oja 1933: 203-213; Alifrosti 1990: 80; Pihlman 2004: 64).

It seems that the different ecclesiastical taxation systems later – probably in the 15th century – came to influence the borders of administrative parishes (Fi. *hallintopitäjä*) (Oja 1933: 194, 199-201). This is evident in the case of both the Piikkiö and the Halikko *kihlakunta* where it is obvious that the areas of 'Finnish law' and 'Swedish law' were the basis for both the borders of administrative parishes as well as taxation areas (Fi. *verokunta*) within the parishes (Oja 1933: 194-195, 197; Santalahti *et al.* 1936). The 16th century administrative parishes within the Halikko *kihlakunta* were Paimio, Marttila, Halikko, Muurla (*Muurlan lääni*), Perniö and Kemiö, the borders of which are quite different when compared to the ecclesiastical parishes (Fig. 118). With regard to Kemiö, it can be noticed that the westernmost Perniö villages paying tax according to 'Swedish law' had been incorporated into the administrative parish of Kemiö.

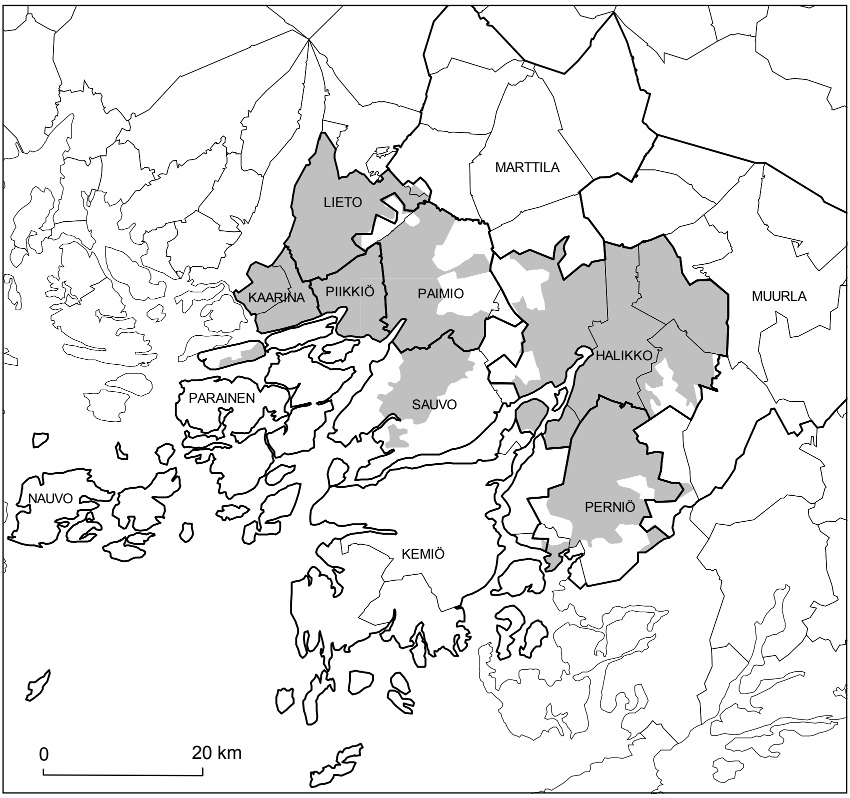


Fig. 118. The main borders of the administrative parishes of the kihlakunta of Piikkiö (redrawn from Santalahti et al. 1936) and the kihlakunta of Halikko (redrawn from Oja 1933: 197) in the 16th century, compared with the distribution of villages paying tax according to 'Finnish law'. Land owned by the Church or the nobles (not part of the administrative parishes) has not been indicated, nor ownership of land across the parish borders.

A last comment concerning villages is related to the idea of territories and the history of settlement organization in southwestern Finland. In the sense of areal size and number of individuals interacting, it is easy to form a hierarchy ranging from 1) the single farm as the primary (primitive) unit to 2) the village (or hamlet) as the second stage (comprising an organization of several farms), and ultimately 3) the territory (at some stage possibly equivalent to the *pitäjä*), consisting of farms and villages – the territory obviously the final crown of organizational development in this sequence. When the idea of early socio-political development as suggested in this study is considered, however, the chronological order of the units has to be changed, as there is no evidence of Early Iron Age village formation. The three cases of several Roman Period or Migration Period cemeteries within the boundaries of one historical village within the study area are probably examples of contemporary farms lying close to each other, but there is nothing to suggest a village community. If, on the other hand, the clustering of sites within microregions in the mainland river valleys is indicative of the formation of socio-political units, the roots of the organization of territories go far back. The territory would then be the next primitive unit discernible after the single farm, while village formation would represent a later stage of organization discernible during the later parts of the Iron Age or the early Historical Period in southwestern Finland.

6.3.3. The Estonian *vakus*

Estonian researchers have discussed several levels of prehistoric administration related to settlement units, like 1) the village, 2) the parish (Est. *kihelkond*) and 3) the province (Est. *maakond*), the last of which comprising several parishes (*e.g*. Lang 2002b). In addition to these, some intermediate level between the village and the parish has been considered, related to the medieval terms *terra*, *vakus* and *saras* – the most important of which in recent discussion the *vakus*, which was a group of villages that jointly paid taxes.

One previous line of discussion was whether the biggest or most important Iron Age fortifications could be related to the *kihelkond* units known from early historical sources. These originally non-ecclesiastical units were later transformed into parishes, starting in the 13th century. Some of the big forts (like Valjala, Pöide and Kaarma) are actually situated close to the *kihelkond* centres, while others lie on the borders of units. This suggests that it was not the *kihelkond* but some other unity – maybe just one or a few *vakus* units close to the fort (Moora & Ligi 1970: 64-65) or even the *maakond* (Tõnisson 1985: 106) – that organized the building of the fortifications. According to Lang (2002b: 155-156; 167), the *kihelkond* was probably initially only a geographically determined settlement area, which in the course of time achieved functions of a political and administrative character. In the Middle Ages, after the conquest of Estonia by the Danes and the Livonian Order, the original *kihelkond* units were usually subdivided into smaller ones and made into proper ecclesiastical parishes. The *maakond*, on the other hand, Lang (2002b: 156, 167-168) suggests to have been a term that had only a "human-geographical content", comprising one or several parishes, but without any complex political, administrative or economical dimension.

In the recent discussion on the Estonian Late Iron Age fort-districts by Lang (2000a: 283-285, 365-366; 2002a: 20-21; 2002b), the supposed fort-districts have been compared with the administrative taxpaying unit *vakus* of the Middle Ages. Korhonen (1923), who was the first to thoroughly study the *vakus* institution, regarded the *vakus*, as well as the Latvian *pagast,* as units that had mainly originated due to foreign – Scandinavian and Russian (Varjagian) – influences. He acknowledged the possibility of an association with an old tradition of offerings, but he regarded it as impossible that the *vakus* known from late medieval times could have been a direct development from an ancient cult. During the period of conquest of Estonia the *vakus* is not mentioned in German sources. Korhonen (1923: 225-226) supposed that the Germans came into contact with the local political organizations *maakond* and *kihelkond* and only later was the *vakus* – originally a tradition of voluntary treating – incorporated into the government as an unit for taxation. Korhonen (1923: 204-205, 226) thus did not see the *vakus* units as a direct development from an old offering feast and offering tax. According to him, the *vakus* was actually a less important organization than previously thought.

The idea of the *vakus* as being introduced as a foreign institution was later criticized by Moora & Ligi (1970: 68-73), who regarded the *vakus* as an ancient local organization developed from the need of a common meeting to take care of common matters – cultic or profane – within the community. The meeting was organized in the form of a feast, the necessities of which were kept in a bushel or wooden basket (Est. *vakk*; Fi. *vakka*), carried in one such or measured in it. This would thus be the origin for the name of the organization and unit. Food or other necessities brought to the feast may also have been presented to the local leaders of the communities, who were in charge of common matters. If this was the original function of the *vakus*, it seems such a universal idea that no foreign introduction of it would have been necessary.

The Historical Period *vakus* consisted of several settlement units commonly paying taxes to a landlord and offering him (and the members of the *vakus*) a feast. It now seems that fort-districts and *vakus* units can be identified using the Danish account-book *Liber Census Daniae* from the early 13th century by combining groups of villages with common denominators of ploughlands. These units of villages were, according to Lang's theory, ancient *vakus* units, several of which made up one fort-district. The *vakus* units are retrospectively comparable with territories of the Roman Iron Age or even earlier times, which suggests that the power territories of the units represent an established local institution that was taken over by the medieval authorities as an instrument for tax collection (Lang 2002a: 20-21). Furthermore, the identification of both *vakus* units and fort-districts combining several *vakus* units indicates two levels of power territories comparable to feudal relations. The theory is supported by the overlapping spatial distribution of *vakus* units and villages with comparable numbers of ploughlands as well as supposed prehistoric territories with one dominating farm within a few areas (in Harjumaa and Rävala) in which suitable materials for a comparison have been available (Lang 2002b).

The geographical formation of the *vakus* units started, according to Lang (2002b: 144-145; 165), during the first colonization (*landnam*) of agricultural land in the third and second millennia BC when small settlement areas, separated from each other by larger forests, bodies of water, bogs etc., were formed; farms within these settlement areas had close contacts and collaborated in the usage of common lands. Later, the settlement pattern became denser and a variety of social differences began to develop between the farms of the area. As a result, systems of one dominating farm were formed, within which ordinary farms had some obligations and one farm held a central position. This process can be dated to the Late Bronze Age and Pre-Roman Iron Age in the central settlement areas, like the Rävala area, and the Roman Iron Age in the interior areas of Estonia. According to Lang (2002b), already within the system of one dominating farm, the institution of the *vakus* began to take shape. This description of the formation of settlement areas, the collaboration between farms within the areas, as well as the unequal socio-political status of farms becoming institutionalised, is probably comparable to many areas. This could well be a description applicable to the emergence of socio-political territories also within southwestern Finland during the Iron Age.

The *vakus* (Fi. *vakka*) is present as an institution also in Finnish historical sources, but mainly from the eastern part of the country and not from southwestern Finland at all.[161] It is not known whether this distribution reflects the original spread of the Finnish *vakka* or is due to old, heathen traditions being preserved longer in the east than in the southwest. According to Korhonen (1923: 27), this could reflect

161 The word *vakka* as referring to payment of fees to public officials (like cantor, minister, bailiff, judge) is common in historical sources from all parts of Finland (Voionmaa 1912: 42-43). Although in these cases *vakka* is in a way a synonym for salary or tax, it is not an institution, but refers to the way of measuring the amount of grain to be paid.

the original spread of the ritual. If not, the preservation of it in the east could have been due to the more tolerant attitudes towards old customs taken by the clergy of the Eastern Orthodox Church in comparison with priests of the Catholic Church (Laakso 2003: 150-151). The same feast with the name of *vakkove* was performed also in Inkeri, southeast of Karelia (Korhonen 1923: 11-14).

According to the information preserved, the Finnish *vakka* seems to have been most of all a fertility ritual related to the growing of crops. The name is known in the form *Ukonvakka*, in the meaning of both a bushel or wooden basket (originally used for sowing of grain) and a feast. The earliest historical sources mentioning the *vakka* feast are from the middle of the 16th century. In several of the narratives and later sources preserved in Savo-Karelia as well as one from Häme, the meaning of the *Ukonvakka* ritual is mentioned to have been removal of drought. The relation of the feast with the thunder god *Ukko* thus seems natural, as the idea was to bring about rain (Krohn 1910; Korhonen 1923: 9-10; Melander 1932: 38-40; Toiviainen 1938: 75-76). In the first part of the ritual cereal grains, namely barley grains, were put outside waiting for rain so they would start malting. The second part was the drinking of beer prepared from the malten (Korhonen 1923: 15). Information as to some administrative content or specific areal size of the unit performing the ritual is vague. In some accounts the *vakka* was performed by a single farm, but in one case the feast was arranged by one farm for several farms together.

6.3.4. Territory, *pitäjä* and parish

The concept of the territory was outlined in the introduction. One way of approaching the idea of a territory is to define it as a geographical and organizational entity, the settlement units of which are grouped together in a (often natural-geographical) microregion and bound together by an areal identity and some form of socio-political superstructure. The way of formation of a territory would be increased cooperation or interdependence between settlement units within a region, and formalisation of rules for information exchange, leadership and obligations. Such constellations must have formed already during prehistory in southwestern Finland, comparable to the Estonian *vakus*. One indication of an early autonomous history of social organization could be the Finnish word for parish – *pitäjä* – which is not a loan, but a derivation of the old indigenous verb *pitää,* with the meaning of 'keep' (Itkonen & Joki 1976: 582-583; Salo 1999: 28; Häkkinen 2004: 934). If the idea and concept of a territory in a size somewhat comparable to that of a parish had not existed in Finland when ecclesiastical parishes were formed due to efforts of the western Church, one would have expected the use of some variant of the Swedish word for parish – *sokn, socken*. This was the word used by the Swedish authorities as well as the Swedish-speaking immigrants in Finland, while *pitäjä* is the only word for parish in the Finnish language. The *pitäjä* could thus be a term older than the formation of the ecclesiastical parishes. Following this thought, if there had existed a common name for earlier territorial organization, it would probably have been the *pitäjä*. The different concepts are, however, not to be linked directly; early territories may have been called *pitäjä*, but should not be directly compared to and confused with the concept of the parish (Fi. *pitäjä*) of the Historical Period. Territory, *pitäjä* and parish may be interrelated, but the function, organization and borders of the unit denoted as a *pitäjä* may have changed through time and varied in different contexts without being a direct predecessor for the parish.[162]

Aspelin (1885: 91) was the first to suggest that Finnish parishes had their roots in prehistoric times. His idea was that the parishes had developed from Pre-Christian offering societies. The Finnish word for parish – *pitäjä* – could according to Aspelin have had its origin in a word meaning a kind of sacrificial banquet (Fi. *uhripidot*). Later Voionmaa (1911) explained the early *pitäjä* as areal units for taxation; at first they would have collected a pre-Christian offering tax and later the same unit was used for other taxation as well. The idea of tax-collecting was also present in Vilkuna's (1964: 37-39) interpretation of the *pitäjä*, which he explained as a unit that

[162] In recent studies the idea that Scandinavian historical parishes (Sw. *sokn*, *socken*) descended from earlier "heathen parishes" has been abandoned (Rahmqvist 1996: 57; Carelli 2001: 239; Ros 2001: 222-223). According to the present view, parishes were most probably formed when the ecclesiastical tax-system based on the canonical law was developed. In a broader Nordic perspective this would have happened during the 12th and 13th centuries (Carelli 2001: 240; *cf.* Rahmqvist 1996: 57). The earliest history of the parish institution in Scandinavia is probably related to the consolidation of ecclesiastical organization in England during the 11th century. During this stage *socn* was a concept meaning the territory of a lord's authority, but it also came to represent the congregation of that area. The same word in the form *sokn* is known to have had an judicial content also in old Nordic languages, but not in the meaning of a territory. Therefore it is – according to Brink (1991) – more probable that the word for a parish, *sokn* and later *socken*, was introduced from England by English members of the clergy in connection with the organization of the Nordic church, starting in the 11th century. Within the Scandinavian countries tithes – the important requisite for organised parish formation – were introduced during the first half of the 12th century. During the 12th century parishes were formed in southern Scandinavia and especially during the 13th century in the northern part (Brink 1991: 121, 138). Even if the regional division and the structure of the parish system was mainly introduced in connection with the new taxation, previous Scandinavian organizational units, like *hundare* (hundreds) and *tolft* can have some resemblance on a general level when compared with the parishes (Ros 2001: 225, 238). Partly the parish system may have been correlated with or adapted to some Pre-Christian territorial division. This is due to the fact that the oldest parishes were bound to existing settlement areas, the division at least partly following natural borders and the church usually being erected on an essential place within the old settlement area (Brink 1991: 135-137).

provided a banquet for a native or foreign group of tax collectors. The same view was shared by Oja (1955: 124).[163]

In the 1930's Tallgren (1931: 91) discussed the formation of the borders of the *pitäjä* as a process whereby the unsettled forests between inhabited areas were utilised and soon divided "halfway" between the settled areas in the river valleys. The actual borders of the early *pitäjä*, however, cannot have been strictly defined; for example Oja (1955: 53, 119) has pointed out that certain villages owned distant land in neighbouring parishes, indicating that at least the wilderness upstream was formerly common land. This is in accordance with the way the territory is understood in the present study; a territory is not primarily an unit defined by geographical boundaries but a unit of social organization.

In his final analysis some years later, Tallgren (1933) based his view of the prehistoric *pitäjä* on the occurrence of the place-names *hiisi* and *moisio*, which according to him represented the main sacrificial site and the chieftain's manor. He identified several prehistoric *pitäjä* units, six of which are within the present study area. These are Piikkiö, Paimio, Sauvo, Halikko, Uskela and Perniö. This is in line with the clusters of Iron Age cemeteries and settlement sites in the area. Tallgren's interpretation was partly somewhat doubtful; he did not find the proper place-names in Sauvo and Halikko, but based his conclusions regarding these two *pitäjä* units on other facts. According to Tallgren, the early *pitäjä* were formed as units with a common defence system, a common court institution, common sacrificial places and joint leaders – elders or judges. The common defence was suggested by the occurrence of hill-forts, the fortifying and defending of which would have required people from many households. Hill-forts as an obvious proof of organised cooperation is an idea which has been repeated by several archaeologists (*e.g.* af Hällström 1948: 81-82; Kivikoski 1961: 251), but later also strongly criticized (Taavitsainen 1990).

Tallgren's idea was later taken up by Salo in several cases, one of which the prehistoric *pitäjä* units in the Aura river valley (Salo 1995a: 31-36). Here, Salo has interpreted the place-name Moisio differently, suggesting that the *moisio* in the Aura river valley was a common field, the yield of which could have been used for some common purpose such as a (sacrificial) banquet, or the upkeep of the Vanhalinna hill-fort situated in the same river valley. Salo has also tried to date the process

[163] The idea of the pitäjä originally being an offering society has been criticized by Salo (2004b: 309-310), who based his criticism on the fact that there is little proof in, for example, etymological data of the importance of common rituals involving some leader of the cult. On the other hand, he does not question the idea of a joint cult as he regards the *hiisi* (a cult place) as one basic ingredient of the *pitäjä*. Salo has also rejected the idea of the *pitäjä* being connected with, or organized by, some foreign force or conquer, as no terminology related to this is present in the Finnish language relevant to the time of the birth of the *pitäjä*. Instead, he has regarded settlement development as the starting point for the formation of the *pitäjä*, which is in accordance with how the formation of territories has been understood in this study.

of formation of the *pitäjä*. In the province of Satakunta single farms and villages started to join into *pitäjä* units during the Merovingian Period at the latest (Salo & Söyrinki-Harmo 2001: 83; *cf.* Salo 2004b). The formation is explained as starting with co-operation that through time became more formal. There would have existed a need for co-operation in connection with the establishing and protection of outland areas, in the utilisation of common pastures and hunting areas, as for defence and the maintenance of peace within the community. The importance of negotiations in the form of a joint meeting – *käräjät* – (the court) is especially stressed by Salo (*e.g.* 2004a: 303-308; 2004b; *cf.* Salo & Söyrinki-Harmo 2001: 83). The *pitäjä* would have been the institution keeping (Fi. *pitää*) the *käräjät* and, in at least some cases, also fortifying and supplying a hill-fort.

The idea of *pitäjä* formation is presented also in the case of the Kalanti-Laitila area in the northern part of Finland Proper (Salo 2003). In this area, the Early Roman Iron Age cemeteries have been interpreted as reflecting a migration from Scandinavia – the newcomers would, however, have been predominantly men involved in the fur trade and taxation of the Finns.[164] In the Merovingian Period, at the latest, the descendants of the originally Swedish-speaking community would have changed into a culturally Finnish one.[165] During this period several new

164 This is the same migration model used by Salo for explaining western phenomena of the southwestern Finnish Bronze Age.

165 Salo (2003; *cf.* 2000a: 105-108) has interpreted much onomastic material as well as historical sources in order to underline the special contacts between the Kalanti-Laitila area and Scandinavia. Much of this discussion is beyond archaeology. The archaeological evidence consists mainly of cemeteries (representing several forms) and the objects found in them. Furthermore some upright stones – bauta-stones, according to Salo – found in Untamala in Laitila and fossil field remains at a site in Laitila, together with a general tradition of building stone fences have been suggested by Salo as representing Scandinavian influence. None of these is convincing. The cemeteries are representative of the same trend that can be seen in the whole of southwestern Finland in the Roman Period, *i.e.* large variation of grave rituals indicating overseas contacts but also related to a period of change at the level of local societies promoting the expression of wealth and power in various ways. It is typical for these cemeteries that objects deposited may have their origin in different areas around the Baltic Sea – contexts where both the type of cemetery and objects deposited in it would have a single area of origin are sparse. As explained in previous chapters, the ornaments found in these cemeteries (including those of the Kalanti-Laitila area) are mostly East Baltic forms rather than Scandinavian, while some weapons and luxury objects probably entered Finland through Scandinavia. Regarding the "bauta-stones" (which Salo compares with 11th century memorial stones) there is not much to be said – a few upright stones of unknown function cannot inform on ethnicity. The same can be said regarding the fossil fields with stone borders (actually one single site) and the stone fences (most of them built in the Historical Period) found in the area. There may be many reasons why similar fields have not been preserved or found elsewhere in Finland. The stone fences on the other hand (which can be found here and there in other parts of Finland as well), can be explained by the stony ground of the area, promoting the use of clearance stones for fences.

cemeteries were founded and many objects – especially weapons – were deposited. According to Salo (2003: 69), this was a period of settlement growth, increase of wealth and the strengthening of the Finnish culture, which probably also promoted larger organization than on the village level. Whereas the village cooperation was based on kinship and the utilisation of common land without any institutionalised organization, the cooperation and need for consultation between villages required another form of organization – the ancient *pitäjä* (Fi. *muinaispitäjä*) (Salo 2003: 70-71). This line of development differs from what has been suggested in this study, where the earliest territorial organization is supposed to have been based on the formalised relationships between single farms, not villages. Thus, the *pitäjä* could be far older than village formation, which would have happened in the Late Iron Age or the Middle Ages. Otherwise, the general reasons for the formation of territories presented by Salo (*e.g.* 2003: 70-71; 2004b: 310) seem plausible. According to him, the need for higher-level decision-making would have occurred when defending common interests regarding faraway utilisation areas and also for matters of general defence of the settlement area – most of all the *pitäjä* institution would, however, have been a means of preserving peace within society. This required a court-institution (Fi. *käräjät*). According to Salo, *käräjät* originally meant simply a meeting. This meeting was the origin also for the name of the ancient *pitäjä*, related to the werb *pitää* – "keep" – as the *käräjät* meeting was according to Salo "kept" (organised) by the *pitäjä*. Salo (2003: 71) furthermore repeats the idea by Tallgren (1933) according to which an ancient *pitäjä* also would have had a hill-fort, a common cult place (*hiisi*) and a kind of chief's manor (*moisio*).[166]

The several *pitäjä* units discussed by Salo in the area of Kalanti (Uusikirkko) and Laitila – forming one ecclesiastical parish each in the Middle Ages – are rather confusing. Along with the ancient *pitäjä* he discusses early ecclesiastical parishes, basing the discussion on small village churches found in the region. Thus, for example, Laitila would have consisted of three early parishes each with its own small church in the later half of the 11th century or around 1100 AD; those parishes

166 The question of manors is taken up by Salo regarding a few sites. The suggested formation of extensive farms or manors (Fi. *suurtalo, pitäjänkartano*) around 1000 AD (Salo 2000b; Salo & Söyrinki-Harmo 2001: 95; Salo 2003: 71) seems to be based most of all on some rich cemeteries from this period. The cases mentioned are Saari in Köyliö, Moisio in Nousiainen and Rikala in Halikko. The importance of the *moisio* sites has been emphasized also by Georg Haggrén (2005a). According to him, the *moisio* can be interpreted as a leading farm or manor. These farms acted as innovators in the process of christianisation in the 12th and 13th centuries. The erection of the parish church and the organization of its upkeep were instigated by the farm or manor, and the first churches – probably private chapels at first – were built on the land owned by these estates. Haggrén's (2005a) view thus emphasizes the close connection between the prehistoric *moisio*, Historical Period manors, and the parish churches.

would in some way relate to the older division of *pitäjä* units (Salo 2003: 80-82). Kalanti on the other hand would have had only one early medieval parish (Kodiala), the *pitäjä* status of which is, according to Salo (2003: 84) uncertain as no *käräjä* place or hill-fort is located within this area. The idea of early parish churches presented by Salo (2003) is not convincing. It has been assumed that in the early stages of Christianity some leading families may have built small chapels or churches of their own (Hiekkanen 2004a; *cf*. Uotila 2003: 367; Haggrén 2005a), but this does not imply that these chapels had a direct relationship with the *pitäjä* organization, nor the formation of ecclesiastical parishes. In the case of the supposed early chapels or churches in the Kalanti-Laitila, there is, furthermore, no evidence of an early date – the chapels may have a later dating than the formation of the Uusikirkko (Kalanti) and Laitila parishes (*cf*. Hiekkanen 2004a).[167]

The fact pointed out by Oja (1955: 125) that land-ownership occurred across the borders of medieval parishes is important within the study area. Common pastures (Fi. *niittyjakokunta*) especially were divided in an interesting way, as villages in Piikkiö, Paimio and Sauvo shared some common pastures, as did villages in Halikko and Uskela. According to Oja (1955: 125-126), this might indicate that there were originally only three prehistoric *pitäjä* units within the study area, *i.e.* Paimio (including Piikkiö and Sauvo), Halikko (including Uskela) and Perniö. The final division of the large prehistoric *pitäjä* units, according to Oja, must have taken place by the end of the 13th century. During that period the new ecclesiastical parishes Kemiö, Parainen and Nauvo were also founded in the archipelago. These medieval ecclesiastical units are first mentioned in historical sources in the 14th century: Halikko 1313, Kemiö and Paimio 1325, Parainen and Uskela 1329, Perniö 1330, Sauvo 1335, Piikkiö 1377 and Nauvo 1395 (Oja 1955: 128-129). The idea of a closer relationship between Piikkiö, Paimio and Sauvo compared to the other Iron Age microregions also gains some support from the archaeological material. As shown in Chapter 3, one common denominator for these three regions seem to be the slightly earlier occurrence of a grave ritual involving grave goods already during the late Pre-Roman or Early Roman Iron Age. In addition, there is a partly different material culture during the earlier part of the Iron Age in comparison to the rest of the study area, as noted by Hirviluoto (1991: 138-139). This, however, does not necessarily suggest any large *pitäjä* unit – rather a common settlement history and

167 In another context Salo's (2000a) idea of parish formation as early as the 11th century has been regarded as particularly problematic by Orrman (2001). According to him, this would be unexpected as it would be as early as in Denmark and earlier than in most parts of Sweden. Furthermore, Orrman points out that tithing (commonly regarded as the prerequisite for parish formation) could not have been introduced in the diocese of Turku earlier than in the 12th century. According to Hiekkanen (2004b), this would actually have happened in the early 13th century.

development of the areas. The site pattern prevailing throughout the Iron Age gives reason to assume that it was between the households in the microregions of the river valleys that a need for organised cooperation and decision-making was most obvious. This does not exclude cooperation and regulated relations also between microregions. It is, however, more likely that it was the organizational unit of the natural geographically determined microregion – not a group of microregions – that was identified as a territory and possibly referred to as a *pitäjä*.

The idea of organizational units larger than a *pitäjä* has also been discussed. Ella Kivikoski (1939: 252-254), one of the leading Iron Age archaeologist in the mid 20th century, interpreted the Late Iron Age material culture in the different river valleys in southwestern Finland as similar and as a reflection of co-operation and socio-political unity on a provincial level. More lately Salo has continued the discussion on provincial level units, *i.e.* the unit of cooperation between several *pitäjä*. Salo (2003) for example reaches the conclusion that the Kalanti-Laitila area would have formed a province (Fi. *maakunta*) of its own in the 11th century. Salo has also suggested that the formation of the province Satakunta as well as the province Häme could date back to the 11th century (Salo 2000a: 105-185; 2005b: 52; Salo & Söyrinki-Harmo 2001: 86). Orrman (2001; *cf.* Taavitsainen 2000: 25-27) has criticized this view of the level of organization as maximalistic, as no proof of co-operation on the level of a province during the Late Iron Age exists; the upkeep of hill-forts, for example, has not required a particulary complex organization, there is no proof of the functionality of the assumed fire-signal system etc. Likewise the existence of a Swedish hundare-organization in Finland (*cf.* Salo 2000a: 105-128; 2004b: 336-342) has been questioned. Furthermore, Salo's (2003) discussion has been criticized for ignoring differing opinions (Immonen 2004: 58). These few examples show that the discussion on the province as a prehistoric unit of organization is rather difficult – ascertaining, for example, leadership and forms of government seems impossible as the archaeological material does not contain features indicating large scale supremacy, nor is there any historical evidence of such organizations from the time of the establishment of medieval Swedish authority within present-day Finland. The most reasonable conclusion is that there did not exist any established provincial organization and administration during the Iron Age in Finland (Taavitsainen 2000: 25-27; *cf*. Ylikangas 2007: 11-15). At least the idea of a provincial unit is far more speculative than the idea of a microregion territory. The Finnish historical provinces (Fi. *maakunta*) could originally have been etnogeographical concepts (without a unifying administrative content), as suggested by Lang (2002b) concerning the Estonian *maakond* units.

As stated above, the idea of a territory or *pitäjä*, as applied here, should not be directly correlated with the ecclesiastical parishes known from historical sources. On the contrary, it is likely, that the territorial organization had a minor role during the first establishment of churches as well as the later consolidation of the ecclesiastical organization. Rather, the first churches were erected by single farms or villages, chiefs, merchants etc. like in many parts of northern Europe, where private churches were in fact owned by the landowners (Carelli 2001: 239; *cf*. Litzen 1977; Taavitsainen 1987: 98-99; 1989: 85-86; Hiekkanen 2007: 14-16). This does not mean that some form of a territorial institution did not exist at the time of the conversion process, but Christianity was apparently first adopted by individuals and groups of people within the territory, not by the territory or *pitäjä* itself. In addition to religious faith, people may have accepted Christianity due to profane reasons too. The early Church as a potential source of power, enabling the establishment and maintenance of contacts, was probably involved in the competition for status both between and within regions. The final establishment, organization and consolidation of the ecclesiastical parishes was another line of development, which took place later.[168]

If an early socio-political organization on a level of a territory existed as suggested, it is difficult to understand how strict or formal such an organization could have been during the Iron Age. One idea is that the prehistoric *pitäjä* units (if they even existed) were not strictly organised administrative units at all, but were based above all on common aims and spontaneous cooperation (Jutikkala 1972: 7-9; Litzen 1977: 330-331; Taavitsainen 2000). Among others, Taavitsainen (1990: 148) has rejected the idea of an institutionalized organization of territories as well as a

168 Hiekkanen (2000; 2004b) has divided the process of early ecclesiastical organization in Finland into three stages. The first stage (ca. 1025-1150) was a period of infiltration of Christian customs and (during the sub-period ca. 1100-1150) an increased systematic missionary activity. There were presumably numerous private churches built by wealthy farmsteads or groups of farmsteads in Finland Proper already during this period. During the second stage (ca. 1150-1200) the activities became more organized and a missionary diocese was formed in Nousiainen, but no ecclesiastical territorial organization had yet been introduced. This followed in the third stage when a territorial parish system was established and the paying of an ecclesiastical tax become regulated. At the same time the missionary diocese of Finland was moved from Nousiainen to the bank of the River Aura, close to Turku. According to Hiekkanen (2000; 2004b) the earliest parish organization emerged in the 1220's and 1230's – the moving of the centre of the diocese probably also happened around 1230. The establishment of parishes meant that the old farmstead cemeteries and churches were abandoned. When parishes were formed the population was divided into groups, following a system based on earlier experience of the church as well as of the carrying capacity of the farms (*e.g.* Hiekkanen 2004b: 163). The fact that detailed planning (on a level other than the local community) lay behind the parishes is revealed also by the fact that churches seem to have been built on sites separate from old burial grounds. According to Hiekkanen, it can be claimed that the tithe system laid down in canonical law was the (economical) basis for the formation of parishes: "the tithe system led to the emergence of the parish system" (Hiekkanen 2004b: 164).

correspondence between the early medieval ecclesiastical and secular parishes and the *pitäjä* units of late prehistoric times. According to him, there was most probably no permanent early *pitäjä* organization. Instead co-operation for various ventures was arranged in the form of temporary organizations. A variety of such a form of cooperation is known from ethnographic contexts, especially concerning hunting, net fishing and burn-clearance (Taavitsainen 1990: 162). These tasks were carried out by groups of men who elected a leader, called *kuningas* (king). The working association and the role of the *kuningas* lasted only for a set period of time. This is in agreement with Meinander's (1980: 12-13) suggestion that the Finnish Late Iron Age society was egalitarian. The spontaneous character of cooperation can, according to Taavitsainen (1999b: 145-146), be exemplified also with regard to activities of war: strategies and tactics were probably not in the foreground, rather men fighting instinctively as individuals and "amateurs", improvising according to resources. Other forms of co-operation probably existed between farms and increased due to village formation. According to Taavitsainen (1990: 154), this was, however, specifically spontaneous behaviour rising from the local community. A further point underlining the accidental and temporary character of early cooperation is that there is no evidence of an earlier fixed system of government in the sources on early ecclesiastical and state organization (Taavitsainen 1990: 154).

Hiekkanen (2005; *cf*. 2003: 11-15; 2004b) has also held a similar view, rejecting the existence of a regional organization prior to the establishment of ecclesiastical parishes. According to him, the foundation of about 40 parishes in southwestern Finland took place in the early 13th century on the initiative of local leaders of the Catholic Church and with the approval of the peasants; due to this development the former egalitarian organization of Iron Age farms would have changed into a hierarchical system, one component being taxation. This is a view very different from one acknowledging prehistoric hierarchical structures. With regard to the proposed system of territorial organization of the Iron Age, it is probably true that the administrative apparatus and functions of the early territories were primitive, but cooperation can hardly have been purely spontaneous. The roles of leadership and relative importance of families, farms or alliances may have changed, as suggested by the differences and discontinuities of single cemeteries as well as differences between regions – but this does not mean that the apparatus and idea of the territory would have been spontaneously changeable. What may have been in a constant state of negotiation and change were roles within the microregion and the relative supremacy of the microregion in relation to others – not the existence of a microregional identity and unity. In a later part of this study this question will be approached with a look at general ideas of social complexity, suggesting that power relationships were present in the process of formation of territories.

The development of territories, as defined above, is hard to date. Archaeologically, however, social structure may be reflected in the outcome of social actions and in the use of symbols related to ideology. If the forming of territories is traced in the long-term continuity of the clustered pattern of Iron Age cemeteries within the study area, it is possible to discuss the dawn of the formation of territories as early as in the Early Iron Age. What is important to realise in this case is that a clustered pattern of certain types of antiquities apparently did not evolve only as a marked increase in archaeological material in some areas, but as a an increasing difference or even decline of material in others. This underlines the importance of the Kemiönsaari material. What is suggested is that the formation of a new socio-political structure in some microregions may have led to regression or other status-related changes in others.

6.3.5. To stay or to move?

In the most recent study on the Iron Age of the archipelago (Tuovinen 2002a), the possibility of settlement dislocation has been rejected. The most convincing argument for a continuous settlement development is the most general one, *i.e.* abandonment seen as an exceptional development, which would require a convincing explanation other than just lack of (or incomplete knowledge of) archaeological sites. As detailed above, it has also become clear that the Kemiönsaari area had prerequisites for Iron Age settlement nearly as good as the mainland. There are a few stray finds and sites with Iron Age dates, as well as palynological evidence of sporadic cultivation. All this indicates presence in the area, but it is still unclear what kind of settlement this was, and what was the settlement density compared to that of the mainland. When some microregions on the mainland developed into areas where new forms of sites clustered, Kemiönsaari, lacking these types of sites, seems to lose something of its role as an equal to the mainland. This probably meant a change in the relationship between the Kemiönsaari inhabitants and those of the central settlement areas on the mainland. It could also have meant something in terms of relative population numbers. Population growth may have been faster in the mainland areas, or the clustering of sites could mean aggregation also in terms of settlement relocation. If so, the process of abandonment should also be discussed as a possible element in the development.

Abandonment is defined archaeologically as the absence of evidence for habitation in a locus of previous habitation. Abandonment behaviour can be a brief, single event or an episode in a trend or process, often difficult to discern in the archaeological record (Fish *et al.* 1994: 136). Abandonment causation is also difficult to evaluate. This is partly a question of scale; cultural and ecological factors relevant to abandonment on a small scale may be different in kind and frequency from factors causing abandonment phenomena on a larger scale. For example, crop failure or disease might be the reason for the abandonment of a site for a short period, while these would probably not affect settlement in a long-term perspective. From an individual point of view, however, the situation may have been felt differently; suddenly arising abnormal conditions are a greater menace to human existence than long-time trends with the possibility of gradual adaptation (Callmer 1986: 203). Abandonment can also be regarded as a solution to problems. The perceived outcome of abandonment must have been considered more acceptable, under given circumstances, than remaining in the same location; this means that conditions in the area of destination as well as the area being abandoned would have affected the timing and manner of departure (Fish *et al.* 1994: 135). The process of abandonment can be fully understood only if we address the points both of departure and destination.

In previous parts of this study the areal (chorological) discontinuity of settlement on Kemiönsaari after the Pre-Roman Iron Age has been suggested by the almost total absence of later archaeological material. The discussion, based on environmental factors and ideas of the general development of subsistence etc., has not shown any apparent reason for settlement dislocation. Either settlement prevailed, although archaeologically invisible, or we have to consider some form of abandonment. The difficulty is to understand what could have been the problem, which could have been solved by abandoning not only individual sites but a whole region previously settled for thousands of years? If the point of destination was in the central settlement areas forming in the mainland river valleys, both the initial problem and the outcome of abandonment might actually have been the same – the increasing power, wealth and security of some settlement areas and the decreasing power, relative wealth and security of others. For those who stayed, the archipelago provided a good economic niche with a stable subsistence, but at the same time the social position and security of the archipelago inhabitants must have been dependent on the attitudes of the mainland settlement areas. Abandonment could thus have been a consciously preferred choice, not in the sense that it was necessary from the point of view of the daily needs of an individual, but because of considerations of a more intricate whole, which also included benefits. One of these would have been higher security, which refers both to protection in case of aggression and lower subsistence risks due to buffering mechanisms. Furthermore, the relatively low original settlement density must have meant that abandonment and settlement clustering did not necessarily pose problems with regard to access to means of production, such as land and water. Also social roles and interaction with other inhabitants were probably flexible due to earlier contacts and kinship ties. Related persons abandoning a site and arriving at a new one in small numbers could probably easily be assimilated into the existing settlement area and organization.

If earlier permanent settlement sites were abandoned, this did not necessarily mean abandonment of economic activities connected with the sites or the region of the sites. On the contrary, established land-use rights and well-known resources still could have played a role in the economic activities administered from the new settlement areas. It can be imagined that besides a sense of ownership of earlier utilised territories, the idea of ancestral land and monuments was also of importance. All of this – considerations of security, risks, social roles, interaction – must have been vital also for people continuing to utilize Kemiönsaari and the rest of the archipelago. Also these people most probably had ancient contacts and kinship ties with people living on the mainland. These contacts prevented the emergence of an isolated archipelago population – previous bonds and constant interaction gave the opportunity of receiving benefits from the mainland settlements, but at the same time bound the outlying areas to the central settlement areas.

One often discussed reason for the relocation of settlement is related to the impact of early agriculture. In Lang's (1998) three-stage model, presented in the previous chapter, one sub-stage was that of gradual relocation of primitive agriculturalists to new areas, followed by the stage of primary extensive land-use in these new areas. The latter stage was, according to Lang (1998: 97; 1999d: 367-368), reached in southwestern Finland during the second and first millennium BC. As explored in chapter 4, the vicinity of the settlement sites of the Pre-Roman Iron Age on Kemiönsaari island seems to reflect new requirements due to the practice of agriculture, *i.e.* something like the relocation stage in Lang's model. If there was a later process of dislocation – from one already utilised and suitable environment to another – it was exceptional and cannot be explained as related to the demands of agriculture only. There may, however, be a causative relationship, as an increased interest in agriculture probably made the economy more vulnerable and thus promoted the development of organised cooperation between households with the aim of reducing risks.

6.4. Centrality and hierarchy

6.4.1. Settlement hierarchy in Estonia – a review

Contrary to the recent archaeological discourse in Finland, themes related to centrality and periphery as well as the question of social power have been addressed, especially in Estonia. One example is Lang's (2000a; *cf.* 2003) book *Keskusest ääremaaks* (From Centre to Periphery). In addition to centre and periphery, Lang uses the terms 'core area', 'nuclear area' and 'margin'. On the local level, in the area of northern Estonia, Lang (2000a: 29-30, 319; 2003: 126) distinguishes three main types of core areas and centres: 1) settlement cores, 2) centres of social, economic and political power, and 3) religious centres. The settlement cores are distinguished from surrounding marginal areas by a remarkably denser settlement pattern, visible in the form of the distribution of antiquities – the main type being monumental stone graves. The areas with a large number of stone graves can be regarded as areas where the settlement density was high and the competition for agricultural land strong. The centres of power are indicated by the existence of a fortification and/or a rich and manifold find material (both in graves and settlement sites), indicative of better possibilities of obtaining products of handicraft and trade, as well as (concerning the graves) higher social pretensions. Religious centres, on the other hand, are indicated by the existence of cultic buildings and sacred places, cup-marked stones etc. It seems obvious, that the 'core areas' (in some respects also the centres of power and religion) could be compared with the central settlement areas discussed in this study.

The discussion on centres in Estonia has been closely connected with the notion of power, the key concepts being 'settlement hierarchy' and 'power centre'. Settlement hierarchy refers to a settlement pattern in which qualitative differences – mostly in function and status – exist between settlement units, whereas a power centre is a settlement unit that can be regarded as dominating the other settlement units of a certain area because of its location, function or find material (Lang 2002a). Settlement hierarchy should not be mixed with normal settlement variation due, for example, to the size of the settlement units. The hierarchy Lang (2002a: 18) refers to means identifying the existence of real subordination like fortified settlements, hill-forts or landed estates; the analysis of settlement hierarchy must proceed from the study of power relations, as it is "the existence of power that separates a superior from an ordinary man, and a landed estate or a fort from an ordinary village". Lang (2002a: 18-19) also makes some statements about how power could become visible. According to him, occasional or limited power could not leave traces in the cultural landscape. Furthermore, he is of the opinion that qualitative differences between settlement units could not have arisen until power became "in one way or another and to a greater or lesser extent inheritable". The inheritability of power he regards as mutually connected and correlated with private ownership of land. One of the problems is that a power centre can be seemingly indistinguishable from ordinary settlement units. In many cases interpretations are based on graves and grave goods that are thought to reflect the existence of social difference between individuals, families or farms. It is, however, important to realize that all interpretations regarding power and hierarchies of ancient settlement are dependent on the particular context – objective criteria do not exist (Lang 2002a: 19).

The area over which power centres dominate can be called 'power territories' (Lang 2002a: 20). A central place or power centre is not necessarily represented by a single spot, but can also be thought of as a settlement cluster (*cf*. Fabech 1999: 457). Such an area – a 'settlement core' according to Lang's (2000a: 29-30, 319; 2002a: 21) terminology – with a denser and richer settlement may also have served as a centre. Socio-political power in such a centre may, however, have been more loosely structured. Settlement cores were surrounded by 'hinterlands', *i.e.* zones of more sparse habitation, distinguishable if the core and the hinterland were mutually (but asymmetrically) dependent on each other (Lang 2002a: 21; *cf*. Sherratt 1993). Using Langs's terminology, the Iron Age archipelago of the present study area might be identified as a 'hinterland' for the settlement cores (and power centres) of the mainland.

The establishment and development of settlement hierarchy and power centres in Estonia has been summarized by Lang (2002a: 22-25) as follows (in short): 1) Within the hunter-gatherer societies of the Stone Ages the social differentiation was low and the concentration of power modest. Settlement cores could serve as receivers and mediators of innovations. 2) In the Late Neolithic and Early Bronze Age (the second millennium BC) people left old settlement cores and settled in areas suitable for primitive agriculture. 3) In the Late Bronze Age fortified settlements were founded where concentration of social power reached quite a high level. These centres emerged along transport routes as the settlement hierarchy depended on the trading and casting of bronze. 4) At the end of the Bronze Age and the Early Iron Age relatively small and compact power territories were formed. One farm held social and economic power over the other farms in such a territory; probably some part of the production was brought to this dominating farm. These territories are comparable by location with the *vakus* units of later times. 5) In the Middle Iron Age small territories began to be united, maybe already then into fort-districts. The typical centre was a combination of hill-fort and an open settlement at its foot. 6) In the 11th century the majority of fort-settlements were abandoned or rebuilt while new forts emerged. The fort-district – consisting of a group of *vakus* units around the fort – now became the main power territory. 7) As the result of foreign conquest, the fort-districts disappeared, but the *vakus* units – adopted by the new landlords – remained in use as primary power territories and taxation units.

6.4.2. Territories and polities

In the context of the study area such an early and consistent development as summarized in the case of Estonia cannot be described, although some similarities may be discernible. The first indications of settlement relocation towards areas suitable for agriculture can be dated to the Late Bronze Age or the Early Iron Age. This is also the first period when there is evidence of the use of hill-sites within the mainland part of the study area. Reliably dated sites are found in Piikkiö, Sauvo and Halikko, *i.e.* from several of the areas referred to as central settlement areas due to the distribution of sites from the later periods of the Iron Age. It is also quite possible that some other henged hill-sites may actually date from the same period. This is suggested by sites like Rekottila in Paimio, where there is a much closer spatial relationship between cairns and the henged mountain than with Iron Age sites.

Luoto (1984: 166-168) has emphasized the connection between the occurrence of hilltop settlements in the Late Bronze Age and the increase in the importance of domesticated animals, bronze trade as well as bronze casting. He has explained the supposed decrease of hill-forts during the Pre-Roman Iron Age as possibly related to settlement dispersion due to the increase of cereal cultivation instead of cattle breeding. Iron tools may have made more efficient clearance and farming techniques possible and, thirdly, the new metal may have lowered the importance of the bronze trade and the bronze casting centres. The idea of early hill-sites as centres has thus been present, but probably the low number of Finnish hill-sites previously dated to the Early Metal Period has prevented interpretations as to their role in settlement history and socio-political organization on a regional level. This is more accentuated in Sweden, where the development and use of hill-sites has been explained with reference to political geography, suggesting the material as a possibility of identifying social organization and different socio-political groups. The "political geography" is shaped by conflicts between different socio-political groups as well as conflicts and dynamics within these groups (Olausson 1995: 170, 240). Lang (2000a: 281-282, *cf*. 365), discussing the hill-forts of northern Estonia, has also quite clearly interpreted them as reflecting the development of socio-political relations in society – one factor being the emergence of an elite, growing power ambitions and territorial demands. Lang has gone even further, using this scheme the other way around, stating that the absence of a fort can be interpreted as the weakness of socio-political ambitions for power of the local elite.[169]

The role of the early hill-sites within the study area could have been related to emerging new socio-political relations, but it is not at all certain that these sites should be regarded as fortifications. One would rather like to think of these sites as points of contact or places of symbolic function, comparable to how Wall (2003) has tried to understand the meaning of the Early Iron Age henged mountains in relation to settlement development. According to her, settlement was still in the Early Iron Age rather mobile and henged mountains acted as points of contact in relation to a mobile pattern of settlement. The inception of a permanent settlement structure changed the social significance of the henged mountains. Ancestors were more than before manifested through the farm and the cleared land as well as the cemeteries close by. The focus was more than before on territoriality dividing the landscape, and the settlement itself – the farm – became the social as well as cosmological point of focus in the landscape. The henged mountains thus lost their significance as mythical and liminal places. Thinking in these terms, the hill-sites are not necessarily power centres, but they accentuate places in the landscape probably recognized and experienced on some level of identity and unity of the people living in the area. The appearance of such places only within the mainland part of the study area may be indicative of a divergence between mainland and archipelago areas, characterized on the mainland by the emergence of more formal and centralized features of social or ritual communication.

The system of one dominating farm proposed to have emerged in the Late Bronze Age or Early Iron Age in Estonia has not been possible to ascertain as such within the study area. It cannot be ruled out that during several periods of the Iron Age, a single farm would have had a dominating role within a territory, but as a stable system this is not possible to evidence in the current state of research.[170] Rather

169 In Finland mainly the Late Iron Age or early Historical Period use of hill-sites has been interpreted with reference to power and political events, the role of the hill-forts, however, not seen as especially active. According to Luoto (1984: 165-166), the fact that no traces of battles have been revealed at the Finnish hill-forts indicate the low level of political coalition; cooperation in defence has obviously existed, but as the hill-forts have not played as a big role as in the East-Baltic area, this cooperation has evidently been to a great deal temporary. The latest period of use of hill-forts was according to Luoto (1984: 170) one feature in the process of collapse of Iron Age society. This period coincides with the state formation in the Baltic Sea area as well as the period of conversion to Christianity promoted by both the eastern and the western church. This period of use of hill-forts is thus best explained with reference to political events of the time (Taavitsainen 1990: 145-146).

170 The original identification of this system in the Räväla area in Estonia (Lang 1996), was probably much dependent on the suitable material, i.e. an area where (in addition to surveys) lots of excavations had been undertaken.

the material could indicate several single farms forming a unity – the territory – primarily based on cooperation, but still competing for relative power and status within the territory as well as in relation to leading farms in external territories. The idea that the power of the territory was channelled through the leadership held by one farm at a time is one possibility, but other forms of leadership could be considered as well. The idea of single dominating farms could rather be compared with the idea presented by Pihlman (2004), according to which Iron Age cemeteries represent old established farms with a status higher than other farms attached to the same economical unit. The territory, however, must have been based on cooperation between several such units, the relative power and roles of the main farms being negotiated separately. The power relations within the territory and the organization of cooperation thus may have been unstable and changeable, but the very existence of such a level of organization is likely – there must have been rules and roles for the coexistence with the neighbours within the microregion, others than those related to external contacts.

According to what has been outlined above, the cooperating farms within a microregion – the territory – would represent the highest form of socio-political unit discernible during the Iron Age. The relationships between different territories, on the other hand, could be discussed applying the old aspect of peer polity interaction. The concept refers to interaction between autonomous social and political units within a single geographical region sharing a common culture. Polities often refer to highly stratified societies, but it has been pointed out that such individual, politically autonomous units can usually be distinguished also among supposedly egalitarian agricultural societies (Renfrew 1986: 2; *cf.* Cherry & Renfrew 1986: 151). The polity is the highest order of a socio-political unit in the region in question. In agricultural societies it may be the village or some other aggregation of basic units (Renfrew 1986: 2). Units of the highest order do not need to display any notably developed or differentiated system of government or administration. There must, however, exist effective procedures for decision-making, and a unit like this cannot be subject to the jurisdiction of any other unit of higher rank or power (Renfrew 1986: 4). This is a definition that might well fit the units of social organization whose existence has been suggested above. The reason why this is interesting is that interaction between coexisting socio-political units with a similar structure could have been a factor as important as external influences in the shaping of Iron Age culture and society in southwestern Finland.

Peer polity interaction stresses the importance of cultural and societal change that can be understood without the dominance of any outer force, such as for instance influences from an area with a more advanced socio-political or economic structure. Instead, transformations can be seen as the result of interaction among equal socio-political units, in forms ranging from competition and warfare to the spread of symbolic ideas and innovations as well as the exchange of goods (Renfrew 1986: 8; *cf.* Cherry & Renfrew 1986: 152). One interesting concept is that of 'competitive emulation', meaning that neighbouring polities may be spurred to ever-greater displays of wealth and power to achieve higher inter-polity status.

It is indubitable that the units reflected in the archaeological material within the study area (single farms and microregional settlement clusters) must have been aware of one another – probably also competing with each other. Competition, however, does not exclude partnership; on the contrary, in addition to kinship ties, the status and power of the farms and settlement areas must have been crucial in negotiations related to alliances.[171] For example, wealth in the form of imported objects came mainly from outside the study area, but were used symbolically in cemeteries, not due to external influences or in relation to a periphery, but in the competition between equal units of organization within the area. Displayed wealth, power and status co-acting with the possibility of providing security as well as other real and symbolic profits for the population maintained the credibility of the organization. If such a scenario is acceptable, the dynamics of development within the study area during the Iron Age could have been to a great extent dependent on interplay between the territories that started to form during the Early Iron Age.

6.5. Risks, inequality and power

6.5.1. The handling of risks

In systemic approaches to archaeology, 'subsistence stress' has been regarded as a major stimulus for change in sociocultural systems. Subsistence stress is caused by the interaction of environmental, demographic and behavioural variables, and develops when the environment and subsistence technology available to a group is inadequate to support the existing population (*e.g.* Dean *et al.* 1994). Systemic change occurs when a population exceeds the 'carrying capacity' of a particular adaptive configuration or when environmental degradation lowers the carrying capacity below the level of the existing population. Another, slightly similar concept and way of thinking relates to the concept of 'surplus capacity', which refers to the

171 A comparable possibility has been suggested by Raninen (2005a: 240) regarding Merovingian Period "cultural provinces", which he has emphasized as united by networks of interaction and cooperation rather than by single political formations or ethnic territories. According to his view, competition and even aggression could be seen as reasons for increased interaction, rather than reasons for decreased contacts and divergence.

difference between capacity and common needs. If a crisis occurs in a period of expanding capacity and a slow rise of common needs, *i.e.* in a period of high surplus capacity, the crisis can be more easily overcome than during a period when the whole capacity is needed to fulfil common needs (Myrdal 2005: 97-100). In the latter case structural adjustments are needed which may result in a larger scale societal crisis. This addresses surplus as a buffer in times of crisis. Permanent or long-term shortfalls or crises may produce new adaptive systems, but most cultural systems are able to handle short-term production shortfalls through buffering mechanisms such as storage, adjustments in subsistence practices, and exchange.

Environmental variability can be characterised using a terminology reviewed by Dean *et al.* (1994). Three overlapping classes of variability can be discussed: 1) stable factors that can vary in space, but remain essentially constant; 2) low frequency process (LFP) variability, with periodicities of 25 years or more; and 3) high frequency process (HFP) variability, with periodicities of less than 25 years. In agricultural societies, HFP variability might, for example, be related to yearly variations affecting the yield of cultivation. As noted above in the case of abandonment, such factors would probably be felt chiefly on an individual or household level and would not alone be expected to lead to large adjustments. Major regional adjustments would more probably occur in cases of LFP variability affecting subsistence. The process of change, however, is quite complex, as a single life-time is usually insufficient to distinguish a long-term trend from normal yearly fluctuations. This suggests that in most cases decisions have been made on the basis of short-term observations, even if these episodes of change may have been parts of a low frequency process.

One long-term process during the Early Iron Age which is suggested to have affected settlement and subsistence is climatic deterioration. In this case too the effects would primarily have been experienced in the yearly cycle of life, perhaps involving some years of unexpected conditions. As reviewed in chapter 5, there is, however, no evidence of especially severe changes, as agriculture seems to have expanded all around the Baltic throughout the Late Bronze Age and the Early Iron Age. What is also important – even if climate could have led to problems, a normalisation would have been expected at some point during the Iron Age. Climate fluctuations, however – together with other factors, such as the increasing importance of agriculture – could have led to a decreased predictability of subsistence and to a need for increased security and buffering systems. One way of spreading the risk of uncertainty could have been increased interaction and cooperation.

Agricultural societies probably always possess certain food acquisition strategies to buffer environmental fluctuations. To counteract scarcity, societies employ a wide range of buffering practices, designed to lessen variability by dampening its effects (Halstead & O'Shea 1989: 3). Such buffering mechanisms may include 1) mobility, 2) diversification, 3) physical storage, and 4) exchange (including forms of theft and even war). All of these are well known from anthropological contexts. Attempts at modelling risks and buffering strategies have also given interesting information. The results of a risk-buffering simulation by Gaines & Gaines (2000) suggest that even a basic strategy of overproduction and emergency storage will improve chances of handling most random environmental impacts on food supplies. What kind of possibilities for storage may have existed during the Iron Age in Finland is, however, not known. Storehouses or other large-scale storage is probably out of the question. The conditions of storing grain have been considered so poor still in the Middle Ages that this practice could not have compensated a bad failure of crops.[172] Storage must have meant keeping relatively small amounts of grain, possible to use as seed after crop failure. The main way of bridging critical periods after crop failure must have simply been the increased utilisation of additional non-agricultural resources.

One way of approaching the relationship between social complexity and buffering mechanisms is to regard the organization itself as the buffer created, thus enabling storage management, integration of resources etc. (Hassan 1981: 260). More probably, however, the development should be viewed the other way around; in the long term it is probable that some safety mechanisms will become regular aspects of the cultural system, thus shaping social organization and giving rise to social change and transformation (Halstead & O'Shea 1989: 4-5). A good example of this might be the institutionalisation of annual gathering and redistribution of surplus in the form of feasting. We can hypothesise that the further development of such a system could involve its transformation into a system of taxation.

6.5.2. Taxation

The regular transfer of wealth from the population to the throne in the form of institutionalised taxation – one of the base definitions of a state system – was established in the Nordic countries in the 12th and 13th centuries, hand in hand with the introduction of ecclesiastical taxation. The tenth demanded by the Christian

[172] In addition to small-scale storage, risk buffering may, however, during the Middle Ages have been present in another form. The system of strip parcels (Sw. *solskifte)* probably acted as a way of minimizing risks, as the parcels cultivated by each farm were situated in different locations, thus reducing the risk of losing all crops if difficult conditions hit some specific type of environment (Olsson & Thomasson 2001: 18).

Church was formally based on the Law of Moses and first introduced in Europe in the 8th century AD (Alifrosti 2003: 215). Due to the abstract nature of the tax, the collection of it demanded a strong position and good organization of the Church. The tax paid in cereals was suitable for developed agrarian areas, but due to the character of production in the peripheries, the tenth could also be paid in different products and based on agreements rather than strict calculations (Myöhänen 2000: 30; Välimäki 2000: 52). The early taxes of the crown, on the other hand, were apparently defined one by one in a more tangible manner to suit the current situation of different areas. In central areas taxes were based on the duty of the king to organise military campaigns, whereas on the periphery taxes could have been paid for protection (Alifrosti 2003: 216). According to this view, a taxation of land did not develop before the consolidation of the power of the state.

Establishing a connection between some older – prehistoric – form of taxation and later ecclesiastical or crown taxes is complicated, but not unthinkable. In Swedish research, for example, a connection between the prehistoric *ledung* system and its medieval counterpart *båtlag* has been considered. Although both terms principally refer to the duty of providing a ship for the king, the *båtlag* system has been regarded as a system of taxation units rather than an actual organization of maritime warfare. There might, however, be a indirect connection, in the sense that the idea of paying a fee based on the old scheme of providing a ship might have been easier to accept by the community than a totally new taxation system (Alifrosti 2003: 214-216). There are a couple of documents from the years 1380 and 1450 regarding *båtlag* units from Finland as well. According to Alifrosti (2003: 215), this could indicate that southwestern Finland was comparable to the Swedish central areas where the medieval taxation was negotiated and organised according to older units. This is based on the idea that the king's power in the early process of state formation actually was weaker in the central areas, which prohibited drastic reorganization of society, whereas new ideas, like more abstracts forms of taxation, could have been first introduced in peripheral areas.

Regarding early Finnish taxation one line of discussion has evolved from the etymology of the Finnish word *vero* (tax). For example, Voionmaa (1912: 41-42), following the idea of Henrik Gabriel Porthan (1739–1804), was of the opinion that *vero* originally had the meaning of a sacrifice. Thus, the origin of the system of taxation could be found in the ancient offering society, where people gathered in offering feasts and each owner of a farm was supposed to bring a contribution of food or drink. Such a system would have been basically local and based on free will, one aspect being the achievement of immaterial (religious) goals (*cf*. Myöhänen 2000: 13). The etymology of *vero* is, however, not simple. The word is regarded to be old and indigenous, but in Finno-Ugric languages several meanings occur, such as a meal, a cultivated area, or a place, the latter regarded as probably being the original meaning of the word (Itkonen *et al.* 1978: 1709; Häkkinen 2004: 1474). It is thus uncertain whether the word has anything to do with sacrifice. If such a meaning is present, it is indirect, *i.e.* one could speculate whether it refers to the meal as a sacrifice, perhaps a cultivated area, the yield of which was to be sacrificed, or the sacrificial place. These are, of course, just guesses.

Among historians, the idea of *vero* originally meaning sacrifice is still repeated (*e.g.* Myöhänen 2000; Välimäki 2000). Otherwise the idea presented by Voionmaa has also been regarded as basically correct. According to this view, the earliest Finnish tax – as in non-hierarchic societies in general – was based on voluntary religious offerings of food and drink. Due to prehistoric skirmishes and raids, and finally the ambitions of the Catholic Church as well as the crown, taxes were collected also for profane purposes and developed into an obligatory remittance. Possibly the first taxes were irregular and paid for protection or as tribute, or for treating. Furthermore, taxes and workdays could have been obligatory for the upkeep of local authorities and administration.[173] The medieval taxation thus may have contained reminiscences of ancient Finnish taxation habits, but the norms of taxation were for the most part introduced by foreign government (Myöhänen 2000: 30; Välimäki 2000: 57-58).

If more primitive forms of taxation are not accounted for, the ecclesiastical taxation, probably established by the end of the 12th century, can be considered as the earliest tax in Finland, whereas the secular crown taxation became regular and permanent not until a hundred years later (Alifrosti 2003: 216-217; *cf*. Myöhänen 2000: 30; Välimäki 2000: 52). There are, however, a few earlier documents than this referring to taxation of land. In the early sources the main taxation units are the 'hook' (Fi. *koukku*), referring to a type of ard, and the 'smoke' (Fi. *savu*), referring to a homestead. Both of these soon lost their original meaning and were also divided – for example the term 'half a *koukku*' is used as early as 1254 and also the *savu* seems to have lost its original meaning referring to a homestead or farm already before the 14th century (Alifrosti 2003: 217).

173 In addition, hierarchial dependence relationships suggested to have existed between farms of different status, including rented farms and unfree tenants (Pihlman 2004), may have included obligations of a tax-like character. One sketch of such a system has been drawn by Riikonen (2004: 29), starting from the point that the number of individuals identifiable in Late Iron Age cemeteries is too small to represent the amount of work needed to collect the wealth displayed in some of the graves. In addition to working the fields, people living at smaller farms may, according to Riikonen, have had the obligation to produce and deliver to the main farm, for example, dried fish and seal blubber, forest game, tar, smithery products, thread spun from wool or finished textiles. This gave the opportunity to obtain imports and equip a defence force, which was the guarantee for safety. This description includes aspects comparable to early forms of taxation.

The general view on the development of taxation in southwestern Finland – almost exclusively based on historical sources – thus emphasizes the process of consolidation of the Catholic Church and state formation, *i.e.* the impact of external authorities during the early Middle Ages. When prehistoric taxation is discussed, it is usually with reference to offerings and other voluntary or irregular forms of gathering surplus for common purposes. This is quite different from the debate in Estonia, where taxation of cultivated land has been regarded as starting as early as the Late Bronze Age and the Pre-Roman Iron Age. This demonstrates the great difference in attitudes towards interpretations of early hierarchies and the level of prehistoric organization. In Estonia, the discussion of the *vakus* units has been especially important. One important point in Lang's (2002b) idea of the *vakus* is that it is regarded as a local institution. In his opinion there is no reason to assume conquest or foreign rulers essential for the "establishment of such a necessary and ordinary system as the gathering of taxes".

6.5.3. Social inequality and heterogeneity

It has often been noted that after the adoption of agriculture, societies tend to evolve into more complex entities. The intertwined relationships between agricultural intensification, population growth, political integration and the diversification of social roles usually also seem to be associated with an increase in social inequality (Gumerman & Gell-Mann 1994: 15-16). Increase in complexity, as reflected in specialisation and exchange, were earlier seen mainly as parts of a spontaneous process of economic growth, but later two main lines of development were discussed. Some approaches stress redistribution as an important step of development (the corporate mode), while others stress the strategic efforts by political elites (the network mode) as most consequential (Brumfiel & Earle 1987: 1, 3; Feinman 1995: 263-268).

In trying to understand the emergence of inequality, it is useful to distinguish between inequality and heterogeneity. Inequality refers to different access to material and social resources, while heterogeneity refers to the distribution of people between social groups (McGuire 1983: 93). The concepts are not synonymous nor necessarily positively correlated. Archaeologically both inequality and heterogeneity can be visible. Heterogeneity is related to different roles – social personae – in society, which may be maintained by the use of material or behavioural symbols, while inequality is reflected in the distribution of material resources within different groups (McGuire 1982: 102-104). What is important to realise is that a multiplicity of roles does not necessarily mean a highly stratified society. Heterogeneity is affected above all by the degree of independence of social parameters, 'independence' meaning that an individual's membership in one social group does not automatically entail membership in another (McGuire 1982: 108-110). Increasing independence increases heterogeneity but may counterbalance power, thus lowering relative inequality in society.

This study has not included a systematic presentation and analysis of cemetery materials (as these are missing in the main part of the study area), but a couple of points can be made with reference to the question of cultural complexity and inequality, starting from the general idea of rich graves as an indication of social competition. It has been noted that some of the Finnish Iron Age grave finds from the period of 300-700 AD are more indicative of some sort of "principals or optimates" than Late Iron Age cemetery materials, which have a more "egalitarian" character (Meinander 1980: 10). It can be underlined, however, that graves containing ornaments and weapons already occurring before 300 AD (*cf.* Kivikoski 1937b; Salo 1968; 1984c; Keskitalo 1979) may be indicative of socio-political change. In some cases rich Early Iron Age graves have even been seen as a reflection of social complexity related to some external force. Meinander (1987: 18), for example, has suggested that there may have existed a Germanic superstratum during the Roman Iron Age in the northern part of Finland Proper.

The discussion on the Late Roman Iron Age has been continued by Raninen (*e.g.* 2005b), who has made some comments on the richest graves, finds of precious metals, Roman imports etc. One of his examples is the Katajanmäki cemetery in Salo (within the present study area), containing pieces of necklaces of gold and silver, bronze ornaments, fragments of a bronze chain possibly belonging to a drinking horn, etc. (*e.g.* Schauman-Lönnqvist 1989: 33-37; Hirviluoto 1991: 85-91). Raninen (2005b: 202-205) points out the Late Roman Iron Age as an important period of change in the southern part of Scandinavia with regard to social stratification. He furthermore notes that similar tendencies can be traced in other parts of Scandinavia and in Estonia as well. Although Finland was in a peripheral position compared with these areas, Raninen (2005b: 217) acknowledges that the acquirement of Roman imports and objects made of precious metals must have required resources that not everyone could possess. It is even possible that local elites in Finland occasionally made direct contacts with central areas in southern Scandinavia. Such contacts would, according to Raninen, mostly have involved contacts between local elites, where the exchange of goods was related to the maintenance of alliances. He reaches the conclusion that social differentiation was visible and real in southwestern Finland during the Late Roman Iron Age.

A development comparable to that of southwestern Finland with regard to both settlement clustering as well as socio-political complexity has also been emphasized in the case of southern Ostrobothnia. A strong concentration of both settlement and power has been identified starting with the Late Roman Iron Age – especially in the 4th century when richly furnished graves occur (Herrgård & Holmblad 2005: 175-179). The interpretation given is that densely settled central districts developed, surrounded by thinly populated hinterlands, replacing the older, more evenly spaced settlement pattern. This development also involved more marked hierarchies, manifested by local elites inspired by aristocratic groups in southern Scandinavia and continental Europe.

As these examples show, rich graves of the Roman Iron Age have been regarded as status-defining symbols of a social elite. Another possibility would be that especially the weapon graves reflect a society under some kind of pressure (*cf.* Kaliff 1997: 33-34). The gathering and expression of wealth, which the rich Early Iron Age graves represent, would thus not have been of interest to some part of society merely for the sake of wealth as such, but due to its status-defining properties. The significance of wealth in early complex societies is obviously related to the important role of symbols and ideology – especially in processes of political change (*cf.* Brumfiel & Earle 1987: 7-9). The Early Iron Age cemeteries could be seen as a sign of increased competition and struggle for power between leading families, larger kinship groups or settlement areas. In addition to external influences, this might be related to the local process of formation of a new settlement structure with a stronger emphasis on the relationships between settlement units.

Returning to the question of heterogeneity and inequality, it is evident that Finnish Roman Period graves are indicative of an increased social heterogeneity. How access to resources was administered, however, remains unclear, as does the level of interdependence between social roles. Wealthy cemeteries most probably represent wealthy farms or families or even larger kinshp groups, but whether they also represent members of privileged social groups, defined by some other characteristics, is more difficult to conclude. The deliberate display of wealth does, however, suggest that the cemeteries belonged to a distinct elite, indicative of an increase in inequality. In addition to representing single influential farmsteads or families, the cemeteries are most probably also related to status definition and manifestation of power on a more general level, both within their own microregion and in relation to other, external units of social organization.

6.5.4. The totalistic approach to power and inequality

Theoretical approaches towards an understanding of power can be coarsely divided into three categories, namely realistic, liberal and totalistic. The first category is represented by, for example, Machiavelli and Hobbes, the second by Locke and Montesquieu, and the third by Foucault (Nordin 1991). The most interesting approach is the totalistic one, where power is seen as a dimension present in all human relations. It is obvious that in all cultures there exists some hierarchy or control over decision-making, and thus inequality of power, but the question of power and inequality can be taken further, to the level of individual qualities. There have been attempts to distinguish power as an element in all aspects of social life, instead of regarding power as something specifically related to forms of social control (Miller & Tilley 1984; Paynter & McGuire 1991). This is in accordance with Foucault's idea of power. According to this view, institutions, social mechanisms etc. are not the source of power but forms that power may take – "power is not possessed by individuals or institutions, but exercised by them" (Miller & Tilley 1984: 6).

Projecting Foucault's idea on power back to a prehistoric society is not unproblematic as he predominantly dealt with post-medieval and contemporary society. The state, and the power executed by the state, was, for example, within his interest. He, of course, referred to ancient thinkers and texts, but in fact never really discussed ancient forms of execution of power. The question, how far back into our cultural history power can be extended, was asked by Dreyfus & Rabinow (1983: 207) in their book on Foucault, but Foucault himself did not take up this line of approach. He just referred to a change of technologies of power in the 17th and 18th century when power came to exercise itself through social production and social service (in comparison with feudal societies where power functioned through signs of loyalty, rituals, ceremonies and levies) (*e.g.* Faubion 1994: 125). The main importance for interpretations concerning prehistoric societies are Foucault's general thoughts on power, subjects of power and power relations. He rejected the possibility that there existed some level of societies without power relations. According to his view, such a society "can only be an abstraction" (Foucault 1982: 222-223).

Foucault's work did not primarily seek to explain what power is, but to show how effects of power could be analysed. For him, power was a concept related to the understanding of how social practices work – a necessary concept for the analysis of the subject of power as well as the effects of the possession of power (*e.g.* Foucault 1982: 208-209; Dreyfus & Rabinow 1983: 207; Smart 2002: 70). A basic standpoint for the understanding of power is that it is "always already there" and "no one is never outside it" (Foucault 1980: 141). Power is not a rare substance, nor some mysterious property, but only a certain type of relation between individuals, the characteristic feature of which is that some men can determine other men's conduct. This de-mystifying of the concept of power is important for the discussion on social complexity. Even if taking the most minimalistic view on sociopolitical development in, for example, southwestern Finland during the Iron Age, this cannot mean the lack of power relationships.

Foucault saw power as employed and exercised through a chain or net-like organization, where individuals are “always in the position of simultaneously undergoing and exercising this power“ (Foucault 1980: 98; *cf.* Smart 2002: 72). What is also important is that the network of power is interwoven with many kinds of common relations like kinship, family, sexuality etc. (Foucault 1980: 142). This means that power is not restricted to political institutions. For example, the ”metapower” of the state is based on multiple and indefinite power relations which supply the necessary basis for greater forms of power (Faubion 1994: 123). Furthermore, the basis not only affects the superstructure, but also *vice versa*. Power relations are multidirectional, operating from the top down and also from the bottom up (Dreyfus & Rabinow 1983: 185). Although power relations are rooted in the systems of social networks, Foucault did not directly correlate power with communication, but saw that they overlap and support each other. Relationships of communication, modifying the field of information between partners, thus produce effects of power (Foucault 1982: 218).

One key concept for Foucault was that of 'government', which for him meant the conduct of others conduct. Power thus could be simplified as government of men by other men. The government – whether it is power applied by men over women, or by adults over children, or by one class over another, or by a bureaucracy over a population – involves a certain type of ‘rationality’, but in itself does not involve violence (Foucault 1982: 219-221; Faubion 1994: 324-325; *cf.* Gordon 1994: xxix). This does not mean that power could not be exercised in a way leading to aggression and physical constraint. Rationality refers to the fact that power relations are intentional and non-subjective, *i.e.* there is no power that is exercised without specific aims and objectives (*cf.* Dreyfus & Rabinow 1983: 187; Smart 2002: 70). Foucault also acknowledged the idea (which in some contexts has been regarded as a cliché), that where there is power there is also resistance. According to Foucault, resistances are formed right at the point where relations of power are exercised *(e.g.* Foucault 1980: 142; *cf.* Faubion 1994: 324).

Foucault saw power as totalistic, but by no means only negative, although it could lead to negative effects for individuals or groups of society. As put by Gordon (1994: xix), Foucault’s view was that "nothing, including the exercise of power is evil in itself – but everything is dangerous". One of Foucault’s points was that power is productive. The mechanisms and effects of power cannot be reduced only to repression, as this would neglect the positive and productive features of relations of power – features that can be identified as elements in many societies (*cf.* Smart 2002: 71). Power thus is something ordinary, present in all relationships – in principle neutral, but loaded with intentional aims and making available many possible outcomes. One option is that the effects of power lead to increased inequality. Miller & Tilley (1984) have criticised Foucault for failing to attribute power to agents, *i.e.* individuals or institutions deriving benefits from the use of power. Even if power cannot be possessed, prestige and resources – material or non-material – can be possessed as an effect of the operation of power. This is the clue to how power can be archaeologically visible: power is visible through its effects.

This is comparable to one way in which the question of inequality has been approached. The idea of agricultural economies, population growth or resource stress as automatic launchers of social differentiation has been questioned; these factors may create risks and opportunities, but they are not sufficient explanations for the institutionalisation of inequality (Feinman 1995: 256-259). What is important to realise is that inequality is not restricted to stratified societies; a degree of inequality, in terms for instance of gender, age or ability, exists in the most egalitarian systems, as do personal differences in ambition, charisma and skills (Feinman 1995: 256, 261-262). Inequality is thus present in all situations, just as all individuals and groups exercise power and are subject to its exercise (Miller & Tilley 1984: 6). Following this line of thinking, the archaeology of inequality and power does not have to proceed from kings, castles and the power of the church (*cf.* Steane 2001) – inequality and power have also been elements in much more primitive societies. The emergence and possible institutionalisation of inequalities in economic and political power can in principle be regarded as, above all, a question of personal ambition and relations formed between a leader and his supporters, and of their relations with people outside their alliance. Such factions arise because the followers receive benefits and rewards for their support (Feinman 1995: 262-263).

As mentioned earlier, two main strategies towards inequality have been recognised: the corporate mode and the network mode. The corporate mode is group-oriented, while the network mode is based more on individual prestige. The corporate mode "emphasises collective ritual (and its potential manipulation), public construction, integrated social segments, the importance of kinship affiliation, and relatively suppressed economic differentiation", while in contrast the network mode "places greatest significance on individual prestige and wealth accumulation, personal networks, long-distance exchange, and the specialized manufacture of status-related craft goods" (Feinman 1995: 268). These political-economic strategies cannot be regarded as totally excluding each other, and they are in no way unchanging over time. If the idea of the corporate and network mode is applied to the archaeological data from the study area, we might ask, for example, whether the building of cairns during the Bronze Age can be seen as a collective ritual of a corporate mode social strategy, and the appearance of Roman Period burials containing grave goods as a reflection of a change towards a social strategy of the network mode?

One more concept related to social complexity, of interest in discussing Finnish Early Iron Age society, is the 'ranked society'. Ranked societies are defined as those in which there are fewer available status positions than persons qualified to fill them, but in which true or pervasive differential access to the means of production is lacking (Price 1984: 210, 222-231). In other words, the idea of a ranked society includes heterogeneity and status definition, but excludes actual control of access to resources. In a ranked society, the main manifestation of the relationship between a leader and his supporters is redistribution, for example in the form of occasional feasting. The importance of drinking and feasting as a socio-political practice of political leaders in Iron Age Europe has been emphasized using both historical and archaeological evidence (Arnold 1999; 2001).[174] One conclusion reached is that alcohol and feasting were used to maintain the leaders' privileges and to reward warrior elites as well as other clients of the chief or king. Feasting was a form of communication between leaders as well as between them and others. To the supporters, the yearly returns from such a system may be very low, but, on the other hand, a group with a ranked society pattern usually has the advantage of increased security due to buffering in periods of poor harvest and military power in periods of aggression. Some part of the collected surplus may also be invested in the conversion of potential aggressors into potential allies (Price 1984: 218). And – once again – it has to be noted that redistribution may develop into a type of tax or "staple finance" (Brumfiel & Earle 1987: 6), where subsistence goods are collected by authorities and then given to non-productive officials or other personnel.

6.5.5. Power in Finnish archaeology

Power and conflict have increasingly been addressed as relevant themes in Finnish research, too. Economic profit, power and possession (*cf*. Grünthal 2002: 11) have entered the discussion as potential motives for actions even within the prehistoric society. Earlier, mostly military power – related to hill-forts as well as weapon graves – had been under discussion. For example, Salmo (1938: 308-309) expressed

[174] Drinking as a social phenomenon in the Bronze Age has also been emphasized. According to Randsborg (1998: 117), the demonstration of political and religious power during period II over time turned towards elite social drinking during period III.

some ideas of Iron Age society when dealing with Finnish weaponry of the Merovingian Period. According to him, the population in the Merovingian Period was still so small that prerequisites for the forming of an army did not exist; both the military and social units were either based on kinship or certain geographical areas. A joint force uniting a widespread tribe under common leadership would thus have been possible only in times of overwhelming difficulties. On the other hand, Salmo (1938: 336-337) pointed out that no foreign power had a permanent position in Finland during the Merovingian Period; according to him, this probably indicates a notable military strength of the Finnish tribes of the time. This latter view has been questioned by Wickholm & Raninen (2003: 6-7; *cf*. Raninen 2003: 16). Furthermore, Salmo's (1938) idea of the Finnish Merovingian Period weapon graves as "warrior graves" has been questioned by Schauman-Lönnqvist (1996: 130-131), who would rather link the weapon burials with the social position of the deceased. With reference to Pihlman (1990) she has classified such weapon graves as belonging not to warriors but to "wealthy farmers".

When discussing the common occurrence of weapons in Merovingian Period cemeteries Wickholm and Raninen (2003: 7) have pointed out that the weapons – related to status definition but also to a warrior ideology – were more probably used in small-scale conflicts between local individuals or small groups than in battle against a foreign enemy. The leaders within the Merovingian Period society might according to Wickholm and Raninen (2003: 10-11; *cf*. Raninen 2003: 21; 2005a) have been of a 'big man' or 'chief' type, basing their position on the ability to organise activities of importance for the community: feasts, work projects, combat activities, the solving of conflicts, foreign contacts etc. Wickholm and Raninen (2003: 10) describe such a leader as a 'manager'. The rich graves of the period would, according to this view, rather represent the symbolic capital – honour, reputation and social rank – of the deceased than wealth in a material sense (Wickholm and Raninen 2003: 11).

The discussion was later extended further back into prehistory, recognizing the occurrence of weapon graves starting with the Early Roman Iron Age and, for example, cemeteries expressing wealth during the Late Roman Iron Age. In connection with the interpretation of the weapon graves in the Early Roman Iron Age Kärsämäki cemetery, Raninen (2005c: 52-53) has discussed leadership and organization. He has repeated the idea of a 'big man' type of leadership, where the chiefs would have had rather limited power and authority. On the other hand, he regards it possible, that status groups existed, the participants of which may have been involved in, for example, wilderness utilisation, the organization of exchange, combat activities or the use of armed threat. One thing pointed out by Raninen is that such a group cannot have maintained its position by force and threat only. Such strategies may have been successful for winning a local position, but achieving some common good must also have been of importance.

The existence of some kind of structural inequality is even more evident within the Late Roman Iron Age society. The acquiring of precious metals and Roman imports must have required the control of power resources, that could not have been detained by anyone. The possession and distribution of the objects themselves were probably also restricted. Social differentiation must have been visible and real (Raninen 2005b: 217-219). What kind of power resources these objects were related to, Raninen sees as problematic. One possibility is, that the elite dominated exchange with foreign societies. Surplus for exchange may have been obtained through the organization of fur trade or taxation of the inland. The contact networks upheld by elites crossed the borders of local societies and could have been extensive. One reason why networks could have been far reaching was the need for military alliances during a period when war and violence were common enough to be reflected even on the peripheries of the Baltic. According to Raninen (2005b), this did not, however, lead to the birth of solid, centrally administered and permanent territorial structures.

In a more general discussion, Raninen (2003: 19-21) has made some comments on the "minimalistic" interpretations of the complexity of Finnish Iron Age society. According to him, there are reasons to keep to this idea in the sense that Finland was, as still in the Middle Ages, a periphery in relation to phenomena usually connected with socio-economic complexity. On the other hand, he asks why the circumstances, for example, in Finland Proper would have been radically different from that of the Mälaren area in Sweden? Raninen's own idea of the Finnish Iron Age society is that a dominating central government did not exist, rather an authority, with which local groups could form "symbiotic" mutual relationships, although in a non-symmetric, hierarchical manner. The political structures had the form of contact networks of local elites, which involved the construction of hierarchies, alliances and cooperation as well as violent competition (*e.g.* Raninen 2005a: 238; 2005b: 205-206). The relationships between a leader and local groups may have been unstable – they may have changed, been looser or broken, or may have led to inner conflicts from time to time. Within these networks some power centres emerged which were able to maintain authority and resources for several generations or centuries, while others lasted only shorter periods. Such loose power structures and hierarchies (including violence as a form of execution of power) seem to have entered the scene in the Roman Period (*e.g.* Raninen 2003: 21; 2005b; 2005c; 2006; *cf.* Schauman-Lönnqvist 1996).

Raninen's (2003) view of Iron Age society is not far from Cassel's (1998: 197) view of Roman Period society on Gotland. Instead of centralised power, she emphasises a dynamic society where stable and institutionalised structures are lacking; power or dominion was, instead, negotiated personally, which demanded the presence and legitimisation of the leader. Thus power relations could have been in constant change. One could imagine that such an irregular system of power and leadership would archaeologically be visible in the cemetery patterns within the present study area, where the general pattern of microregions prevails, but during different periods different areas or cemeteries display wealth. These changes within microregions do not necessarily reflect a lack of cohesion, but the power dynamics within the territory and in relation to other territories. Some discontinuity is to be expected, and is in accordance with Cassel's theory of a society where dominion and leadership need to be personally negotiated and legitimated with different strategies during different periods.

Power has been increasingly dealt with within Latvian Iron Age archaeology too, thus providing an opportunity for comparison. Andris Šnē (*e.g.* 2000a; 2005a) has interpreted the Late Iron Age society of the Finno-Ugric Livs as open to influences, with a wide middle class with collective power structures based on tradition, trade and warfare. The power of leaders and chiefs has been interpreted as limited, as in a classical chiefdom-type of society. Craft specialisation, site hierarchy, an increasing role of warfare and control over trade routes can, however, be identified. Different amounts and values of burial goods indicate economic differentiation, and status symbols among the grave goods point to social stratification, but at the same time settlement patterns and the arrangement of social space (the sizes of houses, for example) are indicative of an egalitarian social organization (Šnē 2001b: 109). Towards the end of the Iron Age, increasing tendencies towards political centralisation and the monopoly of power by ambitious chiefs started to occur (*e.g.* Šnē 2001a). A similar view is offered in the case of southeastern Latvia where differences in social, political and economic position interpreted from the grave goods suggest a chiefdom type of society "where chiefs were the first among equals and their power was far from absolute" (Šnē 2000b: 54). The interpretations by Šnē (2000a; 2000b; 2001a; 2001b; 2005a; 2005b) concerning Latvia are more or less in agreement with the general ideas on Finnish Iron Age society presented by Raninen (*e.g.* 2003; 2005a).

6.5.6. Aggression

Until the beginning of the 21st century, aggression had not been dealt with to any great extent in Finnish archaeology, one general reason being the difficulty of identifying aggression in the archaeological record (*e.g.* Vencl 1984). Although invisible, however, there is no reason to assume that aggression did not exist. Aggression can be thought of as one aspect of interaction. The shapes aggression takes – conflicts, raids, and even war – can be understood as a form of competition (Price 1984: 210) or exchange (Ferguson 1984: 17), theft or war being the negative side of normal exchange. In Finland some criticism against the "pacification" of prehistory has been presented, for example regarding the Stone Age (Lahelma & Sipilä 2004; Seitsonen 2005). Conflict and aggression of the Iron Age has also entered the discussion, especially through the efforts of Raninen (*e.g.* 2006). When archaeological studies of aggression earlier mostly meant examinations of weapons and the remains of fortifications, aggression has now been discussed also in the field of social strategies.

Raninen (2005a: 229) has nicely expressed how weapons occurring in burial rituals may be interpreted. According to him, the very existence of weapons in such contexts are evidence of a culture that had both the means and a mental preparedness for armed conflict. The weapons do not say about the frequency of armed conflicts, but the existence of weapons must have influenced the way in which Iron Age people behaved when inevitable conflicts emerged. In other words, if weapons have a central position in ritual activities, there is reason to also assume the occurrence of physical violence (Raninen 2006: 8). Aggression was probably not uncommon, nor restricted to some foreign enemy. One aspect recognized by Raninen (2006: 9; *cf.* Näsman 1994: 25; Raninen 2005a: 228-229) is that weapon graves may indicate specifically local, small scale aggression, like, for instance, within river valleys, between people living close to each other, knowing each other and perhaps even having kinship ties.

During the first millennium AD, aggression and violence seem to have played an important and integrated cultural role; aggression was probably "widespread, socially accepted and constant" (Herschend 1999: 332). Violence may have been unwanted in general, but, on the other hand, war and violence may have been an accepted way of solving conflicts as well as a potential (and even common) possibility of strengthening ones identity and position in the society (*e.g.* Johnsen 1997: 117). In some studies the importance of European military development has been stressed, which may have led to an increased militarisation of society. For example, the growing importance of cavalry warfare in the Late Roman Iron Age led in parts of Scandinavia to the development of a cavalry elite, which also took on a leading role in society (Nicklasson 2001: 143-147).

The form extreme aggression could have taken in a developing ranked society could have had the character of raids or fights between rival chiefs. Using the terminology of war, this would have meant endemic war (or ritual war) consisting of small-scale incidents often governed by normative rules of conduct, probably comprising raids, ravaging and small battles between leaders and their retainers (*e.g.* Ringtved 1999: 363-364). Rather than battles between larger forces, combat might often have meant duels between single warriors, as known from written sources related to Celtic Europe (Pleiner 1993: 28-33). Raids and ambushes, on the other hand, were the most common form of primitive warfare because they are effective at eliminating enemies with a low risk of one's own casualties. The typical scenario of such behaviour would be a handful of men sneaking into enemy territory to kill one or a few people (Keeley 1996: 65-67).

If the emergence of a new site pattern during the Iron Age was related to power and social organization, the threat of aggression was probably not the only driving force of aggregation, but it could have been present. If site clustering actually meant a denser population, the increased safety is merely the other side of the same coin. Furthermore, we cannot exclude discipline as one of the techniques of power, aiming at correcting deviations from the norm (Miller & Tilley 1984: 6). War and less dramatic forms of group competition add a new, non-natural dimension to the environment, which affects the total costs of living in and exploiting a given area (Ferguson 1984: 56). This is related to the idea of risks and the handling of risks. The understanding of risks involves the estimation of both the disadvantage and the probability of risks, as well as the comparing of these, one tendency being that new risks are often considered more serious than old risks (Kamppinen *et al.* 1995: 15, 97-99). Overcoming the risk of aggression would probably have included increased cooperation (maybe even in the form of settlement pattern change) and the making of allies.

As ranked institutions develop, one prediction is that central areas will be relatively pacified, while the risk of warfare will potentially grow in the peripheries, where the returns of warfare are higher (Price 1984: 229). This could explain settlement pattern changes affecting margin areas. Warfare, however, is not always about high returns in relation to costs; it can also involve competition for power and prestige. In a study by Lindeman (1985) of prehistoric aggression structures in western Sweden, it was suggested that aggression arose among influential and powerful groups of people living in regions with plentiful resources – not in marginal areas or, for example, in situations of economic shortage.

There is no conclusive evidence of aggression of any specific kind during the Early Iron Age in southwestern Finland. The occurrence of weapon graves since the Roman Iron Age may, however, give a clue to the status of armed men since that time. In this study the need to discuss aggression arises not from the occurrence of weapon graves alone, but from the idea of discontinuity on Kemiönsaari, which in a broad time context coincides with the first signs of development of central settlement areas on the mainland. The new pattern of settlement arcahaeological data distinguishable can be accounted for in a number of ways, but one view could be that it reflects (among other things) a strategy of better defence and military force. Positive defence aspects of a more clustered settlement pattern could have been a larger regional labour force, which could be turned into a larger military force (*cf.* Price 1984: 214), as well as a more consolidated area to defend, in combination with large buffer zones between competing regions.

6.6. The Late Iron Age – towards a new change

6.6.1. Iron Age continuity

As noted with regard to the distribution of Iron Age cemeteries, there seems to have been no major territorial changes within the study area after the Roman Iron Age. The central settlement areas distinguishable during the Late Roman Iron Age are all more or less still discernible in the Late Iron Age, and there are no additional microregions with clusters of Iron Age remains. The fact that the pattern of central settlement areas, as indicated by the cemeteries (as well as settlement sites and cup-marked stones), persisted for hundreds of years, probably reflects the impact of natural geographical borders of the main river valleys, but also a structure of settlement, which to some extent had become institutionalised. Assuming that social organization is reflected in the pattern of the archaeological data, it accordingly would suggest not only a territorial stability, but also continuity of social organization from the Roman Iron Age to the Late Iron Age. In this study it has been suggested that the evolvement of this site pattern could have involved the forming of units of socio-political organization, each of them encompassing the settlers of one microregion in the mainland river valleys. The preceding discussion has also explored the possibility that the basic settlement units – the single farms – within each such territory may have participated (among other things) in a common cult or redistributive system, the symbolic returns of which were distributed in the form of feasts (Fi. *pidot*). If such a scenario is acceptable, these units could represent an indigenous territorial organization, each unit of which referred to as a *pitäjä*. The roots of this organization would be in the new settlement pattern emerging during the Early Iron Age and persisting throughout the Iron Age.

6.6.2. Settlement development of the archipelago

According to Tuovinen (2002a: 42-45; 2005a: 17-18), the leading settlement archaeological idea of the archipelago has been a "hypothesis of the peripheral nature of the archipelago", expressed first by Tallgren in 1931, based on the supposedly unfavourable natural conditions of the area. After the Second World War some scholars rewrote the hypothesis by adding a Viking threat to the reasons for the desolation of the archipelago, but the essential core of the idea has been present up to the 21st century. Tuovinen (2002a: 42, 56, 261-262) does not agree with this; he is of the opinion that the main reason for the sparseness of Iron Age archaeological finds in the archipelago has been the lack of archaeological investigations, due to poor accessibility as well as, for example, the socioeconomic peripheralisation of the archipelago in the 20th century.[175] He also points out that the number of Iron Age finds and sites have increased rapidly; the number of dwelling sites is still small, but this is due to the fact that the investigations of dwellings in the archipelago have been fewer than on the mainland (Tuovinen 2002a: 56).

All these circumstances are worth considering. The main problem is, how much of the differences in archaeological materials between archipelago and mainland can be attributed to them. Certain types of sites may be underrepresented, but probably not to the extent that the general picture will change considerably in the future. Quite a lot of archaeological investigations have been done in the archipelago lately and land-use on, for example, Kemiönsaari has for centuries been comparable to that of the mainland. This should have brought to light more Iron Age artefacts if the distribution of finds were the same as on the mainland. It is correct that the amount of archaeological sites in the archipelago has increased a lot due to increased research, but for the most part this is true concerning other periods than the Iron Age. Furthermore, the Iron Age sites revealed seem to mainly date to the very beginning and the end of the Iron Age, thus making the material difficult to use for proving continuity throughout the Iron Age. This is the case regarding some of the sites emphasized by Tuovinen (2002a: 265) as indicating Iron Age inhabitation of the archipelago, *i.e.* the Kyrksundet trading and settlement site in Dragsfjärd, the Early Iron Age settlement sites excavated on Kemiönsaari, as well

175 In addition to these ideas Tuovinen (2005a: 18-19) has also pointed out the possibility that the neglect of archaeological field projects concerning the archipelago could have been due to Finnish nationalistic ideas where the archipelago was associated with lack of settlement and ravaging Vikings, while the past of the Finns was sought in different environments. The lack of interest by Swedish-speaking archaeologists, on the other hand, Tuovinen sees as possibly related to the moderate line taken in the development of the dual-language national state.

as the enclosure site on the island of Borgholm in Iniö. The idea of Kyrksundet as a site inhabited all year round is unfounded, as no such traces have been revealed at the site in spite of large excavations. Borgholm, on the other hand, is not a settlement site at all and the period of utilization of the site is not known – it could have been used in the Late Iron Age at the earliest. The biggest problem with regard to the idea of continuity is thus the fact that the sites known so far cannot be regarded as representative of the whole of the Iron Age.

On the other hand, Tuovinen's (2002a) idea of continuity gains support from more general facts like the favourable archipelago environment as well as the improbability of any previously settled area suddenly being left unexploited. The problem of the lack of settlement sites must – as Tuovinen suggests – really be due to the difficulty of locating such sites. This can be exemplified also regarding the mainland, where the settlement of some periods is almost solely reflected in the distribution of cemeteries. A further problem (in addition to those mentioned by Tuovinen) with regard to the definition of continuity in a long-term perspective, is the use of wide timescales for the Stone Age and the Early Metal Period. Within the supposed continuity from the Bronze Age to the Pre-Roman Iron Age, the age difference between archaeological indications of settlement may well be in the range of several hundreds of years, *i.e.* comparable to the time-span of several periods of the Iron Age AD.

In addition to the archaeological material other indications of settlement continuation in the archipelago have also been discussed by Tuovinen. He has, for example, pointed out that there are no ecological reasons for the earlier supposed harsh environment of the archipelago; even potential soil for small-scale agriculture and cattle breading was present (Tuovinen 2002a: 262-263). This is supported by the comparison of soil types between Kemiönsaari and the mainland part of the study area, according to which the island would have been suitable for agriculture throughout the Iron Age. Also the location of the Early Iron Age settlement sites on Kemiönsaari supports the idea of a community already practising agriculture. Tuovinen (2002a: 266-269) furthermore adds pollen analysis and onomastic studies to the repertoire of facts in accordance with the supposed continuation from the Bronze Age to the Iron Age and beyond. Regarding the onomastic material, it is true that it reveals a stage of contacts between a Swedish-speaking and a Finnish-speaking population, but probably this most of all represents the medieval colonization stage – it cannot be used to evidence continuity throughout the whole of the Iron Age. Single Finnish toponyms may be very old, reflecting ancient utilization of the archipelago, but a more exact dating of the material as a whole is not possible. The palynological material is different, as it can be well-dated, and contains unquestionable evidence of Iron Age cultivation and presence in the archipelago. This has been confirmed also in the Kemiönsaari case. All five samples analysed from the island show either continuous or sporadic cultivation during the Viking Age at the latest. The intensification of agriculture during the Late Iron Age may be related to settlement expansion and an increased presence in the archipelago as indicated also by the archaeological material, or – at least partly – to the increased cultivation of rye, which produces a larger amount of pollen to be reflected in the palynological samples. For the period preceding the Viking Age it is more difficult to see any clear pattern, sporadic cultivation occurring during different periods at different sites, starting with the Late Neolithic. The palynological analysis (Appendix 2) suggests occasional slash-and-burn cultivation with lengthy interruptions in addition to grazing as the explanation for the pollen data prior to the Viking Age.

In his final discussion on the role of the archipelago during the Iron Age Tuovinen (2002a: 275) has presented the idea of a barter system between the inhabitants of the archipelago and those of the mainland for reducing risks due to agriculture. This would have involved economic contacts of a similar character as known from the Historical Period when islanders traded fish, meat, eggs, butter and firewood with central settlement areas in exchange for grain, salt, hemp, and iron. This is not an overall good analogy. The problem is that the Historical Period settlement of the archipelago is known to have been extensive. One may ask, once again, why is the Iron Age settlement of the archipelago so sparsely reflected in the archaeological record (other than the Iron Age cairns, as suggested by Tuovinen), if it had the potential of functioning as a balancing factor in the economy of southwestern Finland during the Iron Age?

The idea presented by Tuovinen (2002a) of two different modes of life – one archipelagic and one mainland-agricultural – is in a way a parallel to the coastal agriculturalist versus inland and northern Finnish mixed farming or hunter-gatherer dichotomy that evidently was a reality during the Iron Age. Such a model concerning the coastal mainland and the archipelago is, of course, possible – even probable in the light of Tuovinen's reasoning. The difference concerning the archipelago, when compared to the situation regarding the coast versus the inland, is that there was such a strong long-term cultural similarity of the areas throughout the Stone and Early Metal Period, including indications of a similar development on Kemiönsaari even in the Pre-Roman Iron Age. The development of different modes of life would thus have happened surprisingly late and affected the previously similar culture in an amazingly significant manner. As surprising it seems, a thousand years later – after a colonization process – archipelago and mainland again show many similarities in the pattern of both material culture and type of settlement.

If the idea of two modes of life is accepted, the divergence could rather have been due to the new settlement pattern and organization developing on the mainland, than directly to economic reasons. In a long-term perspective the problematic Iron Age period sparse in finds in the archipelago could, in principle, be seen as something similar to the decrease of relative importance of the archipelago in the 20th century. It must be admitted that this is rather a provocative thought than a real analogy. On Kemiönsaari the development led to a diminishing of the total population of the island from about 12 500 inhabitants in the 1950's to about 8 500 in the 1990's (Tikkanen & Westerholm 1992: 57-58). The development was most severe in the municipalities of Kemiö and Västanfjärd, which both lost more than 40 % of their population during the 20th century. This late "recession" has partly been explained as a consequence of economic crises of coastal fishing (*cf*. Tuovinen 2002a: 261). In a broader perspective, the decrease was also due to economic and political reasons promoting industrialisation and the development of towns and other centres – perhaps not totally different reasons from those that may have affected the development of the archipelago when certain areas on the mainland started to become prominent during the Iron Age.

6.6.3. The problem of Iron Age cairns in the archipelago

The most important material in Tuovinen's (2002a) interpretation of the Iron Age continuity of settlement in the archipelago are the cairns, the majority of which he has been able to date to the Iron Age. According to Tuovinen (2002a: 262; cf. 2002b: 116-117), the Iron Age cairns can no longer be explained as built by sporadic sailors as both their morphology and the choice of site indicate a continuation of the cairn tradition and a knowledge of local circumstances. Thus the custom of erecting burial cairns in the archipelago reflect a very slow change of religion and world view, and bear witness to an extraordinary continuity of settlement and subsistence economy (*e.g*. Tuovinen 1997: 22).

One important question with regard to the Iron Age group *R* cairns presented by Tuovinen (2002a) is, whether they really account for all the periods of the Iron Age? Is there really continuity within the group, or could there be more cairns from some periods than from others? Furthermore, one may ask whether the similar morphology and the choice of site are arguments valid enough to show continuity, as the type of construction is, more or less, just "a simple, externally structureless heap of stones" (Tuovinen 2002a: 264)? Tuovinen points out that the shore zone datings of the cairns do not reveal any interruption or discontinuity which might be expected if the archipelago had remained a desolate wilderness for 15 centuries.

Another question is, whether shorter discontinuities or changes in the intensity of building stone constructions can be ruled out?

The division of cairns into one older group and one younger group is basically simple and understandable. According to Tuovinen (2002a: 180), it is "enough to state that the cairn dates either from the Bronze or the Iron Age". This chronological division is somewhat problematic, however, due to the general Late Bronze Age – Pre-Roman Iron Age continuity. In addition to the well known fact that cairns were still built during the Pre-Roman Iron Age, continuity is indicated by similarities in material culture, type and location of settlement sites as well as areal or site continuity of settlement. The Makila and Tappo sites are examples of this applying to Kemiönsaari as well as to the mainland. What is underlined here is that the most important changes happened not at the beginning of the Iron Age but later, during the Early Iron Age, becoming most apparent during the first centuries AD. With regard to the tradition of erecting cairns, it would seem natural that the Pre-Roman Iron Age was a period of transformation during which cairns could still contain ideas deriving from the Bronze Age, although new practices with regard to the location and form of the cairns can also be seen. This might be reflected in the problems of a couple of the Makila cairns (if they are from the Pre-Roman Iron Age as has been suggested in this study) ending up in the Bronze Age group *P* instead of *R* in Tuovinen's (2002a) division. The problem of a period of change does not, however, question the very essence of the statistical division. Single cases can be expected to differ from the norms; some Pre-Roman cairns have probably ended up in group *P*, others in group *R*. Otherwise there is little evidence of any other problems with regard to the two groups of cairns and their datings. So far only the Early Bronze Age cairn in Söderby suggests that Bronze Age cairns might occur within the Iron Age group *R*.

One site of importance for Tuovinen's division of cairns into the groups *P* and *R* is the Furunabb site in Houtskari (outside the present study area), consisting of 12 low cairns or stone settings (Fig. 119; Fig. 120). Tuovinen (2002a: Table 26) has used the data on all 12 cairns, as a piece of iron gives a stratigraphic dating for one cairn and the rest can be dated according to the cemetery chorological criterion. The dating applied is the Early Iron Age. Earlier, the cairn complex was suggested to date from the Migration Period (*e.g*. Tuovinen 1990a: 58; 1997: 20). The only metal find is a small bent piece of iron (KM 20576:5), together with fragments of iron and rust (KM 20576:1-4). The best-preserved piece was originally catalogued as a fragment of an (unidentified) iron object. Later, it was recognized as a possible belt buckle (Tuovinen 1997: 19) or as "an iron ferrule of a belt from the Early Iron Age" (Tuovinen 2002a: 183). It is not known what the identification is based on. The form of the iron piece gives few starting points for such an interpretation and

Fig. 119. Low cairns or stone settings at the Furunabb site in Houtskari.

Fig. 120. Rectangular cairn with an upright stone at the Furunabb site in Houtskari.

no parallel is referred to. The fragment (Fig. 121) could just as well originate from some other object. Tuovinen's dating of the site to the Early Iron Age (based on both the iron fragment as well as the form of the cairns) is, however, confirmed by results of radiocarbon datings, made in connetion with the present study. The dates have been obtained from burned bones (KM 21157:1-3) found in three cairns during excavations conducted by Päivi Pykälä-aho in 1981. In all three cairns the bones have been identified as human bones, and in one case as belonging to a child (Infans I/II).[176] The dating results are 2140 ± 35 BP (Ua-33132), *i.e.* 360-280 or 240-50 cal BC, and (from two separate cairns) 2085 ± 35 BP (Ua-33133; Ua 33134), *i.e.* 200-1 cal BC, indicating that the site most probably is from the latter half of the Pre-Roman Iron Age.[177] The dating result proves Tuovinen's interpretation of the Furunabb cairns as belonging to the Early Iron Age right and gives support for the use of the attributes of the cairns as a basis for the chronological division of cairns into the groups *P* and *R*. The dating result also underlines the fact that cairns from both the beginning of the Iron Age as well as the Late Iron Age occur within group *R*. What is still a dilemma is whether this is due to unbroken continuity also covering those centuries of the Iron Age which are still lacking confidently dated cairns.

In addition to cairns dated according to their features as belonging to group *P* or *R,* one should still emphasize cairns from the archipelago dated on the basis of archaeological finds and radiocarbon dating. Unfortunately, the number of such datings is still small. In principle, the datings form three groups, one for the Early Bronze Age, one for the Pre-Roman Iron Age, and one for the Late Iron Age or (more specifically) the Viking Age (or, in a couple of cases, possibly the late Merovingian Period). The first group is represented by the Hammarsboda and Långnäs cairns from Dragsfjärd containing metal artefacts, as well as the radiocarbon dated cairn

[176] Analysed by Margareta Backe-Högberg, according to information given by Päivi Pykälä-aho.

[177] Comparable dates have been obtained further away along the coast of the Gulf of Finland. The closest chronological parallel to the Furunabb complex is a group of cairns at Suursuonmäki on the island Lavansaari in the eastern part of the gulf. The dates, obtained from resin in three excavated cairns, show that one cairn is from the Pre-Roman Iron Age and two from the turn of the Pre-Roman and the Early Roman Iron Age (Edgren 1993b: 18). The dating results are 2165 ± 60 BP (Ua-2547), 1975 ± 70 BP (Ua-2545) and 1960 ± 70 BP (Ua-2546), i.e. 380-50 cal BC, 170 cal BC – 220 cal AD and 160-130 cal BC or 120 cal BC – 230 cal AD, respectively. Roman Iron Age cairns have been excavated at the Strukankalliot site in Pyhtää, on the shore of the Gulf of Finland. Fibulae evidence a dating to the beginning of the Roman Iron Age, while a piece of a gold plated glass bead indicates continuity into the Late Roman Iron Age (Miettinen, T. 1998: 96-101). After the Roman Iron Age coastal cairn building is more difficult to evidence also on the shores of the eastern part of the Gulf of Finland. In this area as well, the next period of cairn building seems to be the Viking Age (Miettinen, T. 1998: 101-105).

in Söderby. Also the radiocarbon dated Trollberget cairn from Houtskari (outside the present study area) belongs to this group. The second group is made up of the Furunabb cairns (outside the study area) described above. The youngest group of cairns consists of the Stora Ängeskär cairn in Dragsfjärd (containing a grinding stone), the two radiocarbon dated cairns in Makila in Kemiö, the radiocarbon dated stone setting at Koupo Rösbacken in Parainen, as well as the two Sundbergen cairns (containing a piece of a comb and iron rivets) excavated in Nauvo (Tuovinen 2002a: 88, 91). All of these are from the Late Iron Age, the most probable period of erection being the Viking Age (or the late Merovingian Period). To this group of cairns also the coastally situated Kokkila cairns in Halikko (one of which containing a Late Iron Age strap divider) could be added, albeit situated on the mainland side of the strait separating Kemiönsaari from the mainland.

Fig. 121. Piece of iron (KM 20576:5) found together with other small iron fragments in cairn 6 at the Furunabb site in Houtskari. Photo by Leena Tomanterä / Conservation Laboratory, National Museum of Finland.

Summing up, this would mean an Early Bronze Age group of cairns consisting of 4 cairns (one of which outside the study area), one cairn complex from the Pre-Roman Iron Age (outside the study area), and a Late Iron Age – most probably Viking Age – group of cairns consisting of 7 cairns or stone settings (one of which actually situated on the mainland). Taking this meagre material into account, Tuovinen's (2002a) approach using also other aspects of the cairns for dating is understandable. With regard to the identification of the groups *P* and *R*, on the other hand, one should take into account the possibility that there is some more complex age distribution than just consistent continuity from the Bronze Age throughout the Iron Age. When considering the cairns dated on the basis of finds and radiocarbon dating, it is of course surprising that no Late Bronze Age (or early Pre-Roman) dates are available so far, but it is also notable that many of the Iron Age cairns represent the very end of the Iron Age. This could indicate the Late Iron Age – especially the Viking Age – as a period of increased interest in erecting cairns. If so, instead of steady continuity of a specific grave ritual, the material could represent cairn building periods of different age and intensity – maybe a Bronze Age tradition starting to change and weaken during the Early Iron Age (if not a different Bronze Age and an Early Iron Age phase) and a Late Iron Age tradition flourishing in the Viking Age. The Late Iron Age cairn building fits well with other indicia related to the increased presence in the area during this period.[178] This may have led to increased symbolic representation of the connection between man and land or landscapes by means of revitalization or copying of the old custom of erecting cairns.[179]

6.6.4. Settlement expansion

Tendencies towards an increased presence in the landscape outside the central settlement areas can be seen during the Viking Age, in the form of an increased occurrence of stray finds, together with palynological evidence of continuous cultivation. This development is evident in the archipelago, where proof of trading also occurs as well as the building of cairns. Signs of expansion in the form of

[178] Cairns were built during the Iron Age also in the interior of Finland, outside the area of coastal cairns. Datings are available from several periods of the Iron Age, including the Late Iron Age. Taavitsainen (2003a; 2003c) has discussed the inland cairns (Fi. *lapinraunio*) from several angles. One interesting explanation given by him for the small number of bones in the cairns is that people utilising far away areas might have deposited some bones in the cairn to mark ownership, while the rest of the bones were disposed somewhere at their home farm. This explanation – which is only one included in Taavitsainens discussion – would thus imply that the cairns (or part of them) were not built by the local hunter-gatherer population of the inland. One example where such an explanation would seem possible is the inland cairn at Reuharinniemi in Tampere radiocarbon dated to 1240 ± 80 BP (Hel-4440), *i.e.* 650-980 cal AD. The cairn has been interpreted as an inhumation grave built by the local hunter-gatherer people still living in the area which was at the time being settled by farming people (Adel 2002). Iron Age pottery found – typical of the farming culture and usually absent in inland hunter-gatherer contexts – could, however, suggest also other possible interpretations. A similar case is known closer to the coast, from the Tommila Rännemäki cairn in Vehmaa. Also here Iron Age pottery was found. The dating of the cairn is uncertain. It has been estimated to be from the third or fourth centuries at the earliest, but more probably from the following centuries; it might even be contemporary with the phase of establishment of cemeteries and permanent settlement in the area in the 7th century (Pellinen 2004; 2005: 177-179).

[179] A possible conscious reproduction of older grave forms has been suggested by Holmblad (2005) regarding Ostrobothnian grave forms reminiscent of Bronze Age cairns, occurring in the Late Roman Iron Age and the Migration Period. One explanation given by Holmblad is that the monuments refer to historical myths regarding ancestors and the claiming of land, during a period when the possession of land had to be negotiated. At the same time this could have been due to legitimating of the social control of an upper class by referring to its mythical past. This Ostrobothian case is, however, different from the possible reproduction of the cairn ritual in the soutwhwestern Finnish archipelago, as the Ostrobothnian cairn-like cemetery structures occur in the central settlement areas, not in the periphery.

the same kind of cemeteries and settlement sites as on the mainland, however, are surprisingly sparse. Within the central settlement areas on the mainland population pressure had probably been building throughout the Iron Age, but still at the beginning of the Late Iron Age it had led to only a relatively small increase in the archaeological material indicative of permanent utilisation of surrounding areas. Either the founding of new farms prior to the Viking Age must have taken place chiefly in the form of internal colonization within the old settlement areas, or (following the theory presented by Pihlman 2004) outlying permanent farms existed which are still archaeologically invisible, but indicated by the distribution of early medieval settlement interpretable from historical sources. During the Late Iron Age – especially in the Viking Age – an increasing expansion of utilisation and settlement is indicated, but still the old central settlement areas were the ones where cemeteries and most other archaeological settlement indicia occur.

Trying to combine Iron Age archaeological remains with historical sources, it seems as though the number of villages in the mainland parishes multiplied in number in the course of a few centuries in the early Middle Ages (Oja 1955: 39; *cf.* Luoto 1984a: 165; Hiltunen & Luoto 1985: 447; Salo 1995a: 25-26; 2004a: 6). One suggested demographic reason for such a development is that the Christian church prohibited the abandonment – *i.e.* the killing – of unwanted children, practised earlier as a form of population regulation (Salo 1995a: 26-28; 2003: 28; 2004a: 6-7; 2005b: 54-55; *cf.* Purhonen 1998: 155). Direct historical evidence of infanticide is not known from Finland, but in folklore the theme has such a wide distribution that it has been interpreted as having had a place in the legal systems of Finnish people (Pentikäinen 1990: 83). The interpretation of this as a mechanism of population growth regulation, however, seems odd. We can ask, why there would have been any need to regulate population growth in the first place? It is just as likely that population growth occurred and accumulated within the old settlement areas. Even though the early medieval expansion of settlement may seem great, it may not have required any tremendously great population increase. A calculation regarding the municipality of Masku (outside the present study area) suggests that an increase of one child per generation over two hundred years would have led to the number of people reflected by the number of early medieval villages or single farms (Nissinaho 2002: 112, 122; 2007: 202, 207).

The idea of prohibiting infanticide as the main reason for an extremely high population growth has been criticized also by Pihlman (2004). The criticism is based on various grounds, ranging from ethnographical and cemetery data to the alternative explanation of a much higher initial population during the Late Iron Age. Within the discussion on population growth Pihlman has, for example, emphasized the favorable climate of the Viking Age (leading to increased production), as well as Scandinavian parallels for the rapid population growth. Within this discussion, the development of agricultural techniques (*e.g.* Myrdal 1999) making possible the utilisation of previously uncultivated areas to increase production, could also be foregrounded.

Salo (2005b: 53) has given a couple of reasons why the growth of the number of villages may not have been as rapid as suggested when comparing the number of villages containing cemeteries with the amount of villages paying tax according to Finnish law. First of all, the number of villages with cemeteries was probably somewhat higher, as we do not know of all cemeteries. Secondly, according to Salo, some *pitäjä* may have converted into Christianity even before the first crusade, after which new cemeteries were no longer erected by new farms. This second explanation is not altogether convincing. The possibility of some Late Iron Age farms not erecting cemeteries of the type found in the old central settlement areas seems likely, but this being due to a large-scale conversion to Christianity does not seem possible.[180] Salo (2005b: 54-55) has also maintained the idea of infanticide as a major demographic factor, despite the criticism. Pihlman's idea of permanent Iron Age farms lacking cemeteries was considered, but finally rejected by Salo, as he has regarded the idea as hypothetical and so far unattested.[181] This is actually true, if considering the archaeological data only, where the distribution of Iron Age settlement sites generally seems to follow the distribution of cemeteries. There are, however, other records – historical and palynological most of all – that point to the fact that Late Iron Age utilization of land reached beyond the central settlement areas distinguishable through the distribution of cemeteries.

The supposed explosion of new farms and villages during the early Middle Ages is probably mostly due to the fact that the historical sources give information on farms and utilisation areas that already existed earlier, but have remained

180 The process of adoption of Christianity and the Christian grave ritual is explained by Salo (*e.g.* 2005b: 53) as happening on the level of the *pitäjä*, where the ancient *pitäjä* (Fi. *muinaispitäjä*) changed into an ecclesiastical parish (Fi. *kirkkopitäjä*). According to Salo, this would have involved a collective decision taken by the *pitäjä* court (Fi. *pitäjänkäräjät*). This is rather speculative. The Christian influences more probably were slowly accepted by individuals and small groups of people within a territory, not by the territory (or *pitäjä*) as an organization. Parish formation may actually have taken place at a time when the old Iron Age territories were already in a stage of disintegration due to new power structures emerging.

181 Salo does not find the idea of the lack of graves convincing, but considers the possibility of graves without grave goods, pointing out the possibility that the indigenous Finnish coastal population would have practised such a grave ritual until the Merovingian Period (which would make all earlier cemeteries the product of immigration) (*cf.* Salo 2003: 54). From this (rather strange) premise Salo could accept Pihlman's theory, but regarding the Late Iron Age cremation cemeteries Salo (2005b: 55) finds it doubtful that some farms would have erected them and others not.

archaeologically invisible. These outlying farms may have been permanently settled (Pihlman 2004), or people may in the expansion stage have made use of already cleared fields, pastures and wilderness utilisation camps outside permanently settled areas. In addition to agricultural innovations stimulating the use of new types of soils (*e.g.* Hiltunen & Luoto 1985, 448; Orrman 1991; Myrdal 1999), motivating the founding of new farms, one essential reason would thus be that in terms of areal utilisation the impression of expansion is partly an illusion. The Late Iron Age cemeteries probably only represent old permanent farms; they do not give the whole picture of outlying farms and semi-permanent utilisation of remote resource areas that could be made use of when the time was right.

Historical sources give some idea of how far this type of utilisation could have reached. The area of villages paying tax according Finnish law gives one indication of the area of utilisation. With regard to the use of the archipelago by the mainland parishes for hunting and fishing, this is reflected in toponyms referring to these activities, as well as in documents mentioning ownership of fishing sites (Oja 1955: 50-52). Likewise, several documents reveal that distant pastures were still owned by old villages far away, even after the former wilderness had been permanently settled (Oja 1955: 52-53). For example, the fact that during the Middle Ages the parish of Uskela (Salo) still owned land as far away as Somero (about 35 kilometres inland) probably means that these areas were old hunting grounds, used by the settlements of the Salo area already during the Iron Age (Hirviluoto 1991: 190).

During the Late Iron Age an increased interest in the area of Kemiönsaari can also be seen. This is indicated above all by the palynological data, showing the start of permanent cultivation during the Viking Age or even somewhat earlier (Appendix 2). In addition to the dating of the Makila Majberget cairns and the small increase of Viking Period stray finds in the archipelago, the pollen data indicates increased Late Iron Age permanent utilisation of areas further away from the mainland central settlement areas. How significant this was in terms of population numbers remains unsolved. Soon after this the settlement history of Kemiönsaari once again changed.

6.6.5. Colonization

During the early Middle Ages, Finland became part of the Swedish kingdom and the Finnish archipelago was colonised by Swedish immigrants (Kerkkonen 1945: 251-252; Oja 1955: 77; Meinander 1983; Orrman 1983: 293-294; 1986: 21-23; Markus 2004b: 64-69; Kepsu 2005). This process of colonization is archaeologically even less well known than the Iron Age utilisation of the archipelago. No medieval village in the archipelago within the study area has as yet been the target of any comprehensive archaeological investigation (a fact that actually is more in line with the idea of lack of archaeological investigations of the archipelago than the lack of investigations concerning prehistoric sites).[182] Historical sources directly related to the process of colonization are also lacking. Some information on settlement development can, however, be extracted from tax records. Many villages – both on the mainland and in the archipelago – must evidently have been founded in the late 13th or early 14th century, but not much later (Oja 1955: 69; Orrman 1986: 35; 1990a: 230-231). Late medieval immigration has not been regarded as considerable. One break in the development may have been the plague, which affected Sweden during the 1340's; this may have had the effect of reducing population pressure and decreasing the need for new land (Meinander 1983: 243; Pitkänen 1994: 29; Myrdal 1999: 116). According to this view, it was during the period from the end of the Iron Age to the 14th century that Swedish immigration led to the formation of relationships between the two ethnic groups in the southwestern Finnish archipelago.[183] One precondition for immigration must have been that the areas taken over by the immigrants were familiar already prior to the decision to migrate. Apart from pressure in the original home area there must also have been attracting 'pull' factors, above all knowledge of the area of destination (Orrman 1990a: 198-199; *cf.* Anthony 1990). Some contacts must have been established already prior to colonization.

[182] The potential of studies within villages are indicated by finds of probably medieval stoneware at the village Rosala in the Hiittinen archipelago in Dragsfjärd, as well as Siegburg pottery and a fragment of a medieval horseshoe (Sw. *fliksko*) from Malmen in Parainen. From the latter site there is also an axe, the shaft fragment of which is radiocarbon dated to the 13th century. These are, however, sporadic finds. Excavations at some villages sites in Uusimaa, (Palm & Pellinen 2002; Jansson 2004; 2005: 68-69; Haggrén 2005b; Haggrén *et al.* 2007; Pellinen 2007), as well as studies of the Estonian Swedish village Einbi (Markus 2002; 2004b) are at present the best examples of studies of villages related to the time of medieval Swedish colonization east of the Baltic.

[183] This is comparable to the current view on the colonization of the coast of the province of Uusimaa, which has most recently been discussed by Kepsu (2005). According to him, this area was for most part without permanent settlement during longer or shorter periods of the Iron Age AD; the area was utilized by people from Finland Proper as well as Häme and possibly also by Estonians (Kepsu 2005: 58). In the western part of the province (*e.g.* Tenhola and Karjaa) settlement continued during most of the Iron Age, while permanent settlement in other areas was discontinuous or nonexistent. Within some parts of the province settlement seem to have increased already during the 9th and 10th centuries; generally the increase came about from the 11th to the 13th centuries at the latest. According to onomastic studies, the first settlers in several areas were Finnish speaking, coming from the eastern part of Finland Proper (especially the area of the Halikko Bay and Perniö) as well as from Häme (Kepsu 2005: 58-59). The Swedish immigration at first was directed towards the same areas already settled by Finns; this was probably due to the fact that these areas were the most suitable for agriculture (Kepsu 2005: 59-61). Later also previously unsettled or peripheral areas were settled by Swedes.

It is also important to realise that colonization led to real contacts between different groups of people. In some cases these encounters probably led to conflict, in others to permanent connections and coexistence.[184] Information exchange between different groups can be seen in the use of old Finnish toponyms by the Swedish speaking population (Pitkänen 1985; 1990). How these names were transferred is not known exactly. It is an open question whether immigrants settled in the unexploited wilderness, took over seasonal camps previously utilised by the mainland population, or settled in areas where there was already some kind of permanent settlement.[185] Onomastic studies suggest that there are several layers of Finnish loan words in the archipelago, created during different periods. According to studies of Finnish place-names in relation to shoreline displacement by Pitkänen (1985; 1990) it seems that over half of the "datable" place-names could have originated in the early 12th century or during previous centuries. The dating of place-names is, of course, highly risky, but an identifiable horizon of Finnish Late Iron Age toponyms would match the increase in activity in the archipelago during this period suggested by the archaeological material.

[184] The way in which relationships between people in the Middle Ages were experienced with regard to the languages spoken may have differed from that of recent times. It was not before the general process of nation-state-building in Europe during the late 19th and early 20th centuries that ideas of nationalities really became important. It was then the concept of two nationalities – Finns and Swedes – appeared in Finland. Before that, the belief had been that there were two languages and two different temperaments formed by life in the forest and along the coast respectively, but they had been viewed as constituting one and the same people, in one homeland (Markus 2004a: 61-62; 2004b: 54-55). Before the end of the 19th century there were no real bonds or a common identity uniting different districts where Swedish was spoken. Designations related to nationality were diffuse – the term Finn could be used for all inhabitants, irrespective of the language spoken.

[185] The process of Swedish immigration to the archipelago of Finland Proper has more recently been discussed by the historian Mauno Jokipii (2003: 320-326). Jokipii has given a summary from various angles, regarding, for example, a possible settlement break of the Åland Islands about 1000-1200, onomastic materials related to the settling of different parts of the archipelago, the dating of the events, as well as regarding some relevant archaeological sites in the archipelago. Unfortunately the archaeological data is treated in a rather confusing manner. One gets the impression that sites such as Hamnö on the island of Kökar in the Åland archipelago, Kapelludden in Parainen and the Kyrksundet / Högholmen complex in Dragsfjärd would have been some kind of political and military bases providing safety during the Swedish settling of the area (Jokipii 2003: 322-324). If this is the intention the interpretation is not convincing – at least regarding the sites within the present study area. Kapelludden (where one inhumation grave has been detected within a stone fenced area) is most probably a Chapel site – nothing more. The same probably goes for the Kyrksundet site too, even if there was an earlier trading place at the same spot. Högholmen, on the other hand, contains material evidently related to some kind of permanently occupied base, but the dating to the mid 14th century is too late to be related to the main period of immigration.

A common interpretation of the Finnish loanwords is that some kind of Finnish settlement already existed in the archipelago when immigration started (Pitkänen 1990: 166, 188-189; *cf.* Suistoranta 1985: 6-9; Orrman 1990a: 222-223). How comprehensive and permanent such a settlement might have been, however, cannot be deduced from the onomastic material. The amount of Finnish toponyms in the archipelago area is quite small in number. For example, in Parainen the total number of place-names is over 4,700 and only about 130 (ca. 2.7 %) are undoubtedly of Finnish origin; the percentage is about the same in the municipalities nearby (Pitkänen 2003: 278). The share of Finnish toponyms is even smaller on Kemiönsaari – here the percentage is only 0.2 %. In addition to the mean, also the distribution of toponyms is of importance. Even if the number of names cannot be regarded as directly representative of the amount of Finnish presence in the area, it has been interpreted that the cluster of Finnish toponyms in Parainen – especially in the Ålö area – must be related to an early Finnish presence (Pitkänen 2003: 278, 281-282). It has also been pointed out that almost half of the names of villages in Parainen have a Finnish origin (Pitkänen 2003: 280). At the time of immigration of the Swedish-speaking population there must have been a permanent Finnish population in the area. According to Pitkänen (2003: 282-283), the area may have had a dualistic language base for some time, but gradually the Finns adopted the language of the Swedish majority; still in 1600th century documents, however, some people living in the area were specifically referred to as Finns.

Place-names have since long been regarded as indicia for ancient Finnish settlement on Kemiönsaari too. Already in the 1930's Oja (1933: 183), for example, pointed out that some of the old place-names like Purinpä, Weskilax, Maijnem, Rottzall and Kaxkertta possibly indicated Finnish settlement. Finnish toponyms are obvious also in several areas referred to in the course of this study. In addition to the village Makila, addressed earlier, some other areas of interest from an archaeological point of view display place-names of Finnish origin. For example, the Pre-Roman settlement site identified in Västanfjärd is situated in the village of Tappo, and the name of the neighbouring village is Nivelax – both of Finnish origin.[186] Likewise, the pollen sample site Ilsokärret in the northern part of the island, where continuous Late Iron Age cultivation has been identified, is situated

186 The name Nivelax has the Finnish suffix *-laksi*, with the meaning "bay"; the first part of the name is not clear, but has been suggested to be the Finnish word *niva*, meaning a narrow stream (Gardberg 1944: 13; Huldén 2001: 141). Tappo (1540; Tappå 1543), on the other hand, occurs in several Finnish place-names and has the meaning "hop yard" (Huldén 2001: 142).

close to villages with a name of Finnish origin, *i.e.* Rugnola and Kalkila.[187] The northernmost part of Kemiönsaari (where also the only villages paying medieval tax according to 'Finnish law' are situated) actually shows a cluster of Finnish place-names (Pitkänen 1985; *cf*. Asplund & Vuorela 1989; Tikkanen & Westerholm 1992). The Finnish presence both on Kemiönsaari and in other parts of the archipelago thus is evident. How consistent and powerful the Finnish settlement would have been in the early Middle Ages is, however, not known. The suggestion by Oja (1955: 78-79), according to which the parishes of Nauvo, Parainen and Kemiö could have formed some kind of units already during the Finnish settlement stage, remains unattested. The sparse Iron Age archaeological material, on the contrary, suggests that no significant Finnish settlement comparable to that of the mainland did develop in the archipelago prior to the Swedish colonization. The lack of firmly established Finnish settlement must in fact have been one reason for the success of the colonization.

187 The origin of the village-name Rugnola (Ruggnaall 1442; Ruggenole 1505, Ruggenåla 1536; Ruggenol 1540; Ryggebynol 1545; Rugnoll 1581) has not been explained; the suffix -la, common for Finnish place-names related to settlement might suggest that it is of Finnish origin (Gardberg 1944: 14; Huldén 2001: 137). The village-name Kalkila has been compared with the Finnish name Kalkkila found in for example Halikko; the village in Halikko could be the mother-village of the one in Kemiö (Huldén 2001: 134; *cf.* Gardberg 1944: 19).

7. Sites, centrality and long-term settlement change - some conclusions

7.1. Landscapes and archaeological sites

The fact that this study has dealt with the island of Kemiönsaari does not in itself necessitate a dualistic approach, based on the dichotomy of archipelago vs. mainland. Nevertheless, this seems to be the clearest way of approaching settlement development within the study area. Throughout the whole Neolithic and Bronze Age, such a mainland/archipelago distinction is irrelevant. During the following period, on the other hand, it is obvious: for several centuries of the Iron Age confidently dated antiquities are sparse in the archipelago, Kemiönsaari included. During the Historical Period, settlement density in the archipelago again reached a level comparable to that of the mainland. The differences in archaeological finds during the Iron Age must be explained as a difference in the settlement and organizational history of the areas. A lack of finds does not necessarily mean a lack of habitation, but it does mean at least a difference in the use of material culture, probably also differences in settlement densities. Considering the main categories of Iron Age antiquities, the difference can be thought of as concerning in particular the use of material culture in ritual contexts and social strategies.

It is an oversimplification to point to dissimilar environments as the main or only reason for the differences reflected by the archaeological data. This pattern is the result of a long-term process of several intertwined factors. Many of these have been dealt with in previous research, the increased importance of agriculture being stressed as most important. This is partly true: the introduction of farming during the Late Neolithic and Bronze Age produced transformations that laid the foundation for change. The Neolithic economy must have had a large impact – not necessarily on the level of subsistence and technology alone, but by stimulating changes leading to greater social complexity. As the Kemiönsaari study indicates, this may in turn have led to changes, with the result that the development of remote environments, albeit suitable for agriculture, differed from developing central settlement areas. This suggests a process of change that did not concern the archipelago alone (the Kemiönsaari island is actually not very archipelagic), although most visible there, but could have affected other landscapes as well.

In the introduction to this study, the landscape was described (in addition to its properties as a physical environment) as a conceptualised space. During the Bronze Age, attitudes towards landscapes changed; this is manifested in cairns, the building of which probably strengthened the bond between the builders and the place of construction as well as the surrounding landscape. The bones of ancestors deposited in the cairns were part of a complex ritual, in which these monuments came to symbolise contact between communities and territories as well as between the real world and beyond.

During the Early Iron Age – the starting point of rupture in the settlement history of the study area – the old distribution of settlement areas deriving from the Neolithic can still be seen. A western area, comprising the Piikkiönlahti and Paimionlahti area, is still distinguishable, as is the area of Halikonlahti in the east and that of Kemiönsaari in the south. What may be indicative of a change is that the Kemiönsaari sites are not situated in the southernmost part of the island as before, but further inland along long, narrow bays, or straits. No indications of settlement sites have so far been found in the rest of the archipelago. What was probably happening during this time is that the sites were related to agriculture more than before and that their location was determined to a greater degree by the demands of a farming economy. This idea gains support from the archaeological case studies, osteological analyses as well as environmental studies related to shoreline displacement effects, agrogeology and palynology within the Kemiönsaari area.

Cairns were most probably built during the Pre-Roman Iron Age in larger number than has been identified. From a few sites (outside the study area) Early Iron Age cairns are known in archipelago contexts. Still, what should be considered significant, is that few cairns dated to this period have been found in a position comparable to the Bronze Age cairns in rocky landscapes, often remote from settlement sites. This suggests that the cairn as a symbol of contact between land and people was moving closer to the settlement sites. The combination of settlement, cleared fields and the place of the dead ancestors was emerging as the sphere in relation to which Iron Age people defined their place in the world. The bond between people and landscapes was probably experienced most powerfully in relation to the home farm and the collective rituals of the community. This is related to the territorial shaping of an areal (regional) identity through recognition of natural geographical borders or the borders of the cultural landscape. In addition to borders also centres – the farm, a river or river valley, the core of the settlement zone or microregion – must have been important for the experiencing of areal identity. Icons of the symbolic shaping of areal identity could have been the family shrine, places for common rituals etc. Outside the main settlement areas the connection between man and nature was probably different. The wilderness could not be utilised in a routine manner – forest, land and water had a mythological content and had to be dealt with using rituals of different kinds. Single find distributions and even peripheral cairns – especially during the Late Iron Age – may equally well relate to the ritualised landscape as to settlement or economic activities directly.

With regard to the dating of archipelagic cairns, one should take into account the possibility that there is a more complex age distribution than just consistent continuity from the Bronze Age throughout the Iron Age, as has been previously suggested. When considering the cairns dated on the basis of finds and radiocarbon dating, it is notable that many of the Iron Age cairns represent the very end of the Iron Age. This could indicate the Late Iron Age – especially the Viking Age – as a period of increased interest in erecting cairns. If so, instead of steady continuity of a specific grave ritual, the material could represent cairn building periods of different age and intensity – maybe a Bronze Age tradition starting to weaken during the Early Iron Age and a Late Iron Age tradition flourishing in the Viking Age. The Late Iron Age cairn building fits well with other indicia – palynological evidence of continuous cultivation and a small increase in the number of stray finds – related to the increased presence in the area during this period (especially the Viking Age). This may have led to increased symbolic representation of the connection between man and land or landscapes by means of revitalization or copying of the old custom of erecting cairns.

7.2. Power and centrality

Comparing trends in the general Early Iron Age debate with a range of themes relating to the Finnish Early Iron Age offers a framework for understanding this specific period within the study area. The Pre-Roman Iron Age coincides roughly with certain important stages of cultural and environmental development, including the introduction of iron, the final breakthrough of agriculture and husbandry, an economic devolution with regard to trade networks in northern Europe, as well as climate fluctuations. If these factors had played a direct role in the changes in the archaeological material, the change would probably have happened even earlier. More interesting is the new incorporation of northern Europe into long-distance trade networks during the late Pre-Roman Iron Age, which could perhaps have affected southwestern Finland as well, becoming visible especially in the Roman Period. The final discussion, however, turns towards a consideration of internal factors as initiators of change.

Since the Late Neolithic, developments within subsistence, technology and foreign contacts had increased the need for new forms of organization and control within society. This development probably started to accelerate in the Early Iron Age, leading to new systems of cooperation and decision-making. In a more sedentary society, more based on farming and more vulnerable than before, more attention was paid to increasing the predictability of subsistence, security and defensive strength. This could have had a major impact on where and how people chose to settle and on the way some settlement areas would develop and others simply tick along or decline. This is reflected in the archaeological material, indicating a symbolic shaping of areas (in the form of specific grave rituals and the making of cup-marked stones in some microregions), which probably at the same time reflects an institutionalisation of these areal units. This is suggested by the constancy of the pattern of settlement archaeological remains, which prevailed for centuries.

Already before the Iron Age central settlement areas become visible, early hill-sites within the study area could have been related to emerging new socio-political relations. One would like to think of these sites as points of contact or places of symbolic function, rather than fortifications or fortified settlements. Thinking in these terms, the hill-sites are not necessarily power centres, but they accentuate places in the landscape probably recognized and experienced on some level of identity and unity of the people living in the area. The appearance of such places only within the mainland part of the study area may be indicative of a divergence between mainland and archipelago areas, characterized on the mainland by the emergence of more formal and centralized features of social or ritual communication.

An important concept explored in this study, related to the hypothetical trend towards social and political complexity, is power. It is important to note that power is not purely negative or suppressive, that it does not necessarily involve force, and that in societal contexts power relationships do not exist only in connection with highly stratified societies or large populations. In the case of a presumed total population of a few hundred people within the study area during the Early Iron Age (growing into a few thousand people in the Late Iron Age), power meant power relationships between individuals, families, kinship groups, farmsteads and – as proposed in this study – territories forming in the river valleys on the mainland.

The most interesting approach to power is the totalistic one, where power is seen as a dimension present in all human relations. This approach is based on the assumption that all cultures contain some form of hierarchy or control over decision-making, and thus inequality of power. It is also important that power and inequality are related to individual qualities. A degree of inequality in terms, for example, of gender, age or ability exists in the most egalitarian systems, as do personal differences in ambition, charisma and skills. Inequality is thus ubiquitous, since all individuals and groups exercise power and are subject to its exercise.

The forming of institutions related to inequalities in economic and political power actually seems to be a question above all of personal ambition and relations formed between a leader and his supporters, as well as their relations with people outside their alliance. Anthropological evidence suggests that such groups form because members of the group receive benefits and rewards for their support. In ranked societies (implying heterogeneity and status definition, but excluding control of access to resources) the main manifestation of the relationship between a leader and his supporters is redistribution, for example in the form of occasional feasts. For the supporters the returns from such a system may be symbolic, but a group with this pattern may have the advantage of increased security in several aspects of life, such as buffering in periods of poor harvest and defensive power (including a better preparedness for combat) in periods of aggression. Surplus and redistribution may also be invested in the conversion of potential aggressors into potential allies.

It seems plausible that, starting with the Early Iron Age, the pattern of settlement began to be transformed from a system emphasising population mobility and dispersion into one focusing on centralisation, increased predictability, security and power. Even if the decisions leading to this transformation were the results of a long-term process, there must have been contemporary stimuli for change, suggesting that earlier conditions or behaviour were inadequate and thus leading to attempts to cope with the new situation. One point made in this study is that – regardless of long-term processes – final decisions are made due to high-frequency variability of environmental or cultural change. During the Early Iron Age situations arose which led to the increased investment in some settlement areas and the loss of relative importance of others.

7.3. The power of nature versus the nature of power

The question of causality remains. One problem is that the archaeological data offers a way of measuring change, rather than an explanation of the causes of change. The interpretation of the archaeological data in a context of environmental variables offers additional information, but the process of interpretation is still complicated. Archaeological and palaeoecological data do not represent prehistoric thoughts, actions and strategies directly but through their outcome. In a way this whole study has actually been related to the question of which is more important: physical environment and technology, or psychological and socio-political behaviour. This question is one that cannot be answered; it is impossible to assign relative weights to variables and their relationships with sufficient precision to identify causation. What this study has aimed at showing, however, is that there is more to the question of Iron Age settlement development in southwestern Finland than environmental variables, technology and subsistence.

This conclusion does not fully support one of the basic hypotheses of the archaeological debate concerning settlement in southwestern Finland, according to which the areal settlement structure, settlement intensity and settlement change were due to economic factors; in other words, that the settlement process would predominantly represent trends of economic development. This is, of course, related to how broadly we define the concept of 'economy'. Socio-political change can be closely related to economy – changes are initiated due to attempts at stabilisation, improvement or control of the economy. In the case of southwestern Finland – if we apply the ideas of this study – it was not solely environmental and technical aspects of the economy that brought about changes in areal settlement structure, but also conceptions of how society functions and of how people should act in relation to each other and in relation to the most powerful settlement areas.

One conclusion arrived at concerns the impact of the Early Iron Age process on the mainland, whereby a structure evolved, based on both natural geographical regions as well as socio-political territories, probably encompassing one river-valley microregion each. This led to a settlement pattern recognizable from the Late Roman Iron Age to the Late Iron Age. The settlement areas of the Roman Iron Age are still more or less discernible in the Late Iron Age, and there are no additional microregions with clusters of Iron Age remains. If this pattern reflects socio-political units, it indicates a continuity of socio-political organization from the Late Roman Iron Age to the Late Iron Age. This does not exclude instability within the microregions – this is actually suggested by the discontinuities and changes of relative wealth of single cemeteries as well as settlement areas throughout the Iron Age.

If this general idea is acceptable, the roots of the organization of territories go far back. The territory would thus be the next primitive settlement unit discernible after the single farm, while village formation would represent a later stage of organization discernible during the Late Iron Age or the Middle Ages. The process to formation of a territory is suggested to have been increased cooperation or interdependence between households within a region, and formalisation of rules for information exchange, leadership and obligations. Such constellations, comparable to the Estonian *vakus* units, must have already formed during prehistory in southwestern Finland. Although a territory might not have been a geographically strictly defined area, socially well-organized community or politically rigorously administered unit, a general sense of belonging to a community larger than the home farm must have existed. The essence of the territory was the information and collaboration network constituted by the farms within a natural-geographical region, the operation of which through time became formalized.

There is reason to assume that within the territorial units of the Iron Age, farms may have participated in a common cult or redistributive system, the symbolic returns of which were distributed in the form of feasting (Fi. *pidot*). This leads into a discussion on the possibility of territorial units being analogous with the *pitäjä*, *i.e.* whether they already then would have been referred to as a *pitäjä*, a term that later became analogous with the parish. If the idea and concept of a territory in a size somewhat comparable to that of a parish had not existed in Finland when ecclesiastical parishes were formed due to efforts of the western Church, one would have expected the use of some variant of the Swedish word for parish – *sokn*, *socken*. The *pitäjä* could thus be a territorial or organizational term older than the formation of the ecclesiastical parishes. As an existing and understandable configuration it was later referred to during the introduction of ecclesiastical and secular organization and taxation. The indigenous name of a system of cooperation was transferred into new use. According to this view, the introduction of the parish institution did not mean the forming of the system of the Finnish *pitäjä*, but the end of it.

It must be admitted, however, that in comparison with the *vakus* units, the material signifying the forming of *pitäjä* territories is more vague. No explicit borders of *pitäjä* units can be drawn other than on natural-geographical grounds, and no historical material like the *Liber Census Daniae* can be used to connect a historical division of land with the hypothetical Iron Age territories. This must be understood and taken into account when evaluating the discussion related to the *pitäjä* concept. If, however, acknowledging a formation of territories during the Iron Age and equating them with *pitäjä* units, the idea of the formation of territories presented in this book does not fully support earlier hypotheses suggesting that the prehistoric *pitäjä* was not an organizational unit, but based above all on common aims and spontaneous cooperation between people. Even less does it support ideas of the *pitäjä* being only a religious unit, or one that was activated in connection with external taxation. The view arrived at in this study is that territories formed due to internal development, involving ideas of both cooperation and competition.

Competition, however, does not exclude partnership. On the contrary, in addition to kinship ties, the relative status and power of the settlement areas must have been crucial in negotiations related to alliances. For example, wealth in the form of imported objects came mainly from outside the study area, but were exchanged and used symbolically in cemeteries not due to external influences or only in relation to a periphery, but in the competition and forming of relationships between local chifs and equal units of organization within the area. Displayed wealth, power and status, co-related with the possibility of providing security as well as other real and symbolic profits for the population, maintained the credibility of the organization. If such a scenario is acceptable, the dynamics of development in the area during the

Iron Age could have been to a great extent dependent on the interplay between the central settlement areas that started to form during the Early Iron Age.

This process is suggested to have been one important factor in the settlement development of Kemiönsaari. When territories developed on the mainland, Kemiönsaari became marginalized. This view does not support earlier efforts of interpreting the archipelago as an important settlement zone throughout the Iron Age, settled by a specific archipelago population. Neither does it support the view of an economic barter system between the islanders and the mainland population. Rather we could be dealing with one population, the settlement density of which was highest in the mainland river valleys, while the archipelago remained an outlying but important zone of utilization.

As stated above, the interest in a more active presence in the landscape outside the central settlement areas increased during the Late Iron Age. This development is evident in the archipelago, where proof of trading occurs as well as evidence of continuous cultivation and the building of cairns. Within the central settlement areas on the mainland, population pressure had probably been building throughout the Iron Age, but still in the beginning of the Late Iron Age it had led to only a relatively small increase in the archaeological material indicative of permanent utilisation of surrounding areas. Either the founding of new farms prior to the Viking Age (or the late Merovingian Period) must have taken place chiefly in the form of internal colonization within the old settlement areas, or there existed outlying permanent farms, which are still archaeologically invisible. In the Viking Age especially an increasing expansion of utilisation and settlement is indicated, but still the old central settlement areas were the ones where cemeteries and most other archaeological settlement indicia occur. It was not before a new religious and political system began to be established at the turn of the Iron Age and the Middle Ages that the importance of the old territories finally seem to diminish or change into other types of organizations. In combination with a process of immigration, the outcome was that whole new settlement regions developed in former peripheries like Kemiönsaari, now occurring in the written form *Kymittæ*. At that time, the original scheme of the Iron Age territories, promoting central settlement areas and ritual sites, had finally broken up.

Abbreviations

AI	Tallinna Ülikooli Ajaloo Instituut (Institute of History, Tallinn University), Tallinn.
Est.	Estonian
Fi.	Finnish
Ge.	German
KM	Kansallismuseo (Finnish National Museum), Helsinki.
KM hist.	Kansallismuseo, historian kokoelma (Finnish National Museum, history collection), Helsinki.
KM kt	Kansallismuseo, kansatieteen kokoelma (Finnish National Museum, ethnology collection), Helsinki.
LVM	Latvijas Vēstures Muzejs (The History Museum of Latvia), Riga
SHM	Statens Historiska Museum (The Museum of National Antiquities in Sweden), Stockholm.
SM	Saaremaa Muuseum (Saaremaa Museum), Kuressaare.
Sw.	Swedish
TMM	Turun maakuntamuseo (Turku Provincial Museum), Turku.
TYA	Turun yliopisto, Arkeologia (University of Turku, Department of Archaeology), Turku.

References

Unpublished sources

Asplund, Henrik 2001a. *Landscapes, power and coerced decisions. A study on Iron Age archipelago and mainland from the perspective of the Kemiönsaari area in SW Finland*. Lisensiaatintutkimus. Turun yliopisto. Kulttuurien tutkimuksen laitos / Arkeologia.

Ikäheimo, Markku 1982. *Rautakauden asutus Piikkiön ja Paimion pitäjissä*. Pro gradu -tutkielma. Turun yliopisto. Kulttuurien tutkimuksen laitos / Suomalainen ja vertaileva arkeologia.

Laine, Jussi 2003. *Turun ja lähialueiden keskiaikainen raskasmetallikuormitus*. Pro gradu -tutkielma. Turun yliopisto. Geologian laitos / Maaperägeologia.

Mikkola, Esa 1996. *Halikon ja Salon rautakautinen asutus. Sijoittuminen, paikanvalinta ja luonnonympäristö*. Pro gradu -tutkielma. Helsingin yliopisto. Arkeologian laitos.

Okkonen, Jari 1998. *Muinaiset kivirakennelmat Keski- ja Pohjois-Pojanmaalla*. Oulun yliopisto. Taideaineiden ja antropologian laitos. Yleisen arkeologian lisensiaatintutkimus.

Tuovinen, Tapani 1994. *Rannikkoarkeologisia tutkielmia Turunmaan saariston metallikaudesta (1500 BC - AD 1200), erityisesti hautaraunioista*. Lisensiaatintutkimus. Turun yliopisto. Kulttuurien tutkimuksen laitos / Suomalainen ja vertaileva arkeologia.

Literature

Aalto, M. 1982. Archaeobotanical studies at Katajamäki, Isokylä, Salo, South-West Finland. In: *Second Nordic conference on the application of scientific methods in archaeology*. Pact 7: 137-147.

Aario, Leo (ed.) 1960. *Atlas of Finland*. The Geographical Society of Finland / Department of Geography, Helsinki University. Helsinki.

Aarnio, B. 1924. Paimion pitäjä. *Agrogeologisia karttoja* N:o 4. Suomen geologinen komissioni. Helsinki.

Aarnio, B. 1935. Salo I. *Agrogeologisia karttoja* N:o 8. Maatalouskoelaitoksen maatutkimusosasto. Helsinki.

Aarnio, B. 1936. Salo II. *Agrogeologisia karttoja* N:o 9. Maatalouskoelaitoksen maatutkimusosasto. Helsinki.

Aarnio, B. 1937. Salo III. *Agrogeologisia karttoja* N:o 10. Maatalouskoelaitoksen maatutkimusosasto. Helsinki.

Aarnio, B. 1938. Salo IV. *Agrogeologisia karttoja* N:o 11. Maatalouskoelaitoksen maatutkimusosasto. Helsinki.

Adel, Vadim 2002. Tampereen Reuharinniemen lapinraunion tutkimukset. *Muinaistutkija* 1/2002: 2-11.

Ahlberg, Hugo 1998. Strörön från Holmo. *Pargas hembygdsförenings publikationer* 13.

Ailio, Julius 1909. *Die steinzeitlichen Wohnplatzfunde in Finland I-II*. Helsingfors.

Ailio, Julius 1917. Hämeen linnan esi- ja rakennushistoria. *Hämeenlinnan kaupungin historia I osa*. Hämeenlinna.

Ailio, Julius 1931. Tampereen seudun muinaiset vaiheet. In: *Kolmannet musopäivät Tampereella*. Suomen Museoliiton julkaisuja 3: 35-49.

Alenius, Teija, Haggrén, Georg, Jansson, Henrik & Miettinen, Arto 2004. Ulkosaariston asutuksesta autiokyläksi – Inkoon Ors poikkitieteellisenä tutkimuskohteena. *SKAS* 1/2004: 4-19.

Alhonen, Pentti 1965. C_{14}-Datierung der vorgeschichtlichen Schlittenkufe aus Kullaa in Satakunta (Westfinnland). *Suomen Museo* LXXII: 16-21.

Alhonen, Pentti 1967. Das Radiokarbonalter der Schlittenkufe aus Noormarkku in Satakunta (Westfinnland). *Suomen Museo* 1967: 46-53.

Alhonen, Pentti 1970. En pollenanalytisk undersökning vid stenåldersboplatsen Perkiö i Hauho socken, Södra Finland. In: Edgren, Torsten, *Studier över den snörkeramiska kulturens keramik i Finland*. Bilaga 3. Suomen Muinaismuistoyhdistyksen Aikakauskirja 72: 113-118.

Alhonen, Pentti 1978. Appendix: Diatoms in the cores from the lakes Alasenjärvi and Joutjärvi: a contribution to the study of cultural eutrophication. *Bulletin of the Geological Society of Finland* 50: 45-57.

Alifrosti, Kari 1990. Ruotsin aika n. 1200-1808. *Sauvon historia I*: 69-397.

Alifrosti, Kari 2003. Veronmaksun ikeeseen – kohtuutta vai riistoa. In: Kaitanen, Veijo, Laukkanen, Esa & Uotila, Kari (eds.), *Muinainen Kalanti ja sen naapurit. Talonpojan maailma rautakaudelta keskiajalle*. Suomalaisen Kirjallisuuden Seuran Toimituksia 825. Hämeenlinna: 214-221.

Ambrosiani, Björn 1958. Darsgärdekomplexet. En preliminär rapport. *Fornvännen*: 161-176.

Ambrosiani, Björn 1959. Keramikboplatsen på Hamnbrinken vid Darsgärde. *Tor* Vol. V: 108-128.

Ambrosiani, Björn 1964. *Fornlämningar och bebyggelse. Studier i Attundalands och Södertörns förhistoria*. Uppsala.

Ambrosiani, Björn 1973. Gravbegreppet i grävningsstatistiken. *Tor* Vol. XV 1972-1973: 122-136.

Ambrosiani, Björn 1985. Das Mälargebiet und Baltikum während der Spätbronzezeit und der älteren Eisenzeit. In: Loit, Aleksander & Selirand, Jüri (eds.), *Die Verbindungen zwischen Skandinavien und Ostbaltikum aufgrund der archäologischen Quellenmaterialen. I. Symposium der sowjetestnischen und schwedischen Archäologen. Tallinn 12.-15. Oktober 1982*. Acta Universitatis Stockholmiensis. Studia Baltica Stockholmiensia 1: 61-66.

Ambrosiani, Björn 1987. Bebyggelsearkeologins grunder och framväxt. In: Petré, Bo (ed.), *Bebyggelsearkeologiska exempel. Mälarområdet Skåne Östergötland. Rapport från en föreläsningsserie våren 1986.* Arkeologiska rapporter och meddelanden från institutionen för arkeologi vid Stockholms universitet. Nr 19: 7-10.

Aminoff-Winberg, Johanna 2001. *Nagu sockens historia II*. Åbo.

Andrzejowski, Jacek 1998. *Nadkole 2. A Cemetery of the Przeworsk Culture in Eastern Poland*. Monumenta Archaeologica Barbarica. Tomus V.

Anthony, David W. 1990. Migration in Archaeology: The Baby and the Bathwater. *American Anthropologist* 92: 895-914.

Appelgren, Hjalmar 1891. *Suomen muinaislinnat. Tutkimus vertailevan muinaistieteen alalta*. Suomen Muinaismuisto-yhdistyksen Aikakauskirja XII.

Arnold, Bettina 1999. 'Drinking the Feast': Alcohol and the Legitimation of Power in Celtic Europe. *Cambridge Archaeological Journal* 9:1: 71-93.

Arnold, Bettina 2001. The limits of agency in the analysis of elite Iron Age Celtic burials. *Journal of Social Archaeology* Vol 1(2): 210-224.

Artelius, Tore 1989. Källkritiska problem vid bebyggelsearkeologiska studier. In: *Bosättningsmönster.* Kontaktstencil 30-31: 19-42.

Aspelin, J. R. 1885. *Suomen asukkaat pakanuuden aikana*. Helsinki.

Asplund, Henrik 1985. The archaeological inventory work in Spurila, Paimio compared with results obtained by phosphate analysis in the same area. *Iskos* 5: 466-471.

Asplund, Henrik 1988. Bussila – asutusarkeologinen tutkimuskohde Piikkiön Hepojokilaaksossa. In: Korkeakoski-Väisänen, Kristiina, Lähdesmäki, Ulla, Nissinaho, Aino, Pihlman, Sirkku & Tuovinen, Tapani (eds.), *Baskerilinja. Unto Salo 60 vuotta*. Vammala: 31-41.

Asplund, Henrik 1990. Förhistoriska kulturspår i Kimitobygden. *Skärgård* 3/1990: 24-32.

Asplund, Henrik 1995. Radiocarbon dating of Jäkärlä Ceramics – a comment on Comb Ceramic chronology and typology. *Karhunhammas* 16: 69-75.

Asplund, Henrik 1996. Uutta tietoa keskiajan satamista. *SKAS* 1/1996: 5-9.

Asplund, Henrik 1997a. Niuskalan Polttolaitoksenkadun keramiikka. Näkökulma Turun seudun varhaismetallikauteen. In: Kostet, Juhani (ed.), *Arkeologisia tutkimuksia Varsinais-Suomessa 1980-luvulla*. Turun maakuntamuseo. Monisteita 9: 23-50.

Asplund, Henrik 1997b. Kemiön suurpitäjän esihistoria. In: Suistoranta, Kari & Asplund, Henrik, *Kemiön suurpitäjän historia I*. Tammisaari: 213-282.

Asplund, Henrik 1999. The identity and frontline of archaeology – mixed notes from a BSAAN seminar. *Muinaistutkija* 4/1999: 40-49.

Asplund, Henrik 2000. *Tid, människor och landskap. En bok om arkeologi i Pargas*. Pargas hembygdsförenings publikation 15.

Asplund, Henrik 2001b. Krouvi vai paja? Pari ajatusta Dragsfjärdin Krogaruddenin satama-alueen funktiosta. *SKAS* 3/2001: 25-28.

Asplund, Henrik 2002. Houses or huts? Early Iron Age building remains in SW Finland. In: Ranta, Helena (ed.), *Huts and houses. Stone Age and Early Metal Age buildings in Finland*. National Board of Antiquities. Jyväskylä: 227-233.

Asplund, Henrik 2003. Rikalan Linnamäen maaperäkemialliset tutkimukset. *Hakastarolainen* 36: 34-37.

Asplund, Henrik 2004. Problems of Pre-Roman Iron Age radiocarbon dating – an example from SW Finland. In: Uino, Pirjo (ed.), *Fenno-ugri et slavi 2002. Dating and Chronology*. Museoviraston arkeologian osaston julkaisuja N:o 10: 9-14.

Asplund, Henrik 2006. Muinaisranta etääntyy Lounais-Suomessa. Geologian vai arkeologian ongelma? *Muinaistutkija* 4/2006: 2-10.

Asplund, Henrik 2007. Hirdens borg eller hägnade berg? *Arkeologia NYT! Arkeologi NU!* 2/2007: 17-19.

Asplund, Henrik, Formisto, Tarja & Illmer, Kari 1989. Kotirinne - A Late Neolithic Mixed Farming Site: Osteological and Chemical Investigations at the Kotirinne Dwelling Site at Niuskala, Turku, SW Finland. *Norwegian Archaeological Review*. Vol. 22, No. 2: 119-129.

Asplund, Henrik, Nissinaho, Aino & Vuorinen, Juha-Matti 1999. Talon ja kylän arkeologiaa. *Varelia* 2/99: 12-13.

Asplund, Henrik & Vuorela, Irmeli 1989. Settlement studies in Kemiö - archaeological problems and palynological evidence. *Fennoscandia archaeologica* VI: 67-79.

Atgāzis, M. 1994. Par Jaunlīves apmetni un tajā atklāto dzelzs ieguves krāsni. *Arheoloģija un etnogrāfija* XVI: 81-92.

Axelsson, Susanne 2001. Kontext och social förändring: En metodisk diskussion. *Tidsperspektiv. Tidskrift för arkeologisk samhällsanalys* Nr 1-2 / 2001: 83-91.

Bahn, Paul 1992 (ed.). *Collins Dictionary of Archaeology*. HarperCollins Publishers: Glasgow.

Baille, M. G. L. 1991. Marking in marker dates: towards an archaeology with historical precision. *World Archaeology*. Volume 23 No. 2: 233-243.

Baille, M. G. L. 1996. The Chronology of the Bronze Age 2354 BC to 431 BC. In: Randsborg, Klavs (ed.), *Absolute Chronology. Archaeological Europe 2500-500 BC*. Acta Archaeologica vol. 67: 291-298.

Barber, K. E. 1982. Peat-bog stratigraphy as a proxy climate record. In: Harding, A. F. (ed.), *Climatic Change in Later Prehistory*. Edinburgh University Press: Edinburgh: 103-113.

Barford, P. M. 2000. Seen and unseen: sites in a landscape. In: Nissinaho, Aino (ed.), *Sites and settlement*. Turku: 85-99.

Barker, Graeme 1999. Cattle-keeping in ancient Europe: to live together or apart? In: Fabech, Charlotte & Ringtved, Jytte (eds.), *Settlement and Landscape. Proceedings of a conference in Århus, Denmark, May 4-7 1998*. Jutland Archaeological Society. Aarhus University Press: 273-280.

Becker, C. J. 1961. *Førromersk jernalder i Syd- og Midtjylland*. Nationalmuseets skrifter. Større beretninger, VI. København.

Becker, C. J. 1977. Problemer om bosættelse i dansk jernalder. Hvad kan gravfundene sige om de aktuelle problemer? In: Thrane, Henrik (ed.), *Kontinuitet oq bebyggelse. Beretning fra et symposium d. 12.-14. Maj 1977 afholdt af Odense universitet*. Odense Universitet. Skrifter fra institut for historie og samfundsvidenskab nr. 22: 29-38.

Becker, C. J. 1983. Enkeltgård og landsby i Danmarks ældre jernalder. In: Thrane, Henrik & Grøngaard Jeppesen, Torben (eds.), *Gårdens udvikling frajernalderen til nyere tid. Beretning fra symposium i Odense 28.-30. april 1982*. Odense: 5-16.

Beech, Mark 1995. Whither archaeozoology? In: Kuna, Martin & Venclová, Natalie (eds.), *Whither Archaeology? Papers in Honour of Evžen Neustupný*. Praha: 97-109.

Behre, Karl-Ernst 1992. The history of rye cultivation in Europe. *Vegetation History and Archaeobotany* 1, 3: 141-156.

Bennett, Agneta 1987. *Graven. Religiös och social symbol. Strukturer i folkvandringstidens gravskick i Mälarområdet*. Theses and Papers in North-European Archaeology 18.

Berglund, Björn 1994. The Ystad project: Experiences of interdisciplinary research on the cultural landscape history in Southern Sweden. In: Nissinaho, Aino (ed.), *Cultural ecology: one theory?* Turku: 119-128.

Berglund, Björn E. 2005. Samhälle och miljö under sex tusen år. In: Bunte, Carin, Berglund, Björn E. & Larsson, Lars (eds.), *Arkeologi och naturvetenskap. Gyllenstiernska Krapperupstiftelsens symposium nr 6 år 2003*. Lund: 49-61.

Bergmann, Joseph 1997. Demograpische Untersuchungen zu einem vollständig ausgegrabenen Brandgräberfeld der jüngeren Bronze- und älteren Eisenzeit bei Vollmarshausen, Kr. Kassel. *Internationale Archäologie* 36: 215-220.

Biuw, Anita 1992. *Norra Spånga. Bebyggelse och samhälle under järnåldern*. Stockholmsmonografier vol 76. Borås.

Björck, A. 1883. Kiinteitä muinaisjäännöksiä Halikon Kihlakunnassa. *Suomen Muinaismuisto-yhdistyksen Aikakauskirja* 8.

Björk, Tony 2005. *Skäran på bålet. Om den äldre järnålderns gravar i Skåne*. University of Lund, Institute of Archaeology – Report Series No. 92.

Blaauw, Maarten, Van Geel, Bas & Van Der Plicht, Johannes 2004. Solar forcing of climatic change during the mid-Holocene: indications from raised bogs in The Netherlands. *The Holocene* 14, 1: 35-44.

Blomkvist, Nils 1998. Culture clash or compromise? The medieval Europeanisation process of the Baltic Rim region (1100-1400 AD). Problems for an international study. In: Blomkvist, Nils (ed.), *Culture Clash or Compromise? The Europeanisation of the Baltic Sea Area 1100-1400 AD. Papers of the XIth Visby Symposium held at Gotland Centre for Baltic Studies, Gotland University College, Visby October 4th –9th, 1996*. Acta Visbyensia XI: 9-36.

Blomkvist, Nils 1999. Common People in Common Places, 2. In: Blomkvist, Nils & Lindquist, Sven-Olof 1999 (eds.), *Europeans or Not? Local Level Strategies on the Baltic Rim 1100-1400 AD.* CCC papers: 1: 293-314.

Bocquet-Appel, Jean-Pierre & Masset, Claude 1982. Farewell to Paleodemography. *Journal of Human Evolution* 11: 321-333.

Bokiniec, Ewa 2005. *Podwiesk. Fundstelle 2. Ein Gräberfeld der Oksywie-Kultur im Kulmer Land*. Monumenta Archaeologica Barbarica. Tomus XI.

Bolin, Hans 1999. *Kulturlandskapets korsvägar. Mellersta Norrland under de två sista årtusendena f Kr*. Stockholm Studies in Archaeology 19.

Bolin, Hans 2004. "Their" Heritage in "Our" World. Eastern Influences Across the Baltic. In: Bolin, Hans (ed.), *The Interplay of Past and Present. Papers from a session held at the 9th annual EAA meeting in St. Petersburg 2003.* Södertörn Archaeological Studies 1: 8-18.

Bolin, Hans 2005. Ockuperad förhistoria – om östligt inflytande i den nordiska bronsålderskretsen. In: Goldhahn, Joakim (ed.), *Mellan sten och järn*. Gotarc Serie C. Arkeologiska Skrifter No 59: 217-227.

Borgmark, Anders 2005. Holocene climate variability and periodicities in south-central Sweden, as interpreted from peat humification analysis. *The Holocene* 15, 3: 387-395.

Brady, Niall D.K. 1990. Early Ard Pieces in Finnish Museums. *Tools & Tillage* Vol. VI: 3: 158-175, 187.

Braudel, Fernand 1980. *On History.* The University of Chicago Press: Chicago.

Brink, Stefan 1991. Sockenbildningen i Sverige. In: Ferm, Olle (ed.), *Kyrka och socken i medeltidens Sverige*. Studier till det medeltida Sverige 5. Stockholm: 113-142.

Brink, Stefan 1996. Political and Social Structures in Early Scandinavia. A Settlement-historical Pre-study of the Central Place. *Tor* 28: 235-281.

Broadbent, Noel D. 1989. En kort redogörelse för nyligen erhållna ^{14}C-dateringar från Bjuröklubb, Grundskatan, Stora Fjäderägg och Stor-Rebben i Västerbotten och Norrbotten. In: Sander, Annika (ed.), *Maritimhistorisk konferens Bottnisk kontakt IV. Skellefteå museum 5-7 februari 1988*. Mariehamn: 21-23.

Broholm, H. C. 1946. *Danmarks bronzealder. Tredje bind. Samlede fund fra den yngre bronzealder*. København.

Brumfiel, Elisabeth M. & Earle, Timothy K. 1987. Specialization, exchange, and complex societies: an introduction. In: Brumfield, Elisabeth M. & Earle, Timothy K. (eds.), *Specialization, exchange, and complex societies*. Cambridge University Press: Cambridge: 1-9.

Brück, Joanna 1999. What's in a settlement? Domestic practice and residental mobility in the study of prehistoric settlement. In: Brück, Joanna & Goodman, Melissa (eds.), *Making places in the prehistoric world: themes in settlement archaeology*. UCL Press: London: 52-75.

Bukowski, Zbgniew 1990. Zum Stand der demographischen und siedlungsgeschichtlichen Forschung zur Lausitzer Kultur im Stromgebiet von Oder und Weichsel. *Acta praehistorica et archaeologica* 22: 85-119.

Bukowski, Zbigniew 1998. *Pomorze w epoce brazu w świetle dalekosiężnych kontaktów wymiennych*. Gdańskie towarzystwo naukowe wydział i naukspołecznych i humanistycznych seria monografii - nr 104. Gdańsk.

Burenhult, Göran 1983. *Arkeologi i Sverige 2. Bönder och bronsgjutare*. Förlags Ab Viken.

Butzer, Karl W. 1982. *Archaeology as human ecology: Method and theory for a contextual approach*. Cambridge University Press: Cambridge.

Brun, Patrice 1994. From Hallstatt to La Tène Period in the Perspective of the Mediterranean World Economy. In: Kristiansen, Kristian & Jensen, Jørgen (eds.), *Europe in the First Millennium B.C.* Sheffield Archaeological Monographs 6: 57-65.

Bågenholm, Gösta 1992. Diskussion kring renskötselns ursprung – renen och andra etniska markörer i Sameätanam. *Kontaktstencil* 36: 141-156.

Bågenholm, Gösta 1995. Corded Ware Ceramics in Finland and Sweden. *Fennoscandia archaeologica* XII: 19-23.

Callmer, Johan 1986. To Stay or to Move. Some Aspects on the Settlement Dynamics in Southern Scandinavia in the Seventh to Twelfth Centuries A.D. with special Reference to the Province of Scania, Southern Sweden. *Meddelanden från Lunds universitets historiska museum* 1985-1986. New Series Vol. 6: 167-208.

Carelli, Peter 2001. *En kapitalistisk anda. Kulturella förändringar i 1100-talets Danmark*. Lund Studies in Medieval Archaeology 26.

Carlsson, Anders 2001. *Tolkande arkeologi och svensk forntidshistoria. Bronsåldern (med senneolitikum och förromersk järnålder).* Stockholm Studies in Archaeology 22.

Carlsson, Anders 2005. Tankar kring Torsten och Torborg. In: Bunte, Carin, Berglund, Björn E. & Larsson, Lars (eds.), *Arkeologi och naturvetenskap. Gyllenstiernska Krapperupstiftelsens symposium nr 6 år 2003*. Lund: 163-177.

Carlsson, Tom 2000. Rituell rekvisita – materiell kultur och religiösa ritualer under yngre bronsåldern. In: Ersgård, Lars (ed.), *Människors plaster – tretton arkeologiska studier från UV*. Riksantikvarieämbetet Arkeologiska undersökningar Skrifter No 31: 45-55.

Carman, John 1999. Settling on sites: constraining concepts. In: Brück, Joanna & Goodman, Melissa (eds.), *Making places in the prehistoric world: themes in settlement archaeology*. UCL Press: London: 52-75.

Carpelan, Christian 1973. Bofast - icke bofast under förhistorisk tid i Finland. In: Simonsen, Povl & Stamsø Munch (eds.), *Bonde - veidemann, bofast - ikke bofast i nordisk forhistorie. Foredrag och diskusjoner fra XIII. nordiske arkeologmøte i Tromsø 1970*. Tromsø Museums Skrifter Vol. XIV: 190-202.

Carpelan, Christian 1976. Nordfinska kåtabottnar från förhistorisk och historisk tid. *Iskos* 1: 30-34.

Carpelan, Christian 1979. Om asbestkeramikens historia i Fennoskandien. *Finskt Museum* 1978: 5-25.

Carpelan, Christian 1980. Contacts in the Northern Baltic Region as shown by ceramics. *Helsingin yliopiston arkeologian laitos. Moniste* n:o 22: 188-199.

Carpelan, Christian 1982. Om bronsålderns jordbrukssamhälle i Finland. In: Sjøvold, Thorleif (ed.), *Introduksjonen av jordbruk i Norden. Foredrag holdt ved fellesnordisk symposium i Oslo april 1980.* Universitetsforlaget: 267-278.

Carpelan, Christian 1997. Appendix 4. KM 2672:1 – Keramiikkaa Räisälän Tiurinlinnasta. In: Uino, Pirjo, *Ancient Karelia. Archaeological studies – Muinais-Karjala. Arkeologisia tutkimuksia.* Suomen Muinaismuistoyhdistyksen Aikakauskirja 104: 401-402.

Carpelan, C. & Jungner, H. 1982. Radiocarbon and thermoluminescence dates from Iron Age dwelling places in Isokylä, Salo, South-West Finland. In: *Second Nordic conference on the application of scientific methods in archaeology*. Pact 7/1982: 149-155.

Carpelan, Christian & Uino, Pirjo 2003. Between Estonia and Finland – A Reassessment of old Finds from Tytärsaari Island. In Lang, Valter & Tamla, Ûlle (eds.), *Arheoloogiga Läänemeremaades. Uurimusi Jûri Seliranna auks*. Muinasaja teadus 13: 75-93.

Cassel, Kerstin 1998. *Från grav till gård. Romersk järnålder på Gotland*. Stockholm Studies in Archaeology 16.

Chapman, John 1997. Places as Timemarks - the Social Construction of Prehistoric Landscapes in Eastern Hungary. In: Nash, George (ed.), *Semiotics of Landscape: Archaeology of Mind*. BAR International Series 661: 31-45.

Charman, Dan & Mäkilä, Markku 2003. Climate Reconstruction from Peatlands. *PAGES News*, Vol. 11, N° 2 & 3: 15-17.

Cherry, John F. & Renfrew, Colin 1986. Epilogue and prospect. In: Renfrew, Colin & Cherry, John F. (eds.), *Peer Polity Interaction and Socio-Political Change*. Cambridge University Press: Cambridge: 149-158.

Children, George & Nash, George 1997. Establishing a Discourse: The Language of Landscape. In: Nash, George (ed.), *Semiotics of Landscape: Archaeology of Mind*. BAR International Series 661: 1-4.

Ciglis, Janis 2003. Želenye klinovidnye topory v Latvii. *Archaeologia Lituana* 4: 112-121.

Cimermane, I. R. 1980. Keramika I tysjačel. n. z. kak istočnik dlja issledovanija étničeskoj istorii i kuturnyh véaimootnošenij na territorii Latvii. *Iz drevnejšej istorii baltiskih narodov (po dannym arheologii i antropologii)*. Riga: 70-79.

Cimermane, I. 1985. Keramika Dignajskogo gorodišča i nekotoryh drugih pamjatnikov selov kak otraženie kontaktov s plemenami territorii Litvy v konce I tysjačeletija do n. é.- I tysjačeletija n. é. *Problemy étnogeneéa i etničeskoj istorii Baltov*. Vilnius: 47-56.

Cleve, Nils 1942. Kimitobygdens forntid. *Kimitobygdens historia II:1*. Åbo: 1-26.

Cleve, Nils 1943. *Skelettgravfälten på Kjuloholm i Kjulo I. Den yngre folkvandringstiden*. Suomen Muinaismuistoyhdistyksen Aikakauskirja XLIV.

Cleve, Nils 1948. Våra skärgårdars äldsta bebyggelse. In: *Skärgårdsboken utgiven av Nordenskiöld-Samfundet i Finland*. Helsingfors: 482-509.

Cordell, Linda S., Doyel, David E. & Kintigh, Keith W. 1994. Process of Aggregation in the Prehistoric Southwest. In: Gumerman, George J. (ed.), *Themes in Southwest Prehistory*. School of American Research Press: Santa Fe, New Mexico: 3-10.

Crumley, Carole L. 1995. Cultural implications of historic climatic change. In: Kuna, Martin & Venclová, Natalie (eds.), *Whither Archaeology? Papers in Honour of Evžen Neustupný*. Praha: 121-132.

Dąbrowska, Teresa 1997. *Kamieńczyk. Ein Gräberfeld der Przeworsk-Kultur in Ostmasowien*. Monumenta Archaeologica Barbarica. Tomus III. Kraków.

Dąbrowski, Jan 1997. *Epoka brązu w Północno-Wschodniej Polsce*. Białostockie Towarzystwo Naukowe. Instytut Archeologii i Etnologii. Polskiej Akademii nauk. Białystok.

Dahlbäck, Göran 1977. Arkeologisk och kulturgeografisk bebyggelsehistorisk forskning i Sverige. *Historisk Tidskrift för Finland* 1977: 377-385.

Dahlström, Svante 1995 *Gullkrona*. 4. upplagan. Ekenäs.

Dahnberg, Johan & Sandin, Mats 1996. Centrum och periferi i Järnålderns Göteborgs och Bohus län. Tankar kring en fallstudie. *Kontaktstencil* 39: 115-126.

Daugnora, Linas & Girininkas, Algirdas 1995. Neolithic and Bronze Age mixed farming and stock breeding in the traditional Baltic culture-area. In: Kazakevičius, Vytautas & Sidrys, Raymond (eds.), *Archaeologia Baltica*. Vilnius: 43-51.

Dean, Jeffrey S., Doelle, William H. & Orcutt, Janet D. 1994. Adaptive Stress, Environment, and Demography. In: Gumerman, George J. (ed.), *Themes in Southwest Prehistory*. School of American Research Press: Santa Fe, New Mexico: 53-86.

Donner, Joakim 1984. Some Comments on the Pollen-analytical Records of Cereals and Their Dating in Southern Finland. *Fennoscandia archaeologica* I: 13-17.

Dreijer, Matts 1979. *Det åländska folkets historia I:1. Från stenåldern till Gustav Vasa*. Mariehamn.

Dreslerová, Dagmar 1995. A settlement-economic model for a prehistoric microregion: settlement activities in the Vinoř-stream basin during the Hallstatt period. In: Kuna, Martin & Venclová, Natalie (eds.), *Whither Archaeology? Papers in Honour of Evžen Neustupný*. Praha: 145-160.

Dreyfus, Hubert & Rabinow, Paul 1983. *Michel Foucault: Beyond Structuralism and Hermeneutics*. The Harvester Press.

Duby, Georges 1994. *Love and Marriage in the Middle Ages*. Polity Press: Cambridge.

Duke, Philip 1992. Braudel and North American archaeology: an example from the Northern Plains. In: Knapp, Bernard A. (ed.), *Archaeology, Annales, and ethnohistory*. Cambridge University Press: Cambridge: 99-111.

Dunnell, Robert C. 1992. The Notion Site. In: Rossignol, Jacqueline & Wandsnider, LuAnn (eds.), *Space, Time and Archaeological Landscapes*. Plenum Press: New York: 21-41.

Dunnell, Robert C. & Dancey, William S. 1983. The Siteless Survey: A Regional Scale Data Collection Strategy. *Advances in Archaeological Method and Theory,* Volume 6: 267-287.

Edgren, Torsten 1966. *Jäkärlä-gruppen. En västfinsk kulturgrupp under yngre stenålder*. Suomen Muinaismuistoyhdistyksen Aikakauskirja 64.

Edgren, Torsten 1969. Reflexioner kring tvenne epineolitiska lerkärl. *Finskt Museum* 1969: 22-26.

Edgren, Torsten 1970. *Studier över den snörkeramiska kulturens keramik i Finland.* Suomen Muinaismuistoyhdistyksen Aikakauskirja 72.

Edgren, Torsten 1973. En baltisk smyckenål från Veitakkala i Salo. *Honos Ella Kivikoski*. Suomen Muinaismuistoyhdistyksen Aikakauskirja 75: 30-31.

Edgren, Torsten 1977. Medeltidsarkeologi i Skärgårdshavet. *Historisk Tidskrift för Finland* 1977: 404-426.

Edgren, Torsten 1984. On the Economy and Subsistence of the Battle-Axe Culture in Finland. *Iskos* 4: 9-15.

Edgren, Torsten 1986.Ett bronsåldersspänne från Linjebacka I Esse. *Iskos* 6: 17-23.

Edgren, Torsten 1993a. Den förhistoriska tiden. *Finlands historia 1*. Ekenäs: 10-270.

Edgren, Torsten 1993b. Lavansaaren Suursuonmäen röykkiöhaudat. *Suomen Museo* 1992: 5-20.

Edgren, Torsten 1995a. Saariston hiisi. *Hiidenkivi* 1/95: 10-16.

Edgren, Torsten 1995b. "... De Aspø usque Ørsund.vi. Inde usque Hangethe.iij ...". An archaeological project concerning one of the harbours in Finland's south-western archipelago referred to in "the Danish itinerary". In: Olsen, Olaf, Skamby Madsen, Jan & Rieck, Fleming (eds.), *Shipshape. Essays for Ole Crumlin-Pedersen*. Roskilde: 203-212.

Edgren, Torsten 1995c. Kyrksundet i Hitis. Ett arkeologiskt forskningsprojekt kring en av "det danska itinerariets" hamnar i det sydvästra Finlands skärgård. *Budkavlen* 1995: 48-66.

Edgren, Torsten 1996a. Arkeologi i Hitis utskär. *Skärgård* 3/1996: 15-21.

Edgren, Torsten 1996b. Borgåtraktens förhistoria. In: Edgren, Torsten & Gardberg, Carl Jakob, *Borgå stads historia I*. Borgå: 11-126.

Edgren, Torsten 1997a. Bakom lås och bom. Kring en vikingatida nyckeltyp. In: Blomqvist, Marianne (ed.), *Ord och några visor tillägnade Kurt Zilliacus 21.7.1997*. Meddelanden från Institutionen för nordiska språk och nordisk litteratur vid Helsingfors universitet utgivna genom Ann-Marie Ivars och Mirja Saari B:18: 43-49.

Edgren, Torsten 1997b. Varhaisia saviastioita Dragsfjärdin Purunpään vesiltä. *Nautica Fennica* 1997: 27-34.

Edgren, Torsten 1998. Vem bebodde bronsåldersbyn på Otterböte i Kökar. *Skärgård* 2/1998: 41-47.

Edgren, Torsten 1999a. *Fornlämningar och fornfynd i Hitis utskär*. Sagalundgillet. Ekenäs.

Edgren, Torsten 1999b. Alkavan rautakauden kulttuurikuva Länsi-Suomessa. In: Fogelberg, Paul (ed.), *Pohjan poluilla. Suomalaisten juuret nykytutkimuksen mukaan*. Bidrag till kännedom av Finlands natur och folk 153: 311-333.

Eggers, Hans Jûrgen 1955. Zur absoluten Chronologie der Römischen Kaiserzeit im freien Germanien. *Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz* 2. Jahrgang 1955: 196-238.

Eggers, Hans Jürgen 1959. *Einführung in die Vorgeschichte*. Buchdruckerei Eugen Göbel: Tübingen.

Eklund, Ole 1958. *Die Gefässpfanzenflora beiderseits Skiftet im Schärenarchipel Südwestfinnlands. Kirchspiele Korpo, Houtskär, Nagu, Iniö, Brändö, Kumlinge, Sottunga und Kökar*. Bidrag till kännedom af Finlands natur och folk. Utgifna af Finska Vetenskapssocieteten. H. 101.

Eliade, Mircea 1987. *The Sacred and the Profane. The Nature of Religion*. New York.

Enqvist, Johanna 2005. Rautakauden tyypin keramiikka – rautakautinen keramiikkatyyppikö? In: Pesonen, Petro & Mökkönen, Teemu (eds.), *Arkeologipäivät 2004*. Suomen arkeologinen seura. Hamina: 95-102.

Eriksson, Thomas 2005. Dekor och dekorerad keramik i Mälardalen – en regel med ett undantag. In: Goldhahn, Joakim (ed.), *Mellan sten och järn*. Gotarc Serie C. Arkeologiska Skrifter No 59: 369-383.

Erkola, Toini 1973. Paimion esihistoria. In: Erkola Toini, von Hertzen, Erik & Innamaa, Kerttu, *Paimion historia*. Paimio: 7-68.

Eronen, Matti 2002. Ilmaston vaihtelut jääkauden jälkeen. In: Grünthal, Riho (ed.), *Ennen, muinoin. Miten menneisyyttämme tutkitaan*. Tietolipas 180. Suomalaisen Kirjallisuuden Seura. Helsinki: 64-75.

Eronen, M., Glückert, G., Hatakka, L., van de Plassche, O., van der Plicht, J. & Rantala, P. 2001. Rates of Holocene isostatic uplift and relative sea-level lowering of the Baltic in SW Finland based on studies of isolation contacts. *Boreas*, Vol. 30: 17-30.

Eronen, Matti, Lindholm, Markus, Helama, Samuli, Meriläinen, Jouko & Timonen, Mauri 2003. Reconstruction of Low- and High-Frequency Summer Temperature Changes From a Tree-Ring Archive of Fennoscandian Forest-Limit Scots Pine. *PAGES News*, Vol. 11, N° 2 & 3: 14-15.

Erä-Esko, Aarni 1969. Akinakeslöytö Pohjois-Suomesta. *Suomen Museo* 1969: 85-93.

Europaeus, Aarne 1930. Uusia kivikauden taidelöytöjä. *Suomen Museo* 1929: 82-88.

Fabech, Charlotte 1999. Centrality in sites and landscapes. In: Fabech, Charlotte & Ringtved, Jytte (eds.*), Settlement and Landscape. Proceedings of a conference in Århus, Denmark, May 4-7 1998*. Jutland Archaeological Society. Aarhus University Press: 455-473.

Fabech, Charlotte, Hvass, Steen, Näsman, Ulf & Ringtved, Jytte 1999. 'Settlement and Landscape' – a presentation of a research programme and a conference. Fabech, Charlotte & Ringtved, Jytte (eds.*), Settlement and Landscape. Proceedings of a conference in Århus, Denmark, May 4-7 1998*. Jutland Archaeological Society. Aarhus University Press: 13-28.

Fagerlund, Rainer 1992. Förhistorisk tid och medeltid. *Nagu sockens historia I*. Nagu kommun. Åbo: 9-25.

Fagerström, Levi 2003. The Hitis Kyrksundet. In: Johansson, Helena (ed.), *Churches and Chapels in Åboland*. Turku: 50-51.

Fallgren, Jan-Henrik 1993. The Concept of the Village in Swedish Archaeology. *Current Swedish Archaeology* Vol. 1. 1993: 59-86.

Faubion, James D. (ed.) 1994. *Power. Essential works of Foucault 1954-1984. Volume three*. Penguin Books: London.

Feinman, Gary M. 1995. The Emergence of Inequality. A Focus on Strategies and Processes. In: Price, T. Douglas & Feinman, Gary M. (eds.), *Foundations of Social Inequality*. Plenum Press: New York.

Feldt, Björn 2005. Synliga och osynliga gränser. Förändringar i gravritualen under yngre bronsålder – förromersk järnålder i Södermanland. *Stockholm Studies in Archaeology* 37.

Ferguson, R. Brian 1984. Introduction: Studying War. In: Ferguson, R. Brian (ed.), *Warfare, culture, and environment*. Academic Press: Orlando: 1-81.

Fish, Paul R., Fish, Suzanne K., Gumerman, George J. & Reid, J. Jefferson 1994. Toward an Explanation for Southwestern "Abandonments". In: Gumerman, George J. (ed.), *Themes in Southwest Prehistory*. School of American Research Press: Santa Fe, New Mexico: 135-163.

Foley, Robert 1981. Off-site archaeology: an alternative approach for the short-sited. In: Hodder, Ian, Isaac, Glynn & Hammond, Norman (eds.), *Pattern of the past. Studies in honour of David Clarke*. Cambridge University Press: Cambridge: 157-183.

Forsberg, Lars 1999. The Bronze Age Site at Mårtenfäboda in Nysätra and the Settlement Context of the Cairns on the Coast of North Sweden. In: Huurre, Matti (ed.), *Dig it all. Papers dedicated to Ari Siiriäinen*. The Finnish Antiquarian Society, The Archaeological Society of Finland. Jyväskylä: 251-285.

Forsén, Björn & Moisanen, Jukka 1995. Svartån och den tidiga bebyggelsen runt denna. *Finskt Museum* 1993: 26-49.

Forstén, Ann 1973. The Refuse Fauna of the Mesolithic Suomusjärvi Period in Finland. *Finskt Museum* 1972: 74-84.

Forstén, Ann & Blomqvist, L. 1977. Refuse Faunas of the Vantaa Mesolithic and Neolithic Periods. *Finskt Museum* 1974: 50-55.

Forss, Aulis & Jarva, Eero 1992. Raahen seudun varhaishistoria Saloisten Tervakankaan löytöjen valossa. In: Julku, Kyösti (ed.), *Suomen varhaishistoria. Tornion kongressi 14.-16.6.1991*. Studia Historica Septentrionalia: 57-75.

Fortelius, Mikael 1981. *Johdatus arkeologiseen luuanalyysiin*. Museovirasto. Esihistorian toimisto. Julkaisu n.o 1.

Foucault, Michel 1980. *Power / Knowledge. Selected Interviews and Other Writings 1972-1977*. Pantheon Books: New York.

Foucault, Michel 1982. The Subject and Power. In: Rabinow, Paul & Dreyfus, Hubert, *Michel Foucault: Beyond Structuralism and Hermeneutics*. The Harvester Press.

Frenzel, Burkhard 1999. Vegetationsgeschichtliche Untersuchungen zur frühackenbaulichen nutzung des nordöstlichen Vorlandes des Sudeten. Ein Vorbericht. In: Valde-Nowak, Paweł (ed.), *Początki osadnictwa w Sudetach*. Instytut Archeologii i Etnologii PAN: Kraków: 157-169.

Friberg, Nils & Friberg, Inga 1974. *Vikingatidens befolkning i Mälarlandskapen*. Forskningsprojektet Regionala utvecklingslinjer och strukturförändringar i Sveriges befolkningsgeografi, Meddelande nr 4. Stockholms Universitet, Kulturgeografiska Institutionen.

Frölund, Per & Wilson, Lars 1993. Bybildning - Förhistorisk kontinuitet eller medeltida innovation? Exempel från Uppland och Västmanland. *Arkeologi i Sverige*. Ny följd 2: 139-146.

Gaines, Sylvia W. & Gaines, Warren M. 2000. Impact of Small-Group Decision Making in Reducing Stress Conditions. *Journal of Anthropological Archaeology* 19: 103-130.

Gallén, Jarl 1993. *Det "Danska itinerariet". Franciskans expansionsstrategi i Östersjön*. Skrifter utgivna av Svenska litteratursällskapet i Finland. Nr 579.

Gardberg, John 1944. Tidsåldrar och öden intill 1721. *Kimitobygdens historia I:1*. Åbo: 1-317.

Gilchrist, Roberta 2000. Archaeological biographies: realizing human lifecycles, -courses and -histories. In: Gilchrist, Roberta (ed.), *Human Lifecycles*. World Archaeology Vol. 31(3): 325-328.

Gimbutas, Marija 1956. *The prehistory of eastern Europe. Part 1. Mesolithic, Neolithic and Copper Age cultures in Russia and the Baltic area*. Cambridge, Massachusetts.

Glückert, Gunnar 1976. *Post-Glacial Shore-Level Displacement of the Baltic in SW Finland*. Annales Academiae Scientiarum Fennicae. Series A III 118.

Glückert, Gunnar 1996. Turun alueen geologinen kehitys jääkaudesta nykyaikaan, Itämeren rannansiirtyminen ja asutushistoria. *Arkeologia NYT! Arkeologi NU!* 4/1996: 8-12.

Godłowski, Kazimierz & Wichman, Tomasz 1998. *Chmielów Piaskowy. Ein Gräberfeld der Przeworsk-Kultur im Świętokryskie-Gebirge*. Monumenta Archaeologica Barbarica. Tomus VI.

Gordon, Colin 1994. Introduction. In: Faubion, James D. (ed.), *Power. Essential works of Foucault 1954-1984. Volume three.* Penguin Books: London.

Goslar, Tomasz 2003. ^{14}C as an Indicator of Solar Variability. *PAGES News*, Vol. 11, N° 2 & 3: 12-14.

Granholm, Helge & Häggblom, Birger 1969. *Särkisalon pitäjän historia*. Virkkala.

Graudonis, J. J. 1967. *Latvija v epohu pozdnej bronzy i rannego železa*. Riga.

Graudonis, J. 1968. Par Latvijas agrā metālu perioda iedzīvotāju sakariem. *Arheoloģija un etnogrāfija* VIII: 31-51.

Graudonis, Jānis 2001. Agro Metālu periods 1500.–1. g. pr. Kr. *Latvijas senākā vēsture 9. g. pr. Kr.–1200. g.* Riga: 116-185.

Griciuvienė, E. 2000. Gathering, agriculture. In: *Prehistoric Lithuania. Archaeological exposition guide*. National Museum of Lithuania: 44-47.

Grigalavičienė, Elena 1995. *Žalvario ir ankstyvasis geležies amžius Lietuvoje*. Vilnius.

Grünthal, Riho 2002. Johdanto. In: Grünthal, Riho (ed.), *Ennen, muinoin. Miten menneisyyttämme tutkitaan*. Tietolipas 180. Suomalaisen Kirjallisuuden Seura. Helsinki: 9-17.

Gumerman, George J. 1994. Patterns and Perturbations in Southwestern Prehistory. In: Gumerman, George J. (ed.), *Themes in Southwest Prehistory*. School of American Research Press: Santa Fe, New Mexico: 3-10.

Gumerman, George J. & Gell-Mann, Murray 1994. Cultural Evolution in the Prehistoric Southwest. In: Gumerman, George J. (ed.), *Themes in Southwest Prehistory*. School of American Research Press: Santa Fe, New Mexico: 11-31.

Gustafson, Lil, Heibreen, Tom & Martens, Jes (eds.) 2005. *De gåtefulle kokegroper. Kokegropseminariet 31. November 2001*. Varia 58.

Gustavsson, Kenneth 1997. Multidisciplinary analyses on Bronze Age pottery from Otterböte, Åland. *Iskos* 11: 193-202.

Gustavsson, Kenneth 1998. *Otterböte. New Light on a Bronze Age Site in the Baltic.* Theses and Papers in Archaeology B:4. Stockholm University.

Göthberg, Hans 1995. Huskronologi i Mälarområdet, på Gotland och Öland. In: *Hus & gård. Artikeldel. Hus & gård i det förurbana samhället - Rapport från ett sektorforskningsprojekt vid Riksantikvarieämbetet*. Riksantikvarieämbetet. Arkeologiska undersökningar. Skrifter nr 14: 65-109.

Göthberg, Hans 2000. *Bebyggelse i förändring. Uppland från slutet av yngre bronsålder till tidig medeltid*. Occasional Papers in Archaeology 25. Uppsala.

Haarni, Tuukka 1997. Joustavia tiloja. Vallan ja ulossulkemisen urbaania tulkintaa. In: Haarni, Tuukka, Karvinen, Marko, Koskela, Hille & Tani, Sirpa (eds.), *Tila, paikka ja maisema. Tutkimusretkiä uuteen maantieteeseen.* Tampere: 87-104.

Haarni, Tuukka, Karvinen, Marko, Koskela, Hille & Tani, Sirpa 1997. Johdatus nykymaantieteeseen. In: Haarni, Tuukka, Karvinen, Marko, Koskela, Hille & Tani, Sirpa (eds.), *Tila, paikka ja maisema. Tutkimusretkiä uuteen maantieteeseen.* Tampere: 9-34.

Hackman, Alfred 1897. Die Bronzezeit Finnlands. *Suomen Muinaismuistoyhdistyksen Aikakauskirja* XVII: 349-408.

Hackman, Alfred 1900. *Vorgeschichtliche Altertümer aus Finland. Photographishe Tafeln aus dem Historischen Museum des Staates in Helsingfors.* Helsingfors.

Hackman, Alfred 1905. *Die ältere Eisenzeit in Finnland. I. Die Funde aus den fünf ersten Jahrhunderten n. Chr*. Helsingfors.

Hackman, Alfred 1910. Ett fornfynd på Tytärsaari i Finska viken. *Kaukomieli* IV: 45-58.

Hackman, Alfred 1917a. Om Nylands kolonisation under järnåldern och andra därmed sammanhängande frågor. II. *Historisk Tidskrift för Finland* 1917 H. 4: 241-283.

Hackman, Alfred 1917b. Förvärv till Nationalmuseet år 1915. III. Järnåldern. *Finskt Museum* XXIV: 59-73.

Haggrén, Georg 2005a. Moisio – kartano – kirkko. Suurtalot ja kristinuskon juurtuminen varsinaiseen Suomeen. *SKAS* 1/2005: 12-26.

Haggrén, Georg 2005b. Arkeologiska undersökningar på en medeltida bytomt i Köklax, Esbo. *Nordenskiöld-samfundets tidskrift* 65: 83-101.

Haggrén, Georg, Jansson, Henrik & Knuutinen, Tarja 2007. Inkoon Storböle – Keskiaikainen autiotontti Länsi-Uudenmaan saaristossa. SKAS 3/2007: 3-11.

Hallinder, Pär & Haglund, Kerstin 1978. Iron currency bars in Sweden. In: Lamm, Kristina & Lundström, Agneta (eds.), *Excavations at Helgö V:1. Workshop Part II*. Kungl. Vitterhets Historie och Antikvitets Akademien. Lund.

Halstead, Paul & O'Shea, John 1989. Introduction: cultural responses to risk and uncertainty. In: Halstead, Paul & O'Shea, John (eds.), *Bad year economics: cultural responses to risk and uncertainty*. Cambridge University press: Cambridge: 1-7.

Harding, Anthony F. & Ostoja-Zagórski, Janusz 1993. The Lausitz Culture and the Beginning and End of Bronze Age Fortifications. In: Chapman, John & Dolukhanov, Pavel (eds.), *Cultural Transformations in Eastern Europe*. Worldwide Archaeology Series 6. Avebury: Newcastle-upon-Tyne: 163-177.

Harju, Timo 1995. Ihmisen ja luonnon vuorovaikutus autioitumisen taustalla. In: Nissinaho, Aino (ed.), *Ihmisen maisema. Kirjoituksia yhteisön ja ympäristön muutoksesta Lounais-Suomen rannikolla.* Turku: 65-75.

Harjula, Janne 1996. Kiukaisissa hiihdettiin jo rautakaudella. *Hiidenkivi* 2/96: 24-25.

Harjula, Janne 2000. Burial cairns in the region of the ancient bay of Panelia. A study of cultural formation processes. *Fennoscandia archaeologica* XVII: 83-102.

Hassan, Fekri A. 1981. *Demographic Archaeology*. Academic Press: New York.

Hatakka, Lassi & Glückert, Gunnar 2000. Calibration curves representing shore displacement of the Baltic based on radiocarbon ages in the Karjaa, Perniö, Turku, Mynämäki, and Laitila areas, SW Finland. In: Nissinaho, Aino (ed.), *Sites and settlement*. Turku: 3-14.

Hauptman Wahlgren, Katherine 2002. *Bilder av betydelse. Hällristningar och bronsålderslandskap i nordöstra Östergötland*. Stockholm Studies in Archaeology 23.

Hausen, Reinhold 1890. *Registrum Ecclesiæ Aboensis eller Åbo Domkyrkas Svartbok. Med tillägg ur Skoklosters Codex Aboensis*. Helsingfors.

Havia, Timo 1989. Ruotsinvallan aika. In: *Piikkiön historia 1. Esihistoria ja suurvallan aika*. Jyväskylä: 79-646.

Heikkurinen-Montell, Tuula 1986. Kokemäen Kraviojankankaan savi-idolit. *Iskos* 6: 31-36.

Heino, Ulla 1995. Ympäristöstäkö historiallisen kehityksen selittäjä? In: Nissinaho, Aino (ed.), *Ihmisen maisema. Kirjoituksia yhteisön ja ympäristön muutoksesta Lounais-Suomen rannikolla.* Turku: 47-62.

Helama, Samuli, Lindholm, Markus, Timonen, Mauri, Meriläinen, Jouko & Eronen, Matti 2002. The supra-long Scots pine tree-ring record for Finnish Lapland: Part 2, interannual to centennial variability in summer temperatures for 7500 years. *The Holocene* 12, 6: 681-687.

Hellsten, Sonja 1998. Ny bronsåldersboplats i Prostvik. *Åbo Underrättelser* 12 november 1998.

Herrgård, Mikael & Holmblad, Peter 2005. *Fornminnen i Österbotten från neandertalare till sockenbor*. Acta Antiqua Ostrobotniensia. Studier i Österbottens förhistoria nr VI. Vasa.

Hesjedal, Anders, Damm, Charlotte, Olsen, Bjørnar & Storli, Inger 1996. Arkeologi på Slettnes. Dokumentasjon av 11.000 års bosetning. *Tromsø Museums Skrifter* XXVI.

Heynowski, Ronald 2000. *Die Wendelringe der späten Bronze- und der frühen Eisenzeit*. Universitätsforschungen zur prähistorischen Archäologie. Band 64.

Hiekkanen, Markus 1981. Porvoo. *Keskiajan kaupungit* 1. Museovirasto. Helsinki.

Hiekkanen, Markus 1983. Rauma. *Keskiajan kaupungit* 2. Museovirasto. Helsinki.

Hiekkanen, Markus 1988. Naantali. *Keskiajan kaupungit* 4. Museovirasto. Helsinki.

Hiekkanen, Markus 2000. Kirkkorakennukset ja keskiajan yhteiskunta. In: Lempa, Nina (ed.), *Kirkko kulttuurin kantajana*. Kirkkohallitus, Museovirasto.Vammala: 18-34.

Hiekkanen, Markus 2003. *Suomen kivikirkot keskiajalla*. Keuruu.

Hiekkanen, Markus 2004a. Keskiajan seurakuntia ja kappelikuntia Vakka-Suomessa. *Tuluskivi* 2004: 8-10.

Hiekkanen, Markus 2004b. An Outline of the Early Stages of Ecclesiastical Organization in Finland. In: Guðmundsson, Garðar (ed.), *Current Issues in Nordic Archaeology. Proceedings of the 21st Conference of Nordic Archaeologists, 6-9 September 2001, Akureyri, Iceland*. Society of Icelandic Archaeologista. Reykjavik: 161-165.

Hiekkanen, Markus 2005. Kun suomalaiset vaihtoivat uskontoa. Ristiretkiajan ja varhaiskeskiajan historiakuva muuttuu. *Historia* 1/2005: 30-33.

Hiekkanen, Markus 2007. *Suomen keskiajan kivikirkot*. Suomalaisen Kirjallisuuden Seuran Toimituksia 1117. Helsinki.

Hiekkanen, Markus & Seger, Tapio 1988. Beyond post-holes: an investigation of Pre-Roman house remains at Mickels in Espoo, S. Finland. *Fennoscandia archaeologica* V: 21-33.

Hiltunen, Esa 1980. Liedon pitäjän asutus keskiajalla. *Karhunhammas* 4: 17-41.

Hiltunen, Esa 1986. Lounais-Suomen asutushistorian tutkimusongelmia. In: Kuparinen, Eero (ed.), VIII Suomalais-Neuvostolittolainen yhteiskuntahistorian symposiumi Turussa 2.–6.9.1984. *Turun Historiallinen Arkisto* 41: 56-68.

Hiltunen, Esa 1988. Ruotsin vallan aika. In: Mansikkaniemi, Hannu, Luoto, Jukka & Hiltunen, Esa, *Liedon historia 1*. Turku: 193-547.

Hiltunen, Esa & Luoto, Jukka 1985. The development of the cultural landscape in the Paimio River Valley as an historical and archaeological problem. In: *Proceedings of the Third Nordic Conference on the Application of Scientific Methods in Archaeology*. Iskos 5: 443-450.

Hirviluoto, Anna-Liisa 1968. Früheisenzetliches Gräberfeld auf dem Pikku Linnanmäki von Porvoo. *Suomen Museo* 1968: 5-36.

Hirviluoto, Anna-Liisa 1971. Veitakkalan ristineula. *Hakastarolainen* 5: 20-23.

Hirviluoto, Anna-Liisa 1985. Rautakausi. Böle esiroomalaisella rautakaudella 500-0 e.Kr. *Kivikaudesta keskiaikaan. Porvoon seudun esihistoriaa.* Porvoon Museoyhdistyksen julkaisuja nro 1: 58-65.

Hirviluoto, Anna-Liisa 1991. *Salon esihistoria*. Jyväskylä.

Hirviluoto, Anna-Liisa 1992. Esihistoriallisen ajan Halikko. In: *Halikon historia I*. Jyväskylä: 11-150.

Hjärtner-Holdar, Eva 1989. Early Metallurgy in Easter Central Sweden. In: Ambrosiani, B. (ed.), *Die Bronzezeit im Ostseegebiet. Ein rapport der Kgl. Schwedischen Akademie der Literatur Geschichte und Altertumsforschung über das Julita-Symposium 1986.* Kungl. Vitterhets Historie och Antikvitets Akademien. Konferenser 22: 143-159.

Hjärtner-Holdar, Eva 1993a. Övergången från brons- till järnmetallurgi - en fråga om resurser. In: Forsberg, Lars & Larsson, Thomas B. (eds.), *Ekonomi och näringsformer i nordisk bronsålder. Rapport från det 6:e nordiska bronsålderssymposiet, Nämforsen 1990.* Studia Archaeologica Universitatis Umensis 3: 163-176.

Hjärtner-Holdar, Eva 1993b. *Järnets och järnmetallurgins introduction i Sverige*. Aun 16.

Hodder, Ian 1987. The contribution of the long term. In: Hodder, Ian (ed.), *Archaeology as long term history.* Cambridge University Press: Cambridge: 1-8.

Hodder, Ian & Orton, Clive 1976. *Spatial analysis in archaeology*. Cambridge University Press: Cambridge.

Holm, Lena 2000. Pottery and Meaning. A Communicative View. In: Olausson, Deborah & Vandkilde, Helle (eds.), *Form, Function & Context. Material culture studies in Scandinavian archaeology*. Acta Archaeologica Lundensia. Series in 8°, No. 31: 193-202.

Holmblad, Peter 2005. Myt och mening i det rörliga landskapet. Landskapet som en nyckel till den österbottniska järnålderns världsbild och samhälle. In: Pesonen, Petro & Mökkönen, Teemu (eds.), *Arkeologipäivät 2004*. Suomen arkeologinen seura. Hamina: 41-48.

Holmblad, Peter 2007. Tidig metallålder i Österbotten – preliminära arkeologiska och miljöarkeologiska resultat från Malax och Laihela. In: Vilkuna, Janne, Taavitsainen, Jussi-Pekka & Heikkinen, Virpi (eds.), *IV Mittnordiska arkeologidagar Saarijärvi 14.-16. juni 2007*. Keski-Suomi 20: 147-159.

Holmgren, Karin 2005. Klimatet, människan och samhället. In: Bunte, Carin, Berglund, Björn E. & Larsson, Lars (eds.), *Arkeologi och naturvetenskap. Gyllenstiernska Krapperupstiftelsens symposium nr 6 år 2003*. Lund: 33-48.

Holzhauser, Hanspeter, Magny, Michel & Zumbühl, Heins J. 2005. Glacier and lake-level variations in west-central Europe over the last 3500 years. *The Holocene* 15, 6: 789-801.

Honkanen, Pekka 1981. *Uudenmaan kansainvaellus- ja merovingiaika*. Helsingin yliopiston arkeologian laitos. Moniste n:o 26.

Huldén, Lars 2001. *Finlandssvenska bebyggelsenamn. Namn på landskap, kommuner, byar i Finland av svenskt ursprung eller med särskild svensk form*. Skrifter utgivna av Svenska litteratursällskapet i Finland nr 635. Helsingfors.

Hunn, Eugene 1994. Place-Names, Population Density, and the Magic Number 500. *Current Anthropology* 35, 1: 81-85.

Huurre, Matti 1995. *9000 vuotta Suomen esihistoriaa*. Viides, uudistettu painos. Keuruu.

Huurre, Matti 1998. *Kivikauden Suomi*. Keuruu.

Huurre, Matti 2003. Maatalouden alku Suomessa. In: Rasila, Viljo, Jutikkala, Eino & Mäkelä-Alitalo, Anneli (eds.), *Suomen maatalouden historia I. Perinteisen maatalouden aika. Esihistoriasta 1870-luvulle*. Suomen Kirjallisuuden Seura: Helsinki: 38-66.

Hyenstrand, Åke 1974. *Centralbygd - Randbygd. Strukturella, ekonomiska och administrativa huvudlinjer i mellansvensk yngre järnålder.* Acta Universitatis Stockholmiensis. Studies in North-European Archaeology 5.

Hyenstrand, Åke 1983. *Kulturlandskap och bebyggelsehistoria. Kring ett forskningsfält med exempel från forntid och medeltid*. Arkeologiska rapporter och meddelanden från institutionen för arkeologi vid Stockholms universitet. Nr 13.

Häkkinen, Kaisa 2004. *Nykysuomen etymologinen sanakirja*. Juva.

Häkkinen, Kaisa & Lempiäinen, Terttu 1996. Die ältesten Getreidepflanzen der Finnen und ihre Nahmen. In: *Finnisch-Ugrische Forschungen* Band 53/Heft 1-3: 115-182.

Hällström, Olof af 1948. *Karis socken från forntiden till våra dagar I. Forntiden*. Ekenäs.

Ikäheimo, Janne 2002. Astiat ilman aikaa ja paikkaa – rautakautisesta keramiikanvalmistuksesta. In: Halinen, Petri, Kankaanpää, Raimo & Pesonen, Petro (eds.), *Arkeologiapäivät 2001. Kronologia.* Suomen arkeologinen seura. Vantaa: 46-51.

Ikäheimo, Janne P., Joona, Juha-Pekka & Hietala, Mikko 2004. Wretchedly Poor, but Amazingly Practical: Archaeological and Experimental Evidence on the Bone Arrowheads of the Fenni. *Acta Borealia* 1-2004: 3-20.

Immonen, Visa 2002. Puulusikka Lestijärveltä pronssi- ja rautakauden taitteesta. *Muinaistutkija* 4/2002: 18-22.

Immonen, Visa 2004. Hämmentävä kokoelma Kalannista. *Muinaistutkija* 1/2004: 58-61.

Indreko, R. 1939. Asva linnus-asula. In: *Muistse Eesti Linnused. 1936-1938 a. uurimiste tulemused*. Opetatud Eesti Selts. Tartu: 17-52.

Ingold, Tim 1993. The temporality of the landscape. *World Archaeology* 25: 152-174.

Innamaa, Kerttu 1973. Isonvihan ajasta 1960-luvulle. In: *Paimion historia*. Hämeenlinna: 351-922.

Innamaa, Kerttu 1982. *Perniön historia*. Salo.

Itkonen, Erkki & Joki, Aulis J. 1976. *Suomen kielen etymologinen sanakirja III*. Lexica Societatis Fenno-Ugricae XII, 3.

Itkonen, Erkki, Joki, Aulis J. & Peltola, Reino 1978. *Suomen kielen etymologinen sanakirja VI*. Lexica Societatis Fenno-Ugricae XII, 6.

Jaanits, L., Laul, S., Lõugas, V. & Tõnisson, E. 1982. *Eesti esiajalugu*. Tallinn.

Jaanits, Kaarel 1994. Excavations at Narva. *Eesti Teaduste Akadeemia Toimetised. Humanitaar- ja sotsiaalteadused* 43, 1:18-20.

Jaanusson, Hille 1981. Hallunda. *A study of Pottery from a Late Bronze Age Settlement in Central Sweden*. The Museum of National Antiquities, Stockholm. Studies 1.

Jaanusson, Hille 1985. Main Early Bronze Age pottery provinces in the northern Baltic region. In: Loit, Aleksander & Selirand, Jüri (eds.), *Die Verbindungen zwischen Skandinavien und Ostbaltikum aufgrund der archäologischen Quellenmaterialen. I. Symposium der sowjetestnischen und schwedischen Archäologen. Tallinn 12.-15. Oktober 1982*. Acta Universitatis Stockholmiensis. Studia Baltica Stockholmiensia 1: 39-50.

Jaanusson, Hille 1993. Sveriges och Estlands kontakter under förhistorisk tid. Sten- och bronsåldern. In: Dahlberg, Anne-Marie & Tamla, Toomas (eds.), *Eesti ja Rootsi. Estland och Sverige*. Tallinn: 9-13.

Jankuhn, Herbert 1976. *Archäologie und Geschichte. Vortrage und Aufsätze. Band 1. Beiträge zur siedlungsarchäologischen Forschung*. Walter de Gruyter: Berlin.

Jankuhn, Herbert 1977. *Einführung in die Siedlungsarchäologie*. Walter de Gruyter: Berlin.

Jankuhn, Herbert 1979. Siedlungsarchäologie als Forschungsmethode. Jankuhn, Herbert & Wenskus, Reinhard (eds.), *Geschichtswissenschaft und Archäologie. Untersuchungen zur Siedlungs-, Wirtschafts- und Kirchengeschichte.* Vorträge und Forschungen. Herausgegeben vom Konstanzer Arbeitskreis für mittelalterliche Geschichte. Band XXII. Jan Thorbecke Verlag: Sigmaringen: 19-43.

Jansson, Henrik 2004. Historiallisen ajan alun arkeologiaa Suomen eteläkärjessä. Hangon Gunnarsängenin tutkimukset vuosina 2003 ja 2004. SKAS 4/2004: 38-43.

Jansson, Henrik 2005. Det nyländska maritima landskapet i focus. *Nordenskiöld-samfundets tidskrift* 65: 63-71.

Jażdżewski, Konrad 1965. *Poland*. Ancient Peoples and Places. Thames and Hudson: London.

Jennbert, Kristina 2000. Peopling the Landscape. The Landscape - Variable, Invisible, and Visible. In: Olausson, Deborah & Vandkilde, Helle (eds.), *Form, Function & Context. Material culture studies in Scandinavian archaeology*. Acta Archaeologica Lundensia. Series in 8°, No. 31: 51-57.

Jensen, Jørgen 1993. Dendrochronology of the Danish Oak Coffin Graves. In: Larsson, Lars (ed.), *Bronsålderns gravhögar. Rapport från ett symposium i Lund 15.XI-16.XI 1991.* University of Lund. Institute of Archaeology Report Series No. 48: 187-190.

Jensen, Jørgen 1994. The Turning Point. In: Kristiansen, Kristian & Jensen, Jørgen (eds.), *Europe in the First Millennium B.C.* Sheffield Archaeological Monographs 6: 111-124.

Jensen, Jørgen 1997. *Fra Bronze- till Jernalder - en kronologisk undersøgelse*. Det Kongelige Nordiske Oldskriftselskab: København.

Jensen, Jørgen 2003. *Danmarks Oldtid. Ældre Jernalder 500 f.Kr.-400 e.Kr*. Nørhaven Book: Viborg.

Johansen, Birgitta & Pettersson, Ing-Marie 1993. *Från borg till bunker. Befästa anläggningar från förhistorisk och historisk tid.* Fornlämningar i Sverige 2. Riksantikvarieämbetet. Borås.

Johansen, Birgitta 1997. *Ormalur. Aspecter på tillvaro och landskap*. Stockholm Studies in Archaeology 14.

Johnson, Gregory A. 1982. Organizational Structure and Scalar Stress. In: Renfrew, Colin, Rowlands, Michael J. & Seagraves, Barbara Abbott (eds.), *Theory and Explanation in Archaeology. The Southhampton Conference*. Academic Press: New York: 389-421.

Jokipii, Mauno 2003: Ensimmäinen ristiretki Suomeen ja sen lähin jälkimaine. In: Kaitanen, Veijo, Laukkanen, Esa & Uotila, Kari (eds.), *Muinainen Kalanti ja sen naapurit. Talonpojan maailma rautakaudelta keskiajalle*. Suomalaisen Kirjallisuuden Seuran Toimituksia 825. Hämeenlinna: 300-342.

Julku, Kyösti 1998. Suomen asutuksen jatkuvuuden ongelma. In: Julku, Kyösti & Wiik, Kalevi (eds.), *The Roots of Peoples and Languages of Northern Eurasia I.* Societas Historiae Fenno-Ugricae. Jyväskylä: 53-59.

Jungner, Högne 1979. *Radiocarbon dates I*. Radiocarbon dating laboratory. University of Helsinki. Report no. 1.

Jungner, Högne 1995. Dating in Archaeology. *Fennoscandia archaeologica* XII: 37-38.

Jungner, Högne & Sonninen, Eloni 1983. *Radiocarbon dates II*. Radiocarbon dating laboratory. University of Helsinki. Report no. 2.

Jungner, Högne & Sonninen, Eloni 1989. *Radiocarbon dates III*. Radiocarbon dating laboratory. University of Helsinki. Report no. 3.

Jungner, Högne & Sonninen, Eloni 1996. *Radiocarbon dates IV*. Dating laboratory. University of Helsinki. Report no. 4.

Jutikkala, Eino 1945. Die Bevölkerung Finnlands in den Jahren 1721-49. *Annales Academiæ Scientiarum Fennicæ*, B LV, 4.

Jutikkala, Eino 1972. *Luentoja Suomen valtiojärjestyksen historiasta*. Hämeenlinna.

Jäger, Klaus-Dieter & Ložek, Vojen 1982. Environmental conditions and land cultivation during the Urnfield Bronze Age in central Europe. In: Harding, A. F. (ed.), *Climatic Change in Later Prehistory*. Edinburgh University Press: Edinburgh: 162-178.

Kakkuri, J. 1986. Newest results obtained in studying the Fennoscandian land uplift phenomenon. *Tectonophysics*, 130: 327-331.

Kakkuri, J. 1992. Recent vertical crustal movement. In: Blundell, Derek, Freeman, Roy & Mueller, Stephhan (eds.), *A Continent Revealed. The European Geotraverse*. Cambridge University Press: Cambridge: Atlas Map 6.

Kaliff, Anders 1995. Kulthus och lerkärl vittnar om kontakt over Östersjön. *Populär Arkeologi* 2/1995: 24-26.

Kaliff, Anders 1997. *Grav och kultplats. Eskatologiska föreställningar under yngre bronsålder och äldre järnålder i Östergötland*. Aun 24. Uppsala.

Kaliff, Anders 2001. *Gothic connections. Contacts between eastern Scandinavia and the southern Baltic coast 1000 BC – 500 AD*. Occasional Papers in Archaeology 26.

Kaliff, Anders & Oestigaard, Terje 2004. Cultivating Corpses. A Comparative Approach to Disembodied Mortuary Remains. *Current Swedish Archaeology*, Vol. 12: 83-104.

Kallberg, Ulla 1990. Var Purunpää en hamn under medeltiden? *Maritimhistorisk konferens.Bottnisk kontakt V. Raumo museum 9-11 februari 1990*. Raumo: 67-71.

Kamppinen, Matti, Raivola, Petri, Jokinen, Pekka & Karlsson, Hasse 1995. *Riskit yhteiskunnassa. Maallikot ja asiantuntijat päätösten tekijöinä*. Gaudeamus. Tampere.

Karlsson, Marita 1990. Fornlämningar i farledsmiljö. *Åländsk Odling* 1989: 91-98.

Katiskoski, Kaarlo 1992. The Kirkkomäki cemetery at Kaarina. *Fennoscandia archaeologica* IX: 75-89.

Katiskoski, Kaarlo 2004. The cemetery and the dwelling site Vaateranta in Taipalsaari, southeastern Finland. *Suomen Museo* 2003: 81-125.

Kauhanen, Isto 1974. Porin Tuorsniemen verkkolöytö. *Karhunhammas* 1: 25-38.

Keeley, Lawrence H. 1996. *War Before Civilization*. Oxford University Press: New York, Oxford.

Kehusmaa, Aimo 1972. *Kemijärven Neitilä 4*. Helsingin yliopiston arkeologian laitos. Moniste n:o 3.

Kehusmaa, Anu & Raike, Eeva 2004. Halikon Kirkkomäki ja vanhat kartat. *Arkeologia NYT! Arkeologi NU!* 1/2004: 16-17.

Keller, Christian 2003. Theoretical Aspects of Landscape Study. In: Collins, Timothy (ed.), *Decoding the Landscape. Contributions Towards a Synthesis of Thinking in Irish Studies on the Landscape*. Centre for Landscape Studies: Galway: 79-97.

Kepsu, Saulo 2005. *Uuteen maahan. Helsingin ja Vantaan vanha asutus ja nimistö*. Suomalaisen Kirjallisuuden Seuran Toimituksia 1027.

Kerkkonen, Gunvor 1945. *Västnyländsk kustbebyggelse under medeltiden*. Helsingfors.

Keskitalo, Oiva 1979. *Suomen nuoremman roomalaisen rautakauden löydöt*. Helsingin yliopiston arkeologian laitos. Moniste n:o 20.

Khotinsky, N. A. 1993. Anthropogenic changes in the landscapes of the Russian Plain during the Holocene. *Grana* Suppl. 2: 70-74.

Kinnunen, Kari A. 2005. Susiluolan murtuilleet kivet selittää luonnollisimmin geologia. *Tieteessä tapahtuu* 1/2005: 16-19.

Kirkinen, Tuija 1995. GIS in Modelling the Viking Age Environment in Taipalsaari, Southern Karelia. *Fennoscandia archaeologica* XII: 65-70.

Kirkinen, Tuija 1996. Use of a Geographical Information System (GIS) in modeling the Late Iron Age settlement in Eastern Finland. In: Kirkinen, Tuija (ed.), *Environmental Studies in Eastern Finland. Reports of the Ancient lake Saimaa Project*. Helsinki Papers in Archaeology. No. 8: 19-61.

Kirkinen, Tuija 1999. The Influence of Modern Land-Use on the Formation of Archaeological Record. Source critical problems of regional studies. In: Huurre, Matti (ed.), *Dig it all. Papers dedicated to Ari Siiriäinen*. The Finnish Antiquarian Society, The Archaeological Society of Finland. Jyväskylä: 21-28.

Kirkinen, Tuija 2004. Epistemologinen ongelma: arkeologisen tiedon käsittely tietojärjestelmissä. Esimerkkinä ajoitustiedon käsittely paikkatietojärjestelmässä (GIS). In: Pesonen, Petro & Raike, Eeva (eds.), *Arkeologipäivät 2003*. Suomen arkeologinen seura. Hamina: 61-73.

Kivikoski, Ella 1937a. Uusia pronssikauden löytöjä Suomesta. *Suomen Museo* XLIII: 53-60.

Kivikoski, Ella 1937b. Suomen vanhinta rautakautta. *Suomen Museo* XLIV: 23-46

Kivikoski, Ella 1939. *Die Eisenzeit im Auraflussgebiet*. Suomen Muinaismuistoyhdistyksen Aikakauskirja XLIII.

Kivikoski, Ella 1940. Svenskar i österled under 500-talet. *Finskt Museum* XLVI: 1-11.

Kivikoski, Ella 1946. *Husgrunderna i Storhagen, Kulla, Finström*. Suomen Muinaismuistoyhdistyksen Aikakauskirja XLVIII: 3.

Kivikoski, Ella 1947. *Die Eisenzeit Finnlands. Bilderatlas und Text I.* Porvoo.

Kivikoski, Ella 1951. *Die Eisenzeit Finnlands. Bilderatlas und Text II.* Porvoo.

Kivikoski, Ella 1955. Skandinavisches in der Römischen Eisenzeit Finnlands. *Acta Archaeologica* Vol. XXV: 151-170.

Kivikoski, Ella 1961. *Suomen esihistoria*. Porvoo.

Kivikoski, Ella 1971. Turun seudun esihistoria kivikaudesta noin vuoteen 1150. In: *Turun kaupungin historia kivikaudesta vuoteen 1366*: 1-114.

Kivikoski, Ella 1973. *Die Eisenzeit Finnlands. Bildwerk und Text. Neuausgabe*. Helsinki.

Klang, Lennart 1981. Fornminnesinventering och agrarhistoria. *Bebyggelsehistorisk tidskrift* Nr 2: 53-61.

Knaapinen, M. A 1935. *Piikkiön pitäjä. Kotiseutukirja nykyisille ja entisille piikkiöläisille.* Turku.

Knapp, Bernard A. 1992. Archaeology and Annales: time, space and change. In: Knapp, Bernard A. (ed.), *Archaeology, Annales, and ethnohistory*. Cambridge University Press: Cambridge: 133-142.

Knapp, Bernard A. & Ashmore, Wendy 1999. Archaeological Landscapes: Constructed, Conceptualized, Ideational. In: Ashmore, Wendy & Knapp, Bernard A. (eds.), *Archaeologies of Landscape. Contemporary Perspectives*. Blackwell: Oxford: 1-30.

Koivisto, Onni & Saariluoma, Vilho 1957. *Kotipitäjäni Muurla*. Hämeenlinna.

Konsa, Marge, Lang, Valter, Vimberg, Karin & Kelder, Ilmar 2006. Ring-wall enclosure of Lipa in Prehistoric Southern Harjumaa. In: Tamla, Ülle (ed.), *Arheoloogilised välitööd Eestis 2005*. Muinsuskaitseamet. Tallinn: 53-60.

Korhonen, Arvi 1923. *Vakkalaitos. Yhteiskuntahistoriallinen tutkimus*. Historiallisia tutkimuksia VI.

Korteniemi, Markku 2002. Kolmen kuoppajäänteen ajoituksesta ja funktiosta Limingan Rantakylän rautakautisella asuinpaikalla. In: Halinen, Petri, Kankaanpää, Raimo & Pesonen, Petro (eds.), *Arkeologiapäivät 2001. Kronologia.* Suomen arkeologinen seura. Vantaa: 62-77.

Kosmenko, M. G. & Manjuhin, I. S. 1999. Ancient iron production in Karelia. *Fennoscandia archaeologica* XVI: 31-46.

Kossinna, Gustaf 1911. *Die Herkunft der Germanen Zur Methode der Siedlungsarchaeologie*. Würzburg.

Kosse, Krisztina 1990. Group Size and Societal Complexity: Thresholds in the Long-Term Memory. *Journal of Anthropological Archaeology* 9: 275-303.

Kotivuori, Hannu 1992. Dwelling-site finds from the Middle Iron Age fieldwork at Kalaschabrännan in Maalahti, Southern Ostrobothnia 1987-1989. *Fennoscandia archaeologica* IX: 57-74.

Kotivuori, Hannu 1993. Pohjanlahden rannikon kiveliöt muinaisen toiminnan tyyssijoina. In: Purhonen, Paula (ed.), *Lapinraunioita ja hiidenkiukaita. Kansallismuseossa 17.10.1991 pidetyn "Epämääräisiä kiviröykkiöitä" koskevan seminaarin alustukset*. Museovirasto. Arkeologian osasto. Julkaisu N:o 3: 17-30.

Kotivuori, Hannu 1996. Pyytäjistä kaskenraivaajiksi. Rovaniemen asutus n. 6000 eKr – 1300 jKr. In: Saarnisto, Matti, Kotivuori, Hannu, Vahtola, Jouko & Enbuske, Matti, *Kotatulilta savupirtin suojaan. Rovaniemen historia vuoteen 1721*. Jyväskylä: 34-125.

Kriiska, Aivar 1995. Archäologische Ausgrabungen auf dem Standort der ehemaligen Steinzeitsiedlung Kõpu I (Ristipõllu). *Eesti Teaduste Akadeemia Toimetised. Humanitaar- ja Sotsiaalteadused*. 1995, 44, 4: 410-416.

Kriiska, Aivar 1996a. Archaeological studies on the Kõpu peninsula. *Eesti Teaduste Akadeemia Toimetised. Humanitaar- ja Sotsiaalteadused*. 1996, 45, 4: 398-409.

Kriiska, Aivar 1996b. Viron rannikkoalueen asutus ja pyyntikulttuurin erikoistuminen kivikaudella. *Muinaistutkija* 4/1996: 1-6.

Kriiska, Aivar 1998. Vaibla kivikirves. *Eesti Arheoloogia Ajakiri* 2: 154-157.

Kriiska, Aivar 2000. Corded Ware Culture Sites in North-Eastern Estonia. In: *De temporibus antiquissimus ad honorem Lembit Janits.* Muinasaja teadus 8: 59-79.

Kriiska, Aivar 2002. Lääne-Eesti saarte asustamine ja püsielanikkonna kujunemine. In: Lang, Valter (ed.), *Keskus – tagama – ääreala. Uurimusi asutushierarhia ja võimukeskuste kujunemisest Eestis*. Muinasaja teadus 11: 29-54.

Kriiska, Aivar, Lõugas, Lembi & Saluäär, Ulla 1998. Archaeological excavations of the Stone Age settlement site and ruin of the stone cist grave of the Early Metal Age in Kaseküla. In: Tamla, Ülle (ed.), *Arheoloogilised välitööd Eestis 1997.* Muinsuskaitseinspektsioon. Tallinn: 30-43.

Kriiska, Aivar & Saluäär, Ulla 2000. Archaeological fieldwork on the island of Ruhnu. In: Tamla, Ülle (ed.), *Arheoloogilised välitööd Eestis 1999*. Muinsuskaitseinspektsioon. Tallinn: 18-28.

Kriiska, Aivar & Tvauri, Andres 2002. *Eesti muinasaeg*. Avita.

Krohn, Kaarle 1910. Ukon vakat. *Kotiseutu* 1910: 63-64.

Kukkonen, Ilkka 1985. Changes in settlement and landscape caused by early land use in SW Finland. In: *Proceedings of the Third Nordic Conference on the Application of Scientific Methods in Archaeology*. Iskos 5: 441.

Kulikauskas, P. 1961. Gimininės santvarkos irimo laikotarpis. In: Kulikauskas, P., Kulikauskienė, R. & Tautavičius, A., *Lietuovos archeologijos bruožai*. Vilnius: 144-268.

Kuna, Martin 1995. Pre-historic prehistory. In: Kuna, Martin & Venclová, Natalie (eds.), *Whither Archaeology? Papers in Honour of Evžen Neustupný*. Praha: 41-51.

Kuz´minych, S. V. 1996. Osteuropäische und Fennoscandische Tüllenbeile des Mälartyps: ein Rätsel der Archäologie. *Fennoscandia archaeologica* XIII: 3-27.

Künnap, Ago & Lang, Valter 2000. Reviews: Pohjan poluilla. Suomalaisten juuret nykytutkimuksen mukaan, Helsinki 1999 (Bidrag till kännedom av Finlands natur och folk 153. Societas Scientiarum Fennica). *Linguistica Uralica* XXXVI: 55-61.

Kääriäinen, E. 1963. Land uplift in Finland computed by the aid of precise levellings. *Fennia* 89, N:o 1: 15-19.

Königsson, L.-K. & Possnert, G. & Hammar, T. 1997. Changes in the Landscape Development at Novgorod. *Tor* Vol. 29: 353-387.

Laakso, Ville 2003. Papinniemi i Uukuniemi och andra ortodoxa gravfält i östra Finland. Utgångspunkter och aktuell forskningsproblematik. *Hikuin* 30: 139-154.

Lahelma, Antti & Sipilä, Joonas 2004. Pasifistiset pyyntikulttuurit? Sodan paradigmateoria ja kivikauden Suomi. *Muinaistutkija* 4/2004: 2-22.

Lahtiperä, Pirjo 1970. *Metallikautinen asutus Kokemäenjoen suussa II. Luuaineiston analyysi*. Pori.

Landin, Maria & Rönnby, Johan 2003. *Tomtningar i utskärgården från yngre järnåldern. Arkeologiska undersökningar på Landsort, Torö sn, Södermanland*. Södertörns Högskola. Research Reports 6/2002. Huddinge.

Lang, Valter 1990. Über die formierung der frühen Tarandgräber im östlichen Ostseegebiet. *Congressus Septimus Internationalis Fenno-Ugristarum Debrecen 27.VIII.-2.IX.1990. Sessiones Sectionum Dissertationes Historica, Archaeologica et Anthropologica*. Debrecen: 308-313.

Lang, Valter 1991. Ühe savinõutüübi ajaloost Loode-Eestis. *Muinasaja teadus* I: 45-63.

Lang, Valter 1992. Eesti labidaspeaga luunõelte dateerimisest. *Stilus* 1: 8-32.

Lang, Valter 1994a. Fossil fields at Saha-Loo. *Eesti Teaduste Akadeemia Toimetised. Humanitaar- ja sotsiaalteadused* 43, 1: 22-26.

Lang, Valter 1994b. Excavations in ancient fields of Saha-Loo and Proosa near Tallinn. *Eesti Teaduste Akadeemia Toimetised. Humanitaar- ja sotsiaalteadused* 43, 4: 379-381.

Lang, Valter 1995a. A Pre-Roman tarand-grave and late medieval fossil fields of Ilmandu, NW Estonia. *Eesti Teaduste Akadeemia Toimetised. Humanitaar- ja sotsiaalteadused* 44, 4: 429-435.

Lang, Valter 1995b. Die Früheisenzeitliche Gesellschaft Im Gebiet Der Estnischen Steingräber. In: Kazakevičius, Vytautas & Sidrys, Raymond (eds.), *Archaeologia Baltica*. Vilnius: 107-120.

Lang, Valter 1995c. The Hill-fort of Iru. In: Jansson, Ingmar (ed.), *Archaeology East and West of the Baltic. Papers from the Second Estonian-Swedish Archaeological Symposium. Sigtuna, May 1991*. Theses and Papers in Archaeology N.S. A 7. Stockholm: 53-60.

Lang, Valter 1996. *Muistne Rävala. Muistised, kronoloogia ja maaviljelusliku asutuse kujunemine Loode-Eestis, eriti Pirita jõe alamjooksu piirkonnas*. Muinasaja teadus 4.

Lang, Valter 1998. Some aspects of the Corded Ware Culture east of the Baltic Sea. In: Julku, Kyösti & Wiik, Kalevi (eds.), *The Roots of Peoples and Languages of Northern Eurasia I.* Societas Historiae Fenno-Ugricae. Jyväskylä: 84-104.

Lang, Valter 1999a. Kultuurmaastikku luues. Essee maastiku religioossest ja sümboliseeritud korraldusest. *Eesti Arheoloogia Ajakiri* 3, 1: 63-85.

Lang, Valter 1999b. Early Farming in the Eastern Baltic Region and Finland: Some Introductory Remarks. In: Miller, U., Hackens, T., Lang, V., Raukas, A. and Hicks, S. (eds.), Environmental and Cultural History of the Eastern Baltic Region. *Pact* 57: 269-273.

Lang, Valter 1999c. The Introduction and Early History of Farming in Estonia, as Revealed by Archaeological Material. In: Miller, U., Hackens, T., Lang, V., Raukas, A. and Hicks, S. (eds.), Environmental and Cultural History of the Eastern Baltic Region. *Pact* 57: 325-338.

Lang, Valter 1999d. Pre-Christian History of Farming in the Eastern Baltic Region and Finland: A Synthesis. In: Miller, U., Hackens, T., Lang, V., Raukas, A. and Hicks, S. (eds.), Environmental and Cultural History of the Eastern Baltic Region. *Pact* 57: 359-372.

Lang, Valter 1999e. Kenneth Gustavsson, Otterböte. New Light on a Bronze Age Site in the Baltic. Theses and Papers in Archaeology B:4. Stockholm University 1997, 141 p. + 8 appendices. *Fennoscandia archaeologica* XVI: 81–84.

Lang, Valter 2000a. *Keskusest ääremaaks. Viljelusmajandusliku asutuse kujunemine ja areng Vihasoo-Palmse piirkonnas Virumaal*. Muinasaja teadus 7.

Lang, Valter 2000b. Varased kangurkalmed Eestis. *Eesti Arheoloogia Ajakiri* 4, 1: 3-20.

Lang, Valter 2002a. On the Formation of Power Centres in Estonia. An introduction. In: Lang, Valter (ed.), *Keskus – tagama – ääreala. Uurimusi asutushierarhia ja võimukeskuste kujunemisest Eestis*. Muinasaja teadus 11: 17-26.

Lang., Valter 2002b. Vakus ja linnusepiirkond Eestis. Lisandeid muistse haldusstruktuuri uurimisele peamiselt Harjumaa näitel. In: Lang, Valter (ed.), *Keskus – tagama – ääreala. Uurimusi asutushierarhia ja võimukeskuste kujunemisest Eestis*. Muinasaja teadus 11: 125-168.

Lang, Valter 2003. From Centre to Periphery. Establishment and History of the Agricultural Settlement in the Vihasoo-Palmse Area (Virumaa, North Estonia). *Acta Archaeologica* vol. 74: 123-188.

Lang, Valter 2006a. Late Bronze Age and Pre-Roman Iron Age pottery styles in Estonia. In: Suhonen, Mervi (ed.), *Arkeologian lumoa synkkyyteen. Artikkeleita Christian Carpelanin juhlapäiväksi. Lighting the darkness – the attraction of archaeology. Papers in honour of Christian Carpelan*. Helsinki: 122-136.

Lang, Valter 2006b. Varased tarandkalmed Eestis. In: *Etnos ja Kultuur. Uurimusi Silvia Laulu auks*. Muinasaja teadus 18: 53-78.

Lang, Valter 2007a. *Baltimaade pronksi- ja rauaaeg*. Tartu Ülikooli Kirjastus.

Lang, Valter 2007b. *The Bronze and Early Iron Ages in Estonia*. Estonian Archaeology 3. Tartu University Press.

Lang, Valter & Konsa, Marge 1997. Two late neolithic to Early Iron Age settlement sites at Ilumäe, North Estonia. In: Tamla, Ülle (ed.), *Arheoloogilised välitööd Eestis 1997*. Muinsuskaitseinspektsioon. Tallinn: 65-77.

Lang, Valter & Kriiska, Aivar 2001. Eesti esiaja periodiseering ja kronoloogia. *Eesti Arheoloogia Ajakiri* 5, 2: 83-109.

Lang, Valter, Kaldre, Helena & Laneman, Margot 2005a. Fossil fields at Saha-Loo, North Estonia, as revealed by new investigations. In: Tamla, Ülle (ed.), *Arheoloogilised välitööd Eestis 2004*. Muinsuskaitseamet. Tallinn: 117-126.

Lang, Valter, Laneman, Margot, Kaldre, Helena, Konsa, Marge & Tvauri, Andres 2005b. From the Early Pre-Roman Iron Age to the early modern times: new investigations at Keava. In: Tamla, Ülle (ed.), *Arheoloogilised välitööd Eestis 2004*. Muinsuskaitseamet. Tallinn: 45-58.

Lang, Valter & Ligi, Priit 1991. Muistsed kalmed ajaloolise demograafia allikana. *Muinasaja teadus* I: 216-235.

Larsson, Lars 2000. Human response to natural resources since the last glaciation. In: Sandgren, Per (ed.), *Environmental changes in Fennoscandia during the Late Quaternary*. LUNDQUA Report 37: 59-68.

Larsson, Thomas B. 1993a. Östersjökontakter under yngre bronsålder - en diskussion med utgångspunkt från fynden från Vistad i Östergötland. In: Forsberg, Lars & Larsson, Thomas B. (eds.), *Ekonomi och näringsformer i nordisk bronsålder. Rapport från det 6:e nordiska bronsålderssymposiet, Nämforsen 1990*. Studia Archaeologica Universitatis Umensis 3: 127-149.

Larsson, Thomas B. 1993b. *Vistad. Kring en befäst gård i Östergötland och östersjökontakter under yngre bronsålder.* Studia Archaeologica Universitatis Umensis 4.

Larsson, Thomas B. & Hulthén, Birgitta 2004. Vistad '88 Revisited. Ceramological Analyses and Lusatian Connections. *Archaeology and Environment* 17.

Laukkanen, Esa & Vuorinen, Juha-Matti 1987. Varhaisrautakauden jäljillä Turun Hannunniitussa. *ABOA. Turun maakuntamuseo, vuosikirja* 49/1985: 40-59.

Laul, S. 1962. Jaagupi tarandkalme Elva rajoonis. In: Moora, H. (ed.), *Muistsed kalmed ja aarded. Arheoloogiline kogumik II.* Tallinn: 13-57.

Laul, Silvia & Tõnisson, Evald 1991. Muitsete sirpide ja vikatite kujunemisloost Eestis. *Muinasaja teadus* I: 75-91.

Laurén, Juha 1993. Kenttähavaintoja Pohjanpitäjänlahden röykkiöistä. In: Purhonen, Paula (ed.), *Lapinraunioita ja hiidenkiukaita. Kansallismuseossa 17.10.1991 pidetyn "Epämääräisiä kiviröykkiöitä" koskevan seminaarin alustukset*. Museovirasto. Arkeologian osasto. Julkaisu N:o 3: 31-36.

Lavento, Mika 1996. Varhaista raudanvalmistusta Ristiinassa – muutamia huomioita Kitulansuon raudansulatusuunista ja siihen liittyvästä keramiikasta. *Sihti* 4: 64-75.

Lavento, Mika 1999. An iron furnace from the Early Metal Period at Kitulansuo in Ristiina, in the southern part of the Lake Saimaa Water System. *Fennoscandia archaeologica* XVI: 75-80.

Lavento, Mika 2000. Some Viewpoints on Early Textile Ceramics in the Baltic Countries, Russia and Finland. In: *De temporibus antiquissimus ad honorem Lembit Janits*. Muinasaja teadus 8: 59-79.

Lavento, Mika 2001. *Textile Ceramics in Finland and on the Karelian Isthmus. Nine Variations and Fugue on a Theme of C. F. Meinander.* Suomen Muinaismuistoyhdistyksen Aikakauskirja 109.

Lavento, Mika 2003. Book review. Tapani Tuovinen, The Burial Cairns and the Landscape in the Archipelago of Åboland, SW Finland, in the Bronze Age and the Iron Age. Acta Universitatis Ouluensis, B Humaniora 46 (2002), 315 p. *Fennoscandia archaeologica* XX: 121-126.

Lavento, Mika 2004a. Chronology without types and cultures? Interpreting the prehistory of Kainuu on the basis of radiocarbon dates. In: Uino, Pirjo (ed.), *Fenno-ugri et slavi 2002. Dating and Chronology*. Museoviraston arkeologian osaston julkaisuja N:o 10: 61-74.

Lavento, Mika 2004b. Transition from the Neolithic to the Bronze Age. Dating the beginning of the Bronze Age and the Early Metal Period in Finland. In: *Problemy hronologii i étnokulturnyh vzaimodejstvij i neolite Evrazii*. Rossijskaja Akademija Nauk: Sankt-Peterburg: 308-319.

Lavento, Mika, Huttunen, Raija-Liisa & Huttunen, Antti 2004: Palynological Investigations at the Ruhtinansalmi Dwelling-site Complex in Suomussalmi. Antropogenic Pollen Evidence for a Hunter-gatherer Economy? *Iskos* 13: 91-101.

Lehto, Ture 1959. Pargasbygdens historiska öden intill 1865. *Pargasbygdens historia II*. Åbo.

Lehtonen, Hannele & Uotila, Kari 2005. Eurajoen Liinmaan linnan tutkimukset kesällä 2004. *SKAS* 1/2005: 36-39.

Lehtonen, Kaisa 2000. Iron Age settlement in the river Aurajoki valley: its pattern and relation to the settlement of historic times. In: Nissinaho, Aino (ed.), *Sites and settlement*. Turku: 45-83.

Lehtonen, Kaisa 2005. Eurajoen Etukämppä – hylkeenpyytäjien ja kalastajien tukikohta muinaisen Panelianlahden rannalla. In: Ranta, Helena (ed.), *Kentältä poimittua 6. Kirjoitelmia arkeologian alalta*. Museoviraston arkeologian osaston julkaisuja N:o 11: 5-18.

Lehtosalo-Hilander, Pirkko-Liisa 1984. Keski- ja myöhäisrautakausi. *Suomen historia 1*. Espoo: 250-405.

Lehtosalo-Hilander, Pirkko-Liisa 1999. Dates. In: Huurre, Matti (ed.), *Dig it all. Papers dedicated to Ari Siiriäinen*. The Finnish Antiquarian Society, The Archaeological Society of Finland. Jyväskylä: 39-43.

Lehtosalo-Hilander, Pirkko-Liisa 2000. *Kalastajista kauppanaisiin. Euran esihistoria*. Euran kunta. Vammala.

Lempiäinen, Terttu 1996. Liedon Rähälän keskiaikaisen asuinpaikan viljavarasto – lisää tietoa Aurajokilaakson viljanviljelystä. In: Ranta, Helena (ed.), *Kentältä Poimittua 3. Kirjoitelmia arkeologian alalta*. Museoviraston arkeologian osaston julkaisuja N:o 6: 110-117.

Lempiäinen, Terttu 1999a. Hiiltyneet viljanjyvät ja maanviljelyn alku Suomessa. In: Fogelberg, Paul (ed.), *Pohjan poluilla. Suomalaisten juuret nykytutkimuksen mukaan*. Bidrag till kännedom av Finlands natur och folk 153: 152-154.

Lempiäinen, Terttu 1999b. Rapolan makrofossiilitutkimukset – Etelä-Hämeen ja Suomen viljelyhistoriaa. *Masunni* 3: 109-119.

Lempiäinen, Terttu 2005. Ruis rautakauden Suomessa ja Katariinan Kirkkomäen ruisolkipunos. In: Immonen, Visa & Haimila, Miikka (eds.), *Mustaa valkoisella. Ystäväkirja arkeologian lehtori Kristiina Korkeakoski-Väisäselle*. Turun yliopisto, arkeologia. Vantaa: 110-118.

Lempiäinen, Terttu 2006. Kasvimakrofossiilitutkimuksen viimeiset vuosikymmenet. *SKAS* 1/2006: 32-44.

Leppäaho, Jorma 1934. Herrankartanon silmäsolki. *Suomen Muinaismuistoyhdistyksen Aikakauskirja* XL: 69-74.

Lesell, Kreetta 2007. Rauma Hevossuonmäki – missä ovat röykkiön rajat? In: Mökkönen, Teemu & Seppänen, Sirkka-Liisa (eds.), *Arkeologipäivät 2006*. Suomen arkeologinen seura. Hamina: 63-75.

Levinsen, Karin 1984. Jernets introduktion i Danmark. *KUML* 1982-83: 153-168.

Levinsen, Karin Tweddell 1989. The Introduction of iron in Denmark. In: Sørensen, Marie Louise Stig & Thomas, Roger (eds.), *The Bronze Age - Iron Age Transition in Europe. Aspects of continuity and change in European societies c. 1200 to 500 B.C.* BAR International Series 483(ii): 440-456.

Liedgren, Lars 1989. Boplatsundersökningen på Kalaschabrännan: Preliminära aspekter på bebyggelsen. *Studia Archaeologica Ostrobotniesia* 1988: 31-56.

Liedgren, Lars 1991. Merovingertida bebyggelselämningar på Kalaschabrännan I Malax. In: Baudou, Evert, Engelmark, Roger, Liedgren, Lars, Segerström, Ulf & Wallin, Jan-Erik, *Järnåldersbygd i Österbotten. En ekologisk-arkeologisk studie av bosättningskontinuitet och resursutnyttjande*. Acta Antiqua Ostrobotniensia 2: 103-148.

Ligi, Priit 1993. Sveriges och Estlands kontakter under förhistorisk tid. Järnålder och vikingatid. In: Dahlberg, Anne-Marie & Tamla, Toomas (eds.), *Eesti ja Rootsi. Estland och Sverige*. Tallinn: 14-20.

Lindeman, Gundela 1985. *Förhistoriska aggressionsstrukturer i det västsvenska landskapet*. GOTARC. Series B. Gothenburg Archaeological Theses No 2.

Lindholm, Markus, Eronen, Matti, Meriläinen, Jouko & Zetterberg, Pentti 1995. A Tree-Ring Record of Past Summer Temperatures in Northern Finnish Lapland. *Fennoscandia archaeologica* XII: 95-101.

Lindquist, Sven-Olof 1968. *Det förhistoriska kulturlandskapet i östra Östergötland*. Hallebyundersökningen I. Acta Universitatis Stockholmiensis. Studies in North-European Archaeology 2.

Lindqvist, Christian 1988. A carbonized cereal grain (Hordeum sp.) and faunal remains of e.g. Harp Seal *(Phoca groenlandica)*, cod *(Gadus morhua)* and herring *(Clupea harengus)*, from the Kolsvidja upper Stone Age habitation site on Åland. *Finskt Museum* 1988: 5-40.

Litzen, Veikko 1977. Om socknen. *Historisk tidskrift för Finland* 1977: 324-335.

Lõugas, Lembi 1994. Subfossil vertebrate fauna of Asva site, Saaremaa. Mammals. Eesti Arheoloogiaseltsi Teated 1994 (1). *Stilus* 5: 71-93.

Lõugas, Lembi 1997. *Post-glacial development of vertebrate fauna in Estonian water bodies*. Dissertationes Biologicae Universitatis Tartuensis. No 32. Tartu University Press: Tartu.

Lõugas, Lembi, Lidén, Kerstin & Nelson, D. Erle 1996. Resource utilisation along the Estonian coast during the Stone Age. In: Hackens, T., Hicks, S., Lang, V., Miller, U. & Saarse, L. (eds.), *Coastal Estonia: Recent Advances in Environmental and Cultural History*. Pact 51. Rixensart. Belgium: 399-420.

Lõugas, Vello 1971. Über die Typologie und Chronologie der ältesten Hirtenstabnadeln des Ostbaltikums. *Suomen Museo* 1971: 20-37.

Lõugas, Vello 1985. Über die Beziehungen zwischen Skandinavien und Ostbaltikum in der Bronze- und frühen Eisenzeit. In: Loit, Aleksander & Selirand, Jüri (eds.), *Die Verbindungen zwischen Skandinavien und Ostbaltikum aufgrund der archäologischen Quellenmaterialen. I. Symposium der sowjetestnischen und schwedischen Archäologen. Tallinn 12.-15. Oktober 1982*. Acta Universitatis Stockholmiensis. Studia Baltica Stockholmiensia 1: 51-60.

Lõugas, Vello 1991. Eesti vanimatest oimuehetest. *Muinasaja teadus* I: 66-74.

Lõugas, Vello & Mägi-Lõugas, Marika 1994a. Investigation of ancient monuments at Pöide. *Eesti Teaduste Akadeemia Toimetised. Humanitaar- ja sotsiaalteadused* 43, 1: 27-33.

Lõugas, Vello & Mägi-Lõugas, Marika 1994b. Excavations at Pöide stronghold have been finished. *Eesti Teaduste Akadeemia Toimetised. Humanitaar- ja sotsiaalteadused* 43, 4: 390-391.

Lõugas, Vello & Selirand, Jüri 1989. *Arheoloogia Eestimaa teedel*. Teine, parandatud ja täiendatud trükk. Tallinn.

Loze, Ilze 1997a. Zemkopības Latvijas teritorijā (Lubāna ezera baseins). *Arheoloģija un etnogrāfija* XIX: 25-41.

Loze, Ilze 1997b. Indo-Europeans in the eastern Baltic in the view of an archaeologist. *Humanities and Social Sciences Latvia*: 19-35.

Lucenius, Jenni 2004. Keramik och fyndkontekster på Svinvallen. In: Stenbäck, Niklas (ed.), *Från strand till strand. Besök i åländsk stenålder. Aktuell åländsk stenåldersforskning 2004*. Ålands landskapsregering: Museibyrån. Mariehamn: 79-88.

Luho, Ville 1954. Porin verkkolöytö. *Suomen Museo* LXI: 5-27.

Luoto, Jukka 1980. Bronsålderns befästa boplatser ur finskt perspektiv. In: Thrane, Henrik (ed.), *Broncealderbebyggelse i Norden. Beretning fra det andet nordiske symposium for broncealderforskning. Odense 9.-11. april 1980*. Skrifter fra historisk institut, Odense Universitet, nr. 28: 59-66.

Luoto, Jukka 1984. *Liedon Vanhalinnan mäkilinna*. Suomen Muinaismuistoyhdistyksen Aikakauskirja 87.

Luoto, Jukka 1985. Archaeological excavations at Spurila, 1982-1983. *Iskos* 5: 451-459.

Luoto, Jukka 1987. Problem inom Finlands mellanneolitikum. *Finskt Museum* 1986: 9-21.

Luoto, Jukka 1988. Esihistoria. *Liedon historia 1*. Turku: 59-192.

Luoto, Jukka 1989. Piikkiön esihistoria. *Piikkiön historia 1*. Jyväskylä: 14-77.

Luoto, Jukka 1990a. Paimion Nakolinna. *Suomen Museo* 1990: 45-74.

Luoto, Jukka 1990b. Esihistorian aika. In: Luoto, Jukka & Alifrosti, Kari, *Sauvon Historia I*: 11-68.

Luoto, Jukka 1992. Muolaan paimensauvaneula. *Suomen Museo* 1991: 77-90.

Luoto, Jukka 1993. Metallianalyysejä pronssi- ja tinaesineistä. *Faravid. Pohjois-Suomen Historiallisen Yhdistyksen Vuosikirja* XVI: 377-384.

Luoto, Jukka 1996. Maanviljelyselinkeinot Etelä-Karjalassa 3000 BC – AD 1500. *Sihti* 4: 37-57.

Luoto, Jukka 1999. Sääksmäen Rapola – Hämeen muinaislinnojen ongelma. *Masunni. Kirjoituksia Tampereelta ja Pirkanmaalta* 3: 121-130.

Luoto, Jukka 2001. Suomen kivikauden balttilaisia kontakteja. *Suomen Museo* 2000: 15-23.

Luoto, Jukka 2003. Muinaislinnat, milloin ja mihin tarkoitukseen? In: Kaitanen, Veijo, Laukkanen, Esa & Uotila, Kari (eds.), *Muinainen Kalanti ja sen naapurit. Talonpojan maailma rautakaudelta keskiajalle*. Suomalaisen Kirjallisuuden Seuran Toimituksia 825. Hämeenlinna: 171-184.

Luoto, Jukka 2004. *Hiukkasaari Vammala – Tyrvää. Linnoitetun asuinpaikan tutkimus*. Tyrvään seudun Kotiseutuyhdistyksen julkaisu LXXXVI.

Luoto, Jukka & Asplund, Henrik 1986. Två halsringar med halvklotformiga ändknoppar från Spurila i Pemar (Paimio). *Iskos* 6: 67-76.

Luoto, Jukka & Pihlman, Aki 1980. Ala-Satakunnan keskiaikaisten linnojen arkeologisesta taustasta. *Turun historiallinen arkisto* 34: 37-51.

Luoto, Jukka, Pärssinen, Martti & Seppä-Heikka, Merja 1983. Grain impressions in ceramics from Ristimäki, Vammala, Finland. *Finskt Museum* 1981: 5-33.

Lähdesmäki, Ulla 1983. Perniön Lemun kylän Lehmihaan varhaismetallikautista keramiikkaa. *Karhunhammas* 7: 96-104.

Lähdesmäki, Ulla 1987. Perniö, Lemu, Lehmihaka. Varhaismetallikautisen hautaraunioryhmän ja asuinpaikan tutkimukset vuosina 1979-1982. *Karhunhammas* 11: 1-52.

Maaranen, Päivi 2000. Röykkiöitä Etelä-Saimaalta ja Uudeltamaalta - hautoja ja viljelyskivikasoja. In: Maaranen, Päivi & Kirkinen, Tuija (eds.), *Arkeologinen inventointi. Opas inventoinnin suunnitteluun ja toteuttamiseen*. Museovirasto. Helsinki: 185-191.

Maldre, Liina 1998. Hobune Eestit muinas- ja keskajal. In: Loodus, inimene ja tehnoloogia. Interdistsiplinaarseid uurimusi arheoloogias. *Muinasaja teadus* 5: 201-220.

Maldre, Liina 1999. Osteological Evidence for the Introduction of Farming in Estonia. In: Miller, U., Hackens, T., Lang, V., Raukas, A. and Hicks, S. (eds.), Environmental and Cultural History of the Eastern Baltic Region. *Pact* 57: 319-323.

Malonaitis, Arvydas 2005. Geležiniai pleišto pavidalo kirviai Lietuvoje. *Lietuvos archeologija* 27: 23-28.

Mandel, M. 1978. Über die Ausgrabungen der Tarandgräber von Poanse. *Eesti NSV teaduste akadeemia toimetised. 27. köide. Ühiskonnateadused*. 1978, Nr. 1: 78-80.

Mandel, Mati 1993. *Läänemaa esiajalugu*. Tallinn.

Manker, Ernst 1971. Fennoskandias fornskidor. Preliminär rapport från en inventering. *Fornvännen* 1971/2: 77-91.

Marciniak, Arkadiusz 1995. Archaeology and palaeodemography: expectations and limitations. In: Kuna, Martin & Venclová, Natalie (eds.), *Whither Archaeology? Papers in Honour of Evžen Neustupný*. Praha: 110-117.

Markus, Felicia 2002. Field investigations in Einbi, an Estonian Swedish village. *Eesti Arheoloogia Ajakiri* 6, 2: 109-133.

Markus, Felicia 2004a. The Baltic Sea. Barrier or Medium of Contacts. In: Bolin, Hans (ed.), *The Interplay of Past and Present. Papers from a session held at the 9th annual EAA meeting in St. Petersburg 2003.* Södertörn Archaeological Studies 1: 58-68.

Markus, Felicia 2004b. *Living on Another Shore. Early Scandinavian Settlement on the North-Western Estonian Coast*. Occasional Papers in Archaeology 36.

Matiskainen, H. 1982. Anthropogenic interpretation of the Isokylä area, Salo, South-West Finland. In: *Second Nordic conference on the application of scientific methods in archaeology*. Pact 7/1982: 129-136.

Matiskainen, Heikki 1998. Early contacts and relations between the Indo-European and Fenno-Ugrian Peoples - Nationalism, Politics and Archaeology. In: Julku, Kyösti & Wiik, Kalevi (eds.), *The Roots of Peoples and Languages of Northern Eurasia I.* Societas Historiae Fenno-Ugricae. Jyväskylä: 105-119.

Matiskainen, Heikki & Ruohonen, Juha 2004. *Esihistorian pauloissa*. Hämeenlinna.

McGuire, Randall H. 1983. Breaking Down Cultural Complexity: Inequality and Heterogeneity. In: Schiffer, Michael B. (ed.), *Advances in Archaeological Method and Theory.* Volume 6. Academic Press: New York: 91-142.

Meinander, C. F. 1949. Malmsby – Böle – Gesterby. En arkeologisk fyndtrio från östra Nyland. *Nordenskiöld-samfundets tidskrift* IX: 101-105.

Meinander, C. F. 1950. *Etelä-Pohjanmaan historia I. Esihistoria*. Etelä-Pohjanmaan Historiatoimikunta: Helsinki.

Meinander, C. F. 1954a. *Die Kiukaiskultur*. Suomen Muinaismuistoyhdistyksen Aikakauskirja 53.

Meinander, C. F. 1954b. *Die Bronzezeit in Finnland*. Suomen Muinaismuistoyhdistyksen Aikakauskirja 54.

Meinander, C. F. 1961. De subneolitiska kulturgrupperna i norra Europa. *Societas Scientiarum Fennica Årsbok – Vuosikirja* XXXIX B N:o 4.

Meinander, C .F. 1969. Dåvits. En essä om förromersk järnålder. *Finskt Museum* 1969: 27-69.

Meinander, C.F. 1980. The Finnish society during the 8th-12th centuries. *Fenno-ugri et slavi 1978*. Helsingin yliopiston arkeologian laitos. Moniste n:o 22: 7-13.

Meinander, C. F. 1983. Om svenskarnes inflyttningar till Finland. *Historisk Tidskrift för Finland* 3, 1983: 229-251.

Meinander C. F. 1984a. Om introduktionen av sädesodling i Finland. *Finskt Museum* 1983: 5-20.

Meinander C. F. 1984b. Kivikautemme väestöhistoria. In: Åström, Sven-Erik (ed.), *Suomen väestön esihistorialliset juuret*. Bidrag till kännedom av Finlands natur och folk. Utgivna av Finska Vetenskaps-Societeten H. 131: 21-48.

Meinander C. F. 1984c. Myrsbacka. In: *Festskrift tillägnad Matts Dreijer på hans 80-årsdag 31.01.1981*. Ålands folkminnesförbund. Bygdeserie nr 5: 183-192.

Meinander, C. F. 1985. Akozino, Achmylovo och mälaryxorna. *Finskt Museum* 1985: 15-34.

Meinander, C. F. 1986. Die Ethnogenese der Finno-Ugrier aus der Sicht der Vor- und Frühgeschichte. In: Bernhard, Wolfram & Kandler-Pálsson, Anneliese (eds.), *Ethnogenese europäischer Völker. Aus der Sicht der Anthropologie und Vor- und Frühgeschichte*. Gustav Fischer Verlag: Stuttgart: 363-373.

Meinander, Carl Fredrik 1987. De arkeologiska förutsättningarna. In: *Klassiska problem inom finlandssvensk ortnamnsforskning. Svenska litteratursällskapets jubileumssymposium på Hanaholmen 4 - 6 oktober 1985*. Studier i nordisk filologi 67; Skrifter utgivna av Svenska litteratursällskapet i Finland nr 539. Hangö: 17-19.

Melander, K. R. 1932. Muutamia tietoja Ukon ja maanhaltijan palvonnasta meillä entisaikoina. *Virittäjä* 1932: 37-44.

Merkevičius, Algimantas & Nemickienė, Rėda 2003. Senųjų žemdirbystės laukų tyrnėjimai šiaurės vakarų Lietuvoje. *Archaeologia Lituana* 4: 186-198.

Miettinen, Mirja 1980. *Forntid i Pörtom*. Vasa.

Miettinen, Mirja 1982. Den förhistoriska tiden i Petalax. *Petalax historia I*. Vasa: 7-78.

Miettinen, Mirja 1986. An early Iron Age cairn from Frönäsudden, southern Ostrobothnia. *Fennoscandia archaeologica* III: 59-66.

Miettinen, Mirja 1989. Den österbottniska kustbosättningen under tidig metallålder ca 1000 BC - 200 AD. Sammanfattning av undersökningar på 1970- och 1980-talen. *Bottnisk kontakt* IV: 99-107.

Miettinen, Mirja 1994a. Tidig metallålder i Österbottens kustland: Nya arkeologiska forskningsresultat. In: *Järnåldern i Mittnorden. Ett symposium kring nya arkeologiska och ekologiska forskningsrön*. Vasa: 155-172.

Miettinen, Mirja 1994b. Recent discoveries of eastern Bronze Age materials from Jepua on the Gulf of Bothnia. *Fennoscandia archaeologica* XI: 3-12.

Miettinen, Mirja 1998. *Laihian historia I. Esihistoria*. Jyväskylä.

Miettinen, Mirja & Vuorela, Irmeli 1988. Archaeological and palynological studies of the agricultural history of Vörå and Malax, Southern Ostrobothnia. *Fennoscandia archaeologica* V: 47-68.

Miettinen, Timo 1998. *Kymenlaakson esihistoriaa*. Kymenlaakson maakuntamuseon julkaisuja no 26.

Mignon, Molly Raymond 1993. *Dictionary of concepts in archaeology*. Reference Sources for the Social Sciences and Humanities, Number 13. Greenwood Press: Westport, Connecticut.

Mikkola, Esa 1999. Halikonjokilaakson rautakautiset muinaisjäännökset eli inventoinnin ihmeellinen maailma. *Muinaistutkija* 1/1999: 39-50.

Mikkola, Esa 2001. Mikkelin mlk:n Orijärven hopearaha-aarre ja muinaispellot. In: Ranta, Helena (ed.), *Kentältä poimittua 5. Kirjoitelmia arkeologian alalta*. Museoviraston arkeologian osaston julkaisuja N:o 9: 84-98.

Mikkola, Esa 2005. Mikkelin Orijärven muinaispeltovaiheet. In: Pesonen, Petro & Mökkönen, Teemu (eds.), *Arkeologipäivät 2004*. Suomen arkeologinen seura. Hamina: 49-59.

Mikkola, Esa & Talvio, Tuukka 2000. A silver coin hoard from Orijärvi, Kihlinpelto in Mikkeli Rural Commune, Province of Savo, Eastern Finland. *Fennoscandia archaeologica* XVI: 129-138.

Mikkola, Esa & Tenhunen, Tanja 2003. Uusimpia tutkimustuloksia Mikkelin Orijärven hopearaha-aarteen löytöpaikalta. *Sihti* 5: 55-73.

Miller, Daniel & Tilley, Christopher 1984. Ideology, power and prehistory: an introduction. In: Miller, Daniel & Tilley, Christopher (eds.), *Ideology, power and prehistory*. Cambridge University Press: Cambridge: 1-15.

Mogren, Mats 1996. Hälsingland från 700-tal till 1700-tal: Expansionsstrategier och marginalernas dynamik, eller: Centrum-periferi-analys är inte så enfaldigt som många tror. *Kontaktstencil* 39: 137-152.

Moora, H. 1929. *Die Eisenzeit in Lettland bis etwa 500 n. Chr. I. Teil: Die Funde*. Õpetatud Eesti Seltsi Toimitused XXV.

Moora, H. 1938. *Die Eisenzeit in Lettland bis etwa 500 n. Chr. II. Teil: Analyse*. Õpetatud Eesti Seltsi Toimitused XXIX.

Moora, H. A. 1952. Pamjatniki pozdnego neolita i rannej épohi metalla v Pribaltike.*Kratkie Soobščenija Instituta Istorii Material'noj Kul'tury* XLVIII: 3-24.

Moora, H. 1956. Eesti rahva ja naaberrahvaste kujunemisest arheoloogia andmeil. In: Moora, H. (ed.), *Eesti rahva etnilisest ajaloost. Artiklite kogumik.* Tallinn: 41-119.

Moora, H. & Ligi, H. 1970. *Wirtschaft und Gesellschaftsordnung der Völker des Baltikums zu Anfang des 13. Jahrhunderts.* Akademi der Wissenschaften der Estnischen SSR. Institut für Geschichtsforsschung. Tallinn.

Moora, T. 1974. Über die Ausgrabungen der Steinsetzung von Võhma in Nordestland. *Eesti NSV teaduste akadeemia toimetised. 23. köide. Ühiskonnateadused*. 1974, Nr. 1: 86-87.

Muurimäki, Eero 2004. Huts and Houses. Stone Age and early metal Age buildings in Finland. Toim. Helena Ranta, Museovirasto – National Board of Antiquities, Helsinki 2002. 255 s. ISBN 951-616-079-4. *Suomen Museo* 2003: 139-142.

Myhre, Bjørn 1999. Together or apart – the problem of nucleation and dispersal of settlements. In: Fabech, Charlotte & Ringtved, Jytte (eds.*), Settlement and Landscape. Proceedings of a conference in Århus, Denmark, May 4-7 1998*. Jutland Archaeological Society. Aarhus University Press: 125-129.

Myhrman, Hans 1990a. Lokalisering av stenåldersboplatser i skärgården. *Skärgård* 3/1990: 38-41.

Myhrman, Hans 1990b. *Från säljägare till rösbyggare. Stenåldern i Dragsfjärd ur en amatörarkeologs synvinkel*. Åbo.

Myrdal, Janken 1999. *Jordbruket under feodalismen 1000-1700*. Det svenska jordbrukets historia. Borås.

Myrdal, Janken 2005. Krisen är ingen katastrof. In: Bunte, Carin, Berglund, Björn E. & Larsson, Lars (eds.), *Arkeologi och naturvetenskap. Gyllenstiernska Krapperupstiftelsens symposium nr 6 år 2003*. Lund: 82-110.

Myöhänen, Sami 2000. Polveutumista, ideansiirtoja ja harmonisointia. Verojen tulo Suomeen. In: Lappalainen, Jussi T. (ed.), *Verotushistoriaa 2*. Turun yliopiston historian laitoksen julkaisuja 58: 9-46.

Mägi, Marika 2005. Mortuary houses in Iron Age Estonia. *Estonian Journal of Archaeology* 9, 2: 93-131.

Mäntylä, Ilkka 1988. Kustavilainen aika. In: *Suomen historian pikkujättiläinen*. Porvoo: 312-357.

Mäntylä, Sari 2005a. Kuriositeetteja, lahjoja ja suojelumagiaa. Hauta-antimien tulkintaongelmia Halikon Rikalanmäen aineiston valossa. In: Immonen, Visa & Haimila, Miikka (eds.), *Mustaa valkoisella. Ystäväkirja arkeologian lehtori Kristiina Korkeakoski-Väisäselle*. Turun yliopiston arkeologian oppiaine. Vantaa: 134-152.

Mäntylä, Sari (ed.) 2005b. *Rituals and Relations. Studies on the society and material culture of the Baltic Finns*. Suomalaisen Tiedeakatemian Toimituksia. Humaniora 336.

Mäntylä, Sari (ed.) 2006. *Miekka – Menneisyys – Maisema*. Halikon kunnan kulttuuritoimi. Somero.

Mäntylä, Sari 2007. The Meaning of Weapons as Grave Goods: Examples from Two Southwest Finnish Crusade Period Cemeteries. In: *Weapons, Weaponry and Man (In memoriam of Vytautas Kazakevičius)*. Archaeologia Baltica, vol. 8: 302-309.

Mäkivuoti, Markku 1987. Om den förhistoriska järntillverkningen I Nordfinland. In: Julku, Kyösti (ed.), *Nordkalotten i en skiftande värld – kulturer utan gränser och stater över gränser*. Studia Historica Septentrionalia 14:1: 59-71.

Mäkivuoti, Markku 1988. An iron-age dwelling site and burial mounds at Rakanmäki, near Tornio. *Fennoscandia archaeologica* V: 35-45.

Naskali, Eero 1999. On Ancient Skis. In: Huurre, Matti (ed.), *Dig it all. Papers dedicated to Ari Siiriäinen*. The Finnish Antiquarian Society, The Archaeological Society of Finland. Jyväskylä: 295-306.

Nerman, Birger 1935. *Die Völkerwanderungszeit Gotlands*. Kungl. Vitterhets Historie och Antikvitets Akademien. Stockholm.

Nicklasson, Påvel 1997a. *Svärdet ljuger inte. Vapenfynd från äldre järnålder på Sveriges fastland*. Acta Archaeologica Lundensia. Series prima in 4° N 22°.

Nicklasson, Påvel 1997b. The Chronology of Weapons from the Pre-Roman Iron Age in Mainland Sweden and Öland. *Lund Archaeological Review* 1996: 31-50.

Nicklasson, Påvel 2001. *Strävsamma bönder och sturska stormän. Stafsinge och Halland från bronsålder till medeltid*. Acta Archaeologica Lundensia, Series in 8º, No. 35.

Nikander, Grabriel 1942. Bebyggelsens förutsättningar. *Kimitobygdens historia II:1*. Åbo: 27-50.

Nissinaho, Aino 1988. Rautakauden ja varhaiskeskiajan asutuskehityksestä Maskunjokilaaksossa. In: Korkeakoski-Väisänen, Kristiina, Lähdesmäki, Ulla, Nissinaho, Aino, Pihlman, Sirkku & Tuovinen, Tapani (eds.), *Baskerilinja. Unto Salo 60 vuotta*. Vammala: 43-50.

Nissinaho, Aino (ed.) 1994. *Cultural Ecology: One Theory?* Turku.

Nissinaho, Aino (ed.) 1995. *Ihmisen maisema. Kirjoituksia yhteisön ja ympäristön muutoksesta Lounais-Suomen rannikolla.* Turku.

Nissinaho, Aino 1996. Iron Age settlement dynamics in southwest Finland. In: *European Association of Archaeologists. 2nd Annual Meeting. Riga, 25th-29th September 1996. Programme and abstracts*: 60-61.

Nissinaho, Aino 1997. Eräitä lähimpään naapuruuteen perustuvia alueanalyysikokeiluja varsinais-suomalaisesta asutusaineistosta. *Muinaistutkija* 4/1997: 24-28.

Nissinaho, Aino (ed.) 2000. *Sites and Settlements*. Turku.

Nissinaho, Aino 2002. Paikallisyhteisö muutoksien edessä – Mikrotutkimus Maskusta rautakauden lopulta keskiajalle. In: Saukkonen, Anna (ed.), *Ympäristöhistorian monet kasvot – kirjoituksia suomalaisesta ympäristöhistoriasta*. Turun yliopiston Historian laitoksen julkaisuja 62: 89-141.

Nissinaho, Aino 2007. The Lifestory of Masku Villages. The Environment of an Emerging Manor in SW Finland. In: Blomkvist, Nils & Lindström, Therese (eds.), *The Significant Detail. Europeanization at the Base of Society: the Case of the Baltic Rim 1100 – 1400 AD. Transactions of the CCC workshops at Skäftekärr in Sweden 7-10 October 1999, and at Tukums in Latvia 15-18 April 2000.* CCC papers 9. Gotland University, Visby. Painoyhtymä Oy: 193-215.

Nordin, Svante 1991. Tre typer av maktteori. In: Larsson, Lars & Ryberg, Eva (eds.), *Arkeologi och makt. Rapporet från arkeologidagarna 15-17 januari 1990.* University of Lund. Institute of Archaeology Report Series No 40: 7-10.

Nordman, C. A. 1937. Bornholm I Nagu. *Finskt Museum* XLIII: 23-31.

Nordman, C. O. 1940. Medeltidskyrkogården i Hitis. *Finskt Museum* XLVI: 12-27.

Norman, Peter 1993. *Medeltida utskärsfiske. En studie av fornlämningar i kustmiljö*. Nordiska museets Handlingar 116.

Norman, Peter 1995. *Sjöfart och fiske. De kustbundna näringarnas lämningar*. Fornlämningar i Sverige 3. Riksantikvarieämbetet: Borås.

Nuñez, Milton 1986. Om bosättningen på Ålandsöarna under stenåldern. *Åländsk odling* 46: 13-28.

Nuñez, Milton 1989. New data on Åland's Swedish Pitted Ware culture. *Finskt Museum* 1989: 122-123.

Nuñez, Milton 1990. Människa och miljö i den åländska skärgården under stenåldern. *Skärgård* 3/1990: 42-47. Åbo.

Nuñez, Milton 1993. Searching for a Structure in the Late Iron Age Settlement of the Åland Islands, Finland. *Karhunhammas* 15: 61-73.

Nuñez, Milton 1994. Discovery and occupation of the Finnish Stone Age archipelago in the 4th millenium BC. In: Goldhahn, Joakim (ed.), *Teori & Praktik. Rapport från kontaktseminariet i Tanum 4:e - 8: e oktober 1993*. Kontaktstencil XXXVII: 109-124.

Nuñez, Milton 1995. Agrarian Colonization and Settlement of the Åland Islands in the First Millennium AD. *Fennoscandia archaeologica* XII: 113-122.

Nuñez, Milton 1996. When the water turned salty. *Muinaistutkija* 3/1996: 23-33.

Nuñez, Milton & Okkonen, Jari 1999. Environmental Background for the Rise and Fall of Villages and Megastructures in North Ostrobotnia 4000-2000 cal BC. In: Huurre, Matti (ed.), *Dig it all. Papers dedicated to Ari Siiriäinen.* The Finnish Antiquarian Society. Helsinki: 105-115.

Núñez, Milton & Okkonen, Jari 2005. Humanizing of north Ostrobotnian landscapes during the 4th and 3rd millennia BC. *Journal of Nordic Archaeological Science* 15: 25-38.

Nuñez, Milton & Uino, Pirjo 1998. Dwellings and related structures in prehistoric mainland Finland. In: Kyhlberg, Ola (ed.), *Hus och tomt i Norden under förhistorisk tid*. Bebyggelsehistorisk tidskrift Nr 33, 1997: 133-152.

Nyberg, Ragnar 1985. *Våra rösgravar. En inventeringsrapport från Pargas*. Pargas Hembygdsförenings publikationer 8.

Nylén, Erik 1955. *Die jüngere vorrömische Eisenzeit Gotlands. Funde, Chronologie, Formenkunde*. Kungl. Vitterhets Historie och Antikvitets Akademien. Uppsala.

Nylén, Erik 1969. Den blodröda Sibbo-kula, ett keltiskt arbete? *Finskt Museum* 1969: 5-13.

Näsman, Ulf 1994. The Iron Age graves of Öland - Representative of What? In: Stjerquist, Berta (ed.), *Prehistoric Graves as Source of Information. Symposium at Kastlösa, Öland, May 21-23, 1992*. Kungl. Vitterhets Historie och Antikvitets Akademien. Konferenser 29: 15-30.

Nørbach, Lars Christian 1999. Organising iron production and settlement in Northwestern Europe during the Iron Age. In: Fabech, Charlotte & Ringtved, Jytte (eds.*), Settlement and Landscape. Proceedings of a conference in Århus, Denmark, May 4-7 1998*. Jutland Archaeological Society. Aarhus University Press: 237-247.

Oja, Aulis 1933. Halikon kihlakunnan keskiaikaisesta asutuksesta ja hallintopitäjäjaosta. In: *Historiallisia tutkielmia*. Turun historiallisen yhdistyksen julkaisuja IV: 181-216.

Oja, Aulis 1945. Uskelan väestö ja väkiluku v. 1634. *Historiallinen Aikakauskirja* 1945, N:o 1: 60-71.

Oja, Aulis 1955. Keskiaikaisen "Etelä-Suomen" asutus ja aluejaot. *Historiallisia tutkimuksia* XLIV.

Oja, Aulis 1958. *Perttelin historia*. Salo.

Oja, Aulis 1961. *Kuusjoen historia*. Salo.

Ojala, Antti E. K. & Saarinen, Timo 2002. Paleosecular variation of the Earth's magnetic field during the last 10 000 years based on the annually laminated sediment of Lake Nautajärvi, central Finland. *The Holocene* 12, 4: 391-400.

Ojala, Antti E. K., Saarnisto, Matti & Snowball, Ian F. 2003. Climate and Environmental Reconstructions from Scandinavian Varved Lake Sediments. *PAGES News*, Vol. 11, N° 2 & 3: 10-12.

Ojala, Antti E. K. & Alenius, Teija 2005. 10 000 years of interannual sedimentation recorded in the Lake Nautajärvi (Finland) clastic-organic varves. *Palaeogeography, Palaeoclimatology, Palaeoecology* 219: 285-302.

Okkonen, Jari 2003. *Jättiläisen hautoja ja hirveitä kiviröykkiöitä – Pohjanmaan muinaisten kivirakennelmien arkeologiaa*. Acta Universitatis Ouluensis B Humaniora 52.

Okkonen, Jari & Äikäs, Tiina 2006. Oulun seudun varhaismetallikautiset keittokuopat – käyttötarkoitus ja konteksti. *Faravid. Pohjois-Suomen Historiallisen Yhdistyksen Vuosikirja* XXX: 17-32.

Olausson, Deborah 1993. Hav och äng, skog och åker. Bronsåldersbondens levnadssätt i södra Sverige. In: Forsberg, Lars & Larsson, Thomas B. (eds.), *Ekonomi och näringsformer i nordisk bronsålder. Rapport från det 6:e nordiska bronsålderssymposiet, Nämforsen 1990*. Studia Archaeologica Universitatis Umensis 3: 105-115.

Olausson, Michael 1995. *Det inneslutna rummet – om kultiska hägnader, fornborgar och befästa gårdar I Uppland från 1300 f Kr till Kristi födelse*. Riksantikvarieämbetet. Arkeologiska undersökningar. Skrifter nr 9.

Olsen, Bjørnar 1994. *Bosetning og samfunn i Finnmarks forhistorie*. Oslo.

Olsén, Pär 1934. Några halsringar från övergångstiden mellan brons- och järnålder. In: *Studier tillägnade Gunnar Ekholm 13.3.1934*. Göteborg: 154-168.

Olsson, Mats & Thomasson, Joakim 2001. Vad är en by och varför? Om den medeltida byns uppkomst och rationalitet. *Scandia* 1/2001: 5-29.

Onnela, Johanna, Lempiäinen, Terttu & Luoto, Jukka 1996. Viking Age cereal cultivation in SW Finland - a study of charred grain from Pahamäki in Pahka, Lieto. *Annales Botanici Fennici* 33: 237-255.

Orrman, Eljas 1983. Den medeltida bebyggelseutvecklingen i Finland i ljuset av medeltidens skatteenheter. *Historisk Tidskrift för Finland* 3, 1983: 280-295.

Orrman, Eljas 1986. *Bebyggelsen i Pargas, St. Mårtens och Vemo socknar i Egentliga Finland under senmedeltiden och på 1500-talet*. Historiallisia tutkimuksia 131.

Orrman, Eljas 1990a. Den svenska bebyggelsens historia. In: *"Finska skären". Studier i åboländsk kulturhistoria utgivna av Konstsamfundet till dess 50-årsjubileum 1990*. Helsingfors: 197-278.

Orrman, Eljas 1990b. Synpunkter på bebyggelseutvecklingen i södra Österbotten under järnåldern och tidig medeltid. *Historisk Tidskrift för Finland* 1, 1990: 32-42.

Orrman, Eljas 1991. Geographical factors in the spread of permanent settlement in parts of Finland and Sweden from the end of the Iron Age to the Beginning of Modern Times. *Fennoscandia archaeologica* VIII: 3-21.

Orrman, Eljas 1996. Ett försök att beräkna bebyggelsens omfattning i Finland vid utgången av högmedeltiden. In: Haarstaad, Kjell, Kirkhusmo, Anders, Slettan, Dagfinn & Supphellen, Steinar (eds.), *Innsikt og utsyn, Festskrift till Jørn Sandnes*. Trondheim: 125-143.

Orrman, Eljas 2001. Studier om landskapsbildningen och korstågstiden i Tavastland och Satakunda. *Historisk Tidskrift för Finland* 3, 2001: 421-427.

Ostoja-Zagórski, Janusz 1989a. Changes in economic and social structures in northern Poland at the transition from the Bronze Age to the Iron Age. In: Sørensen, Marie Louise Stig & Thomas, Roger (eds.), *The Bronze Age - Iron Age Transition in Europe. Aspects of continuity and change in European societies c. 1200 to 500 B.C.* BAR International Series 483(ii): 389-407.

Ostoja-Zagórski, Janusz 1989b. Anthropogenic changes of the Natural Environment in the Late Bronze Age in the South-east Baltic Sea Zone. In: Ambrosiani, B. (ed.), *Die Bronzezeit im Ostseegebiet. Ein rapport der Kgl. Schwedischen Akademie der Literatur Geschichte und Altertumsforschung über das Julita_ Symposium 1986.* Kungl. Vitterhets Historie och Antikvitets Akademien. Konferenser 22: 27-34.

Palm, Jukka & Pellinen, Hanna-Maria 2002. Historiallisen ajan maaseutuarkeologiaa Pernajassa. *Muinaistutkija* 3/2002: 29-46.

Palo, Jyrki 2001. Auranjälkiä Asikkalan Kalkkisista. In: Ranta, Helena (ed.), *Kentältä poimittua 5. Kirjoitelmia arkeologian alalta*. Museoviraston arkeologian osaston julkaisuja N:o 9: 99-104.

Patrushev, Valery S. 2004. The chronology of the Early Iron Age of the Middle Volga region. In: Uino, Pirjo (ed.), *Fenno-ugri et slavi 2002. Dating and Chronology*. Museoviraston arkeologian osaston julkaisuja N:o 10: 75-86.

Paynter, Robert & McGuire, Randall H. 1991. The Archaeology of Inequality: Material Culture, Domination and Resistance. In: Paynter, Robert & McGuire, Randall H. (eds.), *The Archaeology of Inequality*. Blackwell: Oxford: 1-27.

Pedersen, Ellen Anne & Widgren, Mats 1998. Järnålder 500 f.Kr. – 1000 e.Kr. In: Welinder, Stig, Pedersen, Ellen Anne & Widgren, Mats, *Jordbrukets första femtusen år.* Det svenska jordbrukets historia. Borås: 237-459.

Peets, Jüri 2003a. *Raua vägi. Raua tootmine ja sepatöö Eestis ja naaberpiirikondades muinas- ja keskajal.* Muinasaja teadus 12.

Peets, Jüri 2003b. Koos rauaga läbi aastatuhandete. In: Lang, Valter & Tamla, Ûlle (eds.), *Arheoloogiga Läänemeremaades. Uurimusi Jûri Seliranna auks*. Muinasaja teadus 13: 209-228.

Pellinen, Hanna-Maria 1999. Soikeiden tuluskivien konteksti. *Muinaistutkija* 1/1999: 24-38.

Pellinen, Hanna-Maria 2004. *Vuosituhannet Vehmaalla – opas arkeologiseen menneisyyteen*. Vehmaan kotiseutuyhdistys ry. Vantaa.

Pellinen, Hanna-Maria 2005. Kivilouhoksesta käärmemiekkaan. Vehmaan omaleimainen esihistoria. In: Immonen, Visa & Haimila, Miikka (eds.), *Mustaa valkoisella. Ystäväkirja arkeologian lehtori Kristiina Korkeakoski-Väisäselle*. Turun yliopisto, arkeologia. Vantaa: 169-187.

Pellinen, Hanna-Maria 2007. Reconstruction and archaeology – A case study of a village from historically recorded times. In: Immonen, Visa, Lempiäinen, Mia & Rosendahl, Ulrika (eds.), *Hortus novus. Fresh approaches to medieval archaeology in Finland*. Archaeologia Medii Aevi Finlandiae XIV: 92–107.

Pellinen, Hanna-Maria & Pälikkö, Marja 2006. A Fossil Field in Laitila Untamala. In: Schadla-Hall, Tim (ed.), *Finland and Tallinn. Report and Proceedings of the 151st Summer Meeting of the Royal Archaeological Institute in 2005*. Supplement to the Archaeological Journal volume 162. The Royal Archaeological Institute. London: 35-41.

Pentikäinen, Juha 1990. Child Abandonment as an Indicator of Christianization in the Nordic Countries. In: Ahlbäck, Tore (ed.), *Old Norse and Finnish Religions and Cultic Place-Names. Based on Papers read at the Symposium on Encounters between Religions in Old Nordic Times and on Cultic Place-Names held at Åbo, Finland, on the 19th-21st of August 1987.* Åbo: 72-91.

Pesonen, Petro 2004. Neolithic pots and ceramics chronology – AMS-datings of Middle and Late Neolithic ceramics in Finland. In: Uino, Pirjo (ed.), *Fenno-ugri et slavi 2002. Dating and Chronology*. Museoviraston arkeologian osaston julkaisuja N:o 10: 87-97.

Pesonen, Petro 2006. Vanhempia roomalaisia nuoremmalla roomalaisajalla? Early Romans in the late Roman Iron Age? In: Suhonen, Mervi (ed.), *Arkeologian lumoa synkkyyteen. Artikkeleita Christian Carpelanin juhlapäiväksi. Lighting the darkness – the attraction of archaeology. Papers in honour of Christian Carpelan*. Helsinki: 138-151.

Pesonen, Petro & Lahti, Eeva 2005. Salon Meriniitynpuiston roomalaisen rautakauden kalmisto – palaneen ihmisluun tutkimusta käytännössä. In: Pesonen, Petro & Mökkönen, Teemu (eds.), *Arkeologipäivät 2004*. Suomen arkeologinen seura. Hamina: 74-86.

Pietrzak, Mirosław & Podgórski 2005. *Chłapowo 2 powiat pucki, woj. Pomorskie. Cemetarzysko fazy wielkowiejskiej kultury pomorskiej*. Muzeum Archeologiczne w Gdańsku: Gdansk.

Pihlaja, Kalevi & Haihu, Kirsti 1991. *Radiocarbon dating in Turku University. Reports from the ^{14}C Laboratory* 1.

Pihlman, Aki 1982. Ulvila – myöhäiskeskiaikainen taajama Kokemäenjoen varrella. Asuinpaikan kronologisista vaiheista saviastia-aineiston perusteella. *Historiallinen Arkisto* 78: 99-113.

Pihlman, Aki 2005. Varhaista kaupunkia etsimässä. *Museotiedote Turusta* 3/2005: 27.

Pihlman, Aki & Majantie, Kirsi 2006. Varhainen Turku – Uutta tietoa Turun varhaisista vaiheista. *SKAS* 1/2006: 45-54.

Pihlman, Aki, Pihlman, Sirkku & Taavitsainen, Jussi-Pekka 2001. Kylästä kaupungiksi. Från by till stad. *Museotiedote Turusta. Museinytt från Åbo* 3/2001: 11-13.

Pihlman, Sirkku 1985. Laitila, Soukainen, Savemäki. Rautakautisen kalmiston tutkimus 1978. *Karhunhammas* 9: 58-71.

Pihlman, Sirkku 1987. Turun seudun rautakaudella erityispiirteitä. Väestöllisiä erityispiirteitä ja niukkuuden ja runsauden kausia? *ABOA. Turun maakuntamuseo, vuosikirja* 49/1985: 25-39.

Pihlman, Sirkku 1990. *Kansainvaellus- ja varhaismerovinkiajan aseet Suomessa. Typologia, kronologia ja aseet ryhmästrategioissa*. Iskos 10.

Pihlman, Sirkku 1992. Problems of ethnicity relating to the Migration and Early Merovingian Periods in Finland. In: Lang, Valter & Selirand, J. (eds.), *Cultural heritage of the Finno-Ugrians and Slavs. Papers presented by the participants in the Sovjet-Finnish archaeological symposium 10-16 May 1990 in Tallinn*. Tallinn: 41-61.

Pihlman, Sirkku 1995. A Short History of Archaeology at the University of Turku. *Karhunhammas* 16: 1-18.

Pihlman, Sirkku 2003. Ikivanha raja-alue vallan tukikohdaksi. Kaupungin sijainti rautakautista taustaa vasten. In: Seppänen, Liisa (ed.), *Kaupunkia pintaa syvemmältä. Arkeologisia näkökulmia Turun historiaan*. Archaeologia Medii Aevi Finlandiae IX: 27-41.

Pihlman, Sirkku 2004. Väestöräjähdys historiallisen ajan taitteessa? Voisiko aineistoja tulkita toisinkin? *ABOA. Turun maakuntamuseo. Vuosikirja* 66-67 / 2002-2003: 47-98.

Pihlman, Sirkku 2005. Beziehungen mit den Liven? Gedanken über die Kontaktfelder der Raisiobewohner am ende der Prähistorischen Zeit. In: Mäntylä, Sari (ed.), *Rituals and Relations. Studies on the society and material culture of the Baltic Finns*. Suomalaisen Tiedeakatemian Toimituksia. Humaniora 336: 207-223.

Pihlman, Sirkku & Seppä-Heikka, Merja 1985. Indication of Late-Neolithic cereal cultivation at the Kotirinne dwelling site at Niuskala, Turku, SW Finland. *Memoranda Soc. Fauna Flora Fennica* 61: 85-88.

Piiper, J. 1988. Raigastvere järve ümbruse taimestiku muutused (taimede makrojäänuste analüüsi põhjal). In: Rõuk, A.-M. & Selirand, J. (eds.), *Loodusteaduslikke metoodeid Eesti arheoloogias*. Tallinn: 85-96.

Pilcher, J. R. & Hughes, M 1982. The potential of dendrochronology for the study of climate change. In: Harding, A. F. (ed.), *Climatic Change in Later Prehistory*. Edinburgh University Press: Edinburgh: 75-84.

Pipping, Hugo 1918. Finländska ortnamn. *Skrifter utgivna av Åbo Akademi kommitte* 7.

Pirrus, R. & Rõuk, A.-M. 1988. Inimtegevuse kajastumisest Vooremaa soo- ja järvesetetes. In: Rõuk, A.-M. & Selirand, J. (eds.), *Loodusteaduslikke metoodeid Eesti arheoloogias*. Tallinn: 39-53.

Pitkänen, Kari 1979. Finlands folkmängd år 1749. *Historisk Tidskrift för Finland* 1979: 22-40.

Pitkänen, Kari 1992. Historiallisen ajan Halikko kunnallishallinnon alkuun. In: *Halikon historia I*. Jyväskylä: 151-518.

Pitkänen, Kari 1994. Suomen väestön historialliset kehityslinjat. In: Koskinen, Seppo, Martelin, Tuija, Notkola, Irma-Leena, Notkola, Veijo & Pitkänen, Kari (eds.), *Suomen väestö*. Gaudeamus. Hämeenlinna: 19-63.

Pitkänen, Ritva Liisa 1985. *Turunmaan saariston suomalainen lainanimistö*. Suomalaisen Kirjallisuuden Seuran Toimituksia 418.

Pitkänen, Ritva Liisa 1990. Ortnamn av finskt ursprung. In: *"Finska skären". Studier i åboländsk kulturhistoria utgivna av Konstsamfundet till dess 50-årsjubileum 1990*. Helsingfors: 135-193.

Pitkänen, Ritva Liisa 2003. De finska lånenamnen i Pargas. In: *Boken om våra modersmål. Festskrift till Mikael Reuter på hans 60-årsdag den 17 maj 2003*. Vasa: 277-284.

Pleiner, Radomír 1980. Early Iron Metallurgy in Europe. In: Wertime, Theodore A. & Muhly, James D. (eds.), *The Coming of the Age of Iron*. Yale University Press: New Haven and London: 375-415.

Pleiner, Radomír 1993. *The Celtic Sword*. Clarendon Press: Oxford.

Price, Barbara J. 1984. Competition, Productive Intensification, and Ranked Society: Speculations from Evolutionary Theory. In: Ferguson, R. Brian (ed.), *Warfare, culture, and environment*. Academic Press: Orlando: 209-240.

Pukkila, Jouko 2005. Muutama kartta muinaisesta Aurajokilaaksosta. In: Immonen, Visa & Haimila, Miikka (eds.), *Mustaa valkoisella. Ystäväkirja arkeologian lehtori Kristiina Korkeakoski-Väisäselle*. Turun yliopisto, arkeologia. Vantaa: 195-198.

Purhonen, Paula 1998. *Kristinuskon saapumisesta Suomeen. Uskontoarkeologinen tutkimus*. Suomen Muinaismuistoyhdistyksen Aikakauskirja 106.

Purhonen, Paula & Ranta, Helena (eds.) 1991. *Arkeologia Suomessa – Arkeologi i Finland* 1986-1987. Museovirasto. Vammala.

Purhonen, Paula & Ranta, Helena (eds.) 1994. *Arkeologia Suomessa – Arkeologi i Finland* 1988-1989. Museovirasto. Helsinki.

Purhonen, Paula, Ranta, Helena & Tenhunen, Tanja (eds.) 2004. *Arkeologia Suomessa – Arkeologi i Finland 2001-2002*. Museovirasto. Vammala.

Purhonen, Paula & Ruonavaara, Leena 1994. On Subsistence Economy at the Prehistoric Dwelling-Site Area of Jönsas in Vantaa, Southern Finland. In: Purhonen, Paula (ed.), *Fenno-ugri et slavi 1992. Prehistoric economy and means of livelihood*. Museovirasto. Arkeologian osasto. Julkaisu N:o 5: 88-97.

Rahmqvist, Sigurd 1996. Sätesgårdar och gods. De medeltida frälsegodsens framväxt mot bakgrund av Upplands bebyggelsehistoria. *Upplands Fornminnesförenings Tidskrift* 53.

Raike, Eeva & Haimila, Miikka 2003. Moninaisia kenttätöitä Ala-Satakunnan Lapissa kesällä 2002. *Muinaistutkija* 2/2003: 15-26.

Raike, Eeva & Seppälä, Sirkka-Liisa 2005. Naarankalmanmäki. An Iron Age Complex in Lempäälä, Southern Finland. *Fennoscandia archaeologica* XXII: 43-78.

Ramqvist, Per H. 1981. Den arkeologiska undersökningen i Gene, norra Ångermanland. *Bebyggelsehistorisk tidskrift* Nr 1: 122-141.

Ramqvist, Per H. 1988. Mellannorrland under äldre järnålder. Några aspekter på samhällsstrukturen. *Bebyggelsehistorisk tidskrift* Nr 14: 105-126.

Ramqvist, Per H. 1990. *Högom*. Riksantikvarieämbetet. Malung.

Ramqvist, Per H. & Müller-Wille, Michael 1988. Regionale und überregionale Bedeutung des völkerwanderungszeitlichen Gräberfeldes von Högom, Medelpad, Nordschweden. *Germania* 1988: 95-134.

Randsborg, Klavs 1992. Historical Implications. Chronological Studies in European Archaeology c. 2000-500 B.C. *Acta Archaeologica* Vol. 62 - 1991: 89-108.

Randsborg, Klavs 1995. *Hjortspring. Warfare and sacrifice in early Europe*. Aarhus University Press.

Randsborg, Klavs 1996. The Nordic Bronze Age: Chronological Dimensions. In: Randsborg, Klavs (ed.), *Absolute Chronology. Archaeological Europe 2500-500 BC*. Acta Archaeologica vol. 67: 61-72.

Randsborg, Klavs 1998. Plundered Bronze Age Graves. Archaeological & Social Implications. *Acta Archaeologica* vol. 69: 113-138.

Raninen, Sami 2003. Länttä, etelää, itää – hajapohdintoja rautakaudesta. *Muinaistutkija* 4/2003: 13-28.

Raninen, Sami 2005a. Big men on the river banks. Some thoughts on the Middle Merovingian Period weapon burials in Finland. In: Mäntylä, Sari (ed.), *Rituals and Relations. Studies on the society and material culture of the Baltic Finns*. Suomalaisen Tiedeakatemian Toimituksia. Huomaniora 336: 224-245.

Raninen, Sami 2005b. *Il duce* Salon seudulla? Rikkaiden hautausten probleema, läntiset kontaktit ja nuorempi roomalainen rautakausi. In: Immonen, Visa & Haimila, Miikka (eds.), *Mustaa valkoisella. Ystäväkirja arkeologian lehtori Kristiina Korkeakoski-Väisäselle*. Turun yliopisto, arkeologia. Vantaa: 199-222.

Raninen, Sami 2005c. Tuskan teatteri Turun Kärsämäessä. Ajatuksia ja sitaatteja roomalaisesta rautakaudesta. I osa: Maarian Kärsämäki ja Itämeren maailma. *Muinaistutkija* 4/2005: 40-71.

Raninen, Sami 2006. Tuskan teatteri Turun Kärsämäessä. II osa: Väkivalta varhaisrautakauden kontekstissa. *Muinaistutkija* 3/2006: 2-22.

Ranta, Helena (ed.) 2002. *Huts and houses. Stone Age and Early Metal Age buildings in Finland*. National Board of Antiquities. Jyväskylä.

Rasmussen, Marianne 1999. Livestock without bones. The long-house as contributor to the interpretation of livestock management in the Southern Scandinavian Early Bronze Age. In: Fabech, Charlotte & Ringtved, Jytte (eds*.), Settlement and Landscape. Proceedings of a conference in Århus, Denmark, May 4-7 1998*. Jutland Archaeological Society. Aarhus University Press: 281-290.

Rech, Manfred 1973. Thrako-skythische Sichelschwerter in Nordfinnland? *Finskt Museum* 1972: 39-58.

Registrum Ecclesiae Aboensis 1952. *Codices Medii Aevi Finlandiae*. Vol. I.

Reisborg, Synnöve 1989. Die Keramik der Darsgärde-Siedlung, Skederid, Uppland. Eine Chronologische Analyse. In: Ambrosiani, B. (ed.), *Die Bronzezeit im Ostseegebiet. Ein rapport der Kgl. Schwedischen Akademie der Literatur Geschichte und Altertumsforschung über das Julita-Symposium 1986.* Kungl. Vitterhets Historie och Antikvitets Akademien. Konferenser 22: 83-105.

Reisborg, Synnöve 1994. En husgrund från Nibble, Ösmo socken, Södermanland. *Tor* 26: 57-66.

Renfrew, Colin 1986. Introduction: peer polity interaction and socio-political change. In: Renfrew, Colin & Cherry, John F. (eds.), *Peer Polity Interaction and Socio-Political Change*. Cambridge University Press: Cambridge: 1-18.

Renfrew, Colin & Bahn, Paul 1991. *Archaeology. Theories, Methods, and Practice*. Thames and Hudson: London.

Renvall, Pentti 1933. Pöytyän hallintopitäjän asutus- ja aluesuhteista. In: *Historiallisia tutkielmia*. Turun historiallisen yhdistyksen julkaisuja IV: 153-180.

Riddersporre, Mats 1999. Village and single farm. Settlement structure or landscape organization. In: Fabech, Charlotte & Ringtved, Jytte (eds.), *Settlement and Landscape. Proceedings of a conference in Århus, Denmark, May 4-7 1998*. Jutland Archaeological Society. Aarhus University Press: 167-175.

Riga Katalog 1896. *Katalog der Ausstellung zum X. Archäologischen Kongress in Riga 1896.* Riga.

Riikonen, Jaana 2004. Kaksi vaakaa naisenhaudasta Kirkkomäestä ja muutaman muun hauta-antimen tulkintaa. *ABOA. Turun maakuntamuseo. Vuosikirja* 66-67 / 2002-2003: 11-45.

Ringdtved, Jytte 1999. Settlement organisation in a time of war and conflict. In: Fabech, Charlotte & Ringtved, Jytte (eds.), *Settlement and Landscape. Proceedings of a conference in Århus, Denmark, May 4-7 1998*. Jutland Archaeological Society. Aarhus University Press: 361-381.

Rinne, Juhani 1906. En sekundär begrafning i ett bronsålders grafröse. *Suomen Museo Finskt Museum*: 86-92.

Ritums, Ritvars 2000. Senās agrārās ainavas apzināšana un izpēte. *Latvijas Vēstures Muzeja Raksti* Nr. 7: 39-44.

Roeck Hansen, Birgitta 1991. *Township and Territory. A study of land-use and settlement patterns in Åland c. A.D. 500-1550*. Stocholm Studies in Human Geography 6.

Roeck Hansen, Birgitta & Nissinaho, Aino 1995. A Fossil Landscape in Salo, Laitila, SW Finland. *Karhunhammas* 16: 25-39.

Root, Dolores 1983. Information Exchange and the Spatial Configurations of Egalitarian Societies. In: Moore, James A. & Keene, Arthur S. (eds.), *Archaeological Hammers and Theories*. Academic Press: New York: 193-219.

Ros, Jonas 2001. *Sigtuna. Staden, kyrkorna och den kyrkliga organisationen*. Occasional Papers in Archaeology 30.

Rosenberg, G. 1937. *Hjortspringfundet*. København.

Rubensson, Leif 2002. Järnframställningen i Österbotten. In: Viklund, Karin & Gullberg, Kurt (eds.), *Från romartid till vikingatid. Pörnullbacken – en järnålderstida bosättning i Österbotten*. Acta Antiqua Ostrobotniensia 5: 189-212.

Ruotsi, Suvi 2003. Refuse heaps treasure troves for archaeologists. *ProAcademica. News from the Academy of Finland* 1/2003: 19-21.

Rydh, Hanna 1921. S.k. eldslagningsstenar från järnåldern. *Fornvännen* 1917: 172-190.

Räty, Jouko 1995. The Red Ochre Graves of Vaateranta in Taipalsaari. *Fennoscandia archaeologica* XII: 161-172.

Saksa, Aleksandr 1998. *Rautakautinen Karjala. Muinais-Karjalan asutuksen synty ja varhaiskehitys*. Studia Carelica Humanistica 11.

Salmo, Helmer 1938. *Die Waffen der Merovingerzeit in Finnland*. Suomen Muinaismuistoyhdistyksen Aikakauskirja XLII:1.

Salmo, Helmer 1953. En handelsdepå från romersk tid från Pernå. *Finskt Museum* LX: 5-9.

Salmo, Helmer 1980. Arkeologinen aineisto. *Perniön historia*. Salo: 11-95.

Salo, Unto 1962. Pronssikauden tutkimuksia Nakkilassa. *Suomen Museo* LXIX: 27–73.

Salo, Unto 1965. Kullaan Puiston muinaisjalas. Uusia tietoja harjajalasten funktiosta ja iästä. *Suomen Museo* LXXII: 5-15.

Salo, Unto 1968. *Die frührömische Zeit in Finnland.* Suomen Muinaismuistoyhdistyksen Aikakauskirja 67.

Salo, Unto 1970. *Metallikautinen asutus Kokemäenjoen suussa I. Muinaisjäännökset ja muinaislöydöt.* Pori.

Salo, Unto 1972. Suomen varhaisimmat sirpit. *Kotiseutu* n:o 4-5/1972.

Salo, Unto 1976. Bronsåldershus i Satakunta. *Iskos* 1: 51–54.

Salo, Unto 1981. *Satakunnan pronssikausi*. Satakunnan historia I,2. Rauma.

Salo, Unto 1983. Palaneet kivet eli Suomen vanhimman haudan partailta. In: *Res referunt repertae. Niilo Valonen 1913-1983*. Suomalais-Ugrilaisen Seuran Toimituksia 183: 247-265.

Salo, Unto 1984a. Pronssikausi ja rautakauden alku. *Suomen historia 1*. Espoo: 98-249.

Salo, Unto 1984b. Pyyntikulttuurista maan viljelyyn. *Sukupolvien perintö I.* Helsinki: 61-100.

Salo, Unto 1984c. On the Weaponry of the Early Roman Period in Finland and neighbouring Areas. *Iskos* 4: 83-92.

Salo, Unto 1984d. Esihistoriallisen asutuksen jatkuvuudesta Suomen rannikolla. In: Åström, Sven-Erik (ed.), *Suomen väestön esihistorialliset juuret*. Bidrag till kännedom av Finlands natur och folk. Utgivna av Finska Vetenskaps-Societeten H. 131: 175-190.

Salo, Unto 1987.Noormarkku Söörmarkku: Karimaa ja Rainola. Varhaismetallikautisten raunioiden tutkimus 1981-2. *Karhunhammas* 11: 53-88.

Salo, Unto 1989. Astian kulttuurihistoriasta Suomessa ja naapurialueilla. *Suomen Museo* 1989: 5-48.

Salo, Unto 1990a. Agricola's Ukko in the light of archaeology. A chronological and interpretative study of ancient Finnish religion. In: Ahlbäck, Tore (ed.), *Old Norse and Finnish Religions and Cultic Place-Names*. Åbo: 92-190.

Salo, Unto 1990b. Fire-striking implements of iron and Finnish myths relating to the birth of fire. *Iskos* 9: 49-61.

Salo, Unto 1992. Projekti Lounais-Suomen rannikon varhaismetallikautiset hautarauniot. *Karhunhammas* 14: 5-8.

Salo, Unto 1994. Welcoming presentation. In: Nissinaho, Aino (ed.), *Cultural ecology: one theory?* Turku: 1-2.

Salo, Unto 1995a. Aurajokilaakson pronssikautinen ja rautakautinen asutus - tietoja, tulkintoja, kysymyksiä. In: Nissinaho, Aino (ed.), *Ihmisen maisema. Kirjoituksia yhteisön ja ympäristön muutoksesta Lounais-Suomen rannikolla.* Turku: 1-45.

Salo, Unto 1995b. Raua sünd. Rauaaja algus Soomes. *Austrvegr*: 19-21.

Salo, Unto 1997. *Ihmisen jäljet Satakunnan maisemassa. Kulttuurimaiseman vuosituhannet*. Suomen Kirjallisuuden Seuran Toimituksia 677. Rauma.

Salo, Unto 1999. *Kotimaakuntamme Satakunta. Katsaus Satakunnan asuttamisen, organisoitumisen, talouden ja kulttuurin vaiheisiin.* Satakuntaliitto. Pori.

Salo, Unto 2000a. Suomi ja Häme, Häme ja Satakunta. In: Peltovirta, Jukka (toim.), *Hämeen käräjät I*. Hämeenlinna: 18-230.

Salo, Unto 2000b. Moisio of Nousiainen – a window to Finnish religious and social history. In: Nissinaho, Aino (ed.), *Sites and settlement*. Turku: 101-148

Salo, Unto 2003. Oliko Kalanti muinaismaakunta. In: Kaitanen, Veijo, Laukkanen, Esa & Uotila, Kari (eds.), *Muinainen Kalanti ja sen naapurit. Talonpojan maailma rautakaudelta keskiajalle*. Suomalaisen Kirjallisuuden Seuran Toimituksia 825. Hämeenlinna: 13-91.

Salo, Unto 2004a. Suomen ja Hämeen synty. *Suomen Museo* 2003: 5-58.

Salo, Unto 2004b. *Sastamalan historia 1,1. Esihistoria*. Hämeenlinna.

Salo, Unto 2005a. *Kalan pyynnistä karjan hoitoon. Pyyntikulttuurista viljelevän talouden alkuun*. Suomen maatalousmuseon julkaisusarja: Pieniä vihkosia nro 2.

Salo, Unto 2005b. Muutama sana Sastamalan esihistoriasta. *Muinaistutkija* 3/2005: 50-55.

Salo, Unto & Söyrinki-Harmo, Leena 2001. Arkeologinen tutkimus Satakunnassa 1951-2000. *Satakunta. Kotiseutututkimuksia* XIX: 40-115.

Salomonsson, Bengt 1958. Eine "Schaftlochaxt". *Meddelanden från Lunds universitets historiska museum* 1958: 19-51.

Salonen, Veli-Pekka, Ikäheimo, Markku & Luoto, Jukka 1981. *Rautakautisen ja historiallisen asutuksen ilmeneminen paleontologisin ja arkeologisin keinoin Piikkiön Kuoppajärven ympäristössä Lounais-Suomessa.* Turun yliopiston maaperägeologian osaston julkaisuja 44.

Saloranta, Elina 2000. Iron Age colonisation and land use in the Vähäjoki river valley of Turku (Maaria). In: Nissinaho, Aino (ed.), *Sites and settlement*. Turku: 15-43.

Saloranta, Elina & Tuovinen, Tapani 2004. Esiroomalaisen ajan puuastia Turun keskustasta – löytö meren syvyydestä. *ABOA. Turun maakuntamuseo. Vuosikirja* 66-67 / 2002-2003: 142-152.

Santalahti, Keijo, Alhanen, Kauko & Reuna, Olavi 1936. Ruokalisän maksaminen Vehmaan, Maskun ja Piikkiön kihlakunnissa 1500-luvulla sekä senaikainen hallintopitäjäjako. *Turun Historiallinen Arkisto* V: 87-93.

Sartes, Minna 1994. Subneolithic and Neolithic Settlement Systems in South-West Finland. Discussion on Resource Areas. In: Purhonen, Paula (ed.), *Fenno-ugri et slavi 1992. Prehistoric economy and means of livelihood*. Museovirasto. Arkeologian osasto. Julkaisu N:o 5: 105-114.

Sarvas, Anja 1980. Perniön asutus esihistoriallisina aikoina. *Perniön historia*. Salo: 96-100.

Sarvas, Pekka 1971. Ristiretkiajan ajoituskysymyksiä. *Suomen Museo* 1971: 51-63.

Sarvas, Pekka 1972. *Länsi-Suomen ruumishautojen raha-ajoitukset*. Helsingin yliopiston arkeologian laitos. Moniste n:o 6.

Sauter, Marc-R. 1976. *Switzerland from earliest times to the Roman conquest*. Thames and Hudson: Southhampton.

Schauman-Lönnqvist, Marianne 1989. *Iron Age Studies in Salo III. The Development of Iron Age Settlement in the Isokylä Area in Salo*. Suomen Muinaismuistoyhdistyksen Aikakauskirja 89:2.

Schauman-Lönnqvist, Marianne 1996. The Vainionmäki society. In: Purhonen, Paula (ed.), *Vainionmäki – a Merovingian Period Cemetery in Laitila, Finland*. National Board of Antiquities. Vammala: 130-135.

Schauman-Lönnqvist, Marianne 2004. Museoviraston arkeologian osaston kenttätoiminta vuosina 2001-2002. In: Purhonen, Paula, Ranta, Helena & Tenhunen, Tanja (eds.), *Arkeologia Suomessa – Arkeologi i Finland 2001-2002*. Museovirasto. Vammala: 7-25.

Schauman-Lönnqvist, Marianne 2006. The Early Iron Age cemetery at Korvala in Sauvo. In: Schadla-Hall, Tim (ed.), *Finland and Tallinn. Report and Proceedings of the 151st Summer Meeting of the Royal Archaeological Institute in 2005.* Supplement to the Archaeological Journal volume 162. The Royal Archaeological Institute. London: 49-53.

Schauman-Lönnqvist, Marianne, Hirviluoto, Anna-Liisa, Linturi, Elvi & Uino, Pirjo 1986. The research history of the Isokylä area in Salo. In: *Iron Age studies in Salo I-II*. Suomen Muinaismuistoyhdistyksen Aikakauskirja 89:1: 13-24.

Schmidehelm, M. H. 1983. *Koillis-Viron varhaisrautakausi 500 eaa.- 500 jaa.* Helsingin yliopiston arkeologian laitos. Moniste n:o 31.

Schmidt Sabo, Katalin 2001. *Vem behöver en by? Kyrkheddinge, struktur och strategi under tusen år*. Riksantikvarieämbetet. Arkeologiska undersökningar. Skrifter 38.

Schmidt Sabo, Katalin 2005. *Den medeltida byns sociala dimensioner*. Riksantikvarieämbetet. Arkeologiska undersökningar. Skrifter 67.

Schulz, Eeva-Liisa 1986. Ein Eisenverhüttungsplatz aus der Älteren Eisenzeit in Kajaani. *Iskos* 6: 169-173.

Schulz, Eeva-Liisa 1999. Red Ochre Grave at Äkälänniemi in Kajaani, North Finland. In: Huurre, Matti (ed.), *Dig it all. Papers dedicated to Ari Siiriäinen*. The Finnish Antiquarian Society, The Archaeological Society of Finland. Jyväskylä: 219-224.

Schönbäck, Bengt 1959. Bronsåldersbygd i Mälarområdet. *Tor* Vol. V: 52-107.

Seger, Tapio 1983. The Plague of Justinian and Other Scourges. An analysis of the Anomalies in the Development of the Iron Age population in Finland. *Fornvännen* 77: 184-197.

Seger, T. 1984. Rasselenie v zpohu železnogo veka (statističeskij analiz). In: Kirpitśnikov, A. N., Ribakov, B. A. & Rjabinin, E. A. (eds.), *Novoe v arheologii CCP i Finljandii. Doklady Tret"ego sovetsko-finljandskogo cimpoziuma po voprosam arheologii 11-15 maja 1981 g.* Leningrad: 100-112.

Seger, Tapio 1986a. Trofastbacken: Excavation of a Pre-Roman House in Korsnäs, S. Ostrobothnia, Finland. *Iskos* 6: 175-184.

Seger, Tapio 1986b. Orrmoan: A Pre-Roman Dwelling site in Korsnäs, S. Ostrobothnia, Finland. *Finskt Museum* 1986: 22-32.

Seger, Tapio 1986c. Förromerska järnåldersboplatser i Korsnäs. *Fasta fornminnen i Korsnäs.* Korsnäs Hembygdsförening. Vasa: 23-27.

Seger, Tapio 1987. Refuse faunas from the Pre-Roman sites of Trofastbacken and Orrmoan in Korsnäs, S. Ostrobothnia, Finland. *Suomen Museo* 1987: 40-44.

Seger, Tapio 1988. Heinolan esihistoria. In: *Heinolan pitäjän historia 1860-luvulle*. Jyväskylä: 17-73.

Seitsonen, Oula 2005. Vielä kivikautisesta sodankäynnistä. *Muinaistutkija* 2/2005: 42-49.

Selinge, Klas-Göran 1986. Fornlämningar och bebyggelsehistoria – inledning. *Bebyggelsehistorisk tidskrift* Nr 11: 3-7.

Selinge, Klas-Göran 1989. Det närvarande förflutna. 50 år med fornminnesinventeringen. *Riksantikvarieämbetets och Statens historiska museers årsbok* 1987-88: 7-32.

Seppä-Heikka, Merja 1983. Esihistoriallisia siemeniä ja kasvipainanteita Paimion Sievolan myöhäisrautakautiselta asuinpaikalta. *Karhunhammas* 7: 39-46.

Seppä-Heikka, Merja 1985. Grains and seeds from younger Roman Iron Age excavations in Spurila. *Iskos* 5: 460-461.

Seppälä, Sirkka 1999. Rapolan esihistoriaa. *Masunni* 3: 89-108.

Shemesh, A., Rosqvist, G., Rietti-Shati, M., Rubensdotter, L., Bigler, C.,Yam, R. & Karlén, W. 2001. Holocene climatic change in Swedish Lapland inferred from an oxygen-isotope record of lacustrine biogenic silica. *The Holocene* 11, 4: 447-454.

Sherratt, Andrew 1992. What can archaeologists learn from Annalistes? In: Knapp, Bernard A. (ed.), *Archaeology, Annales, and ethnohistory*. Cambridge University Press: Cambridge: 133-142.

Sherratt, Andrew 1993. What would a Bronze-Age world system look like? Relations between temperate Europe and the Mediterranean in later prehistory. *Journal of European Archaeology* 1.2: 1-57.

Siiriäinen, Ari 1964. Kemijärven Jatulinsaari. *Suomen Museo* LXXI: 26-39.

Siiriäinen, Ari 1969. Über die Chronologie der steinzeitlichen Küstenwohnplätze Finnlands im Lichte der Uferschiebung. *Suomen Museo* 1969: 40-73.

Siiriäinen, Ari 1974. Studies Relating to Shore Displacement and Stone Age Chronology in Finland. *Finskt Museum* 1973: 5-22.

Siiriäinen, Ari 1981. On the Cultural Ecology of the Finnish Stone Age. *Suomen Museo* 1980: 5-40.

Siiriäinen, Ari 1982a. Recent Studies on the Stone Age Economy in Finland. *Fennoscandia Antiqua* I: 17-26.

Siiriäinen, Ari 1982b. Jordbruket i Finland under stenåldern - en arkeologisk kommentar. In: Sjøvold, Thorleif (ed.), *Introduksjonen av jordbruk i Norden. Foredrag holdt ved fellesnordisk symposium i Oslo april 1980.* Det Norske Videnskabs-Akademi / Universitetsforlaget.

Siiriäinen, Ari 1984. Bromarv and Luopioinen: Two Early Bronze Age Finds from Finland. *Fennoscandia archaeologica* I: 51-56.

Silkkilä, Onni & Koskinen, Aarre 1990. Lounais-Suomen kulttuurikasvistoa. Eräiden kartanoiden, kirkkojen, pappiloiden ja virkatalojen kasvistosta. *Turun maakuntamuseo. Raportteja* 12.

Simola, Heikki, Grönlund, Elisabeth, Taavitsainen, Jussi-Pekka & Huttunen, Pertti 1991. Savolainen väestöräjähdys. In: *Saimaalta Kolille. Karjalan tutkimuslaitoksen 20-vuotiskirja.* Joensuu: 241-259.

Smart, Barry 2002. *Michel Foucault*. Revised Edition. Routledge: London and New York.

Smeds, Helmer 1948. Skärgårdens kulturlandskap. In: *Skärgårdsboken utgiven av Nordenskiöld-Samfundet i Finland*. Helsingfors: 529-558.

Smith, Michael E. 1992. Braudel's temporal rythms and chronological theory in archaeology. In: Knapp, Bernard A. (ed.), *Archaeology, Annales, and ethnohistory*. Cambridge University Press: Cambridge: 23-34.

Šnē, Andris 2000a. Vara un vadonība lībiešu sabiedrībās aizvēstures beigās. *Latvijas Vēstures Muzeja Raksti* Nr. 7: 141-148.

Šnē, Andris 2000b. Agrās pilsētas, rezidences, nocietinājumi… Dienvidaustrumlatvijas dzelzs laikmeta pilskalni sociālpolitskā kontekstā. Šnē, Andris & Urtāns, Juris (eds.), *Arheoloģiskie pieminekļi, arheoloģiskās vietas*. Riga.

Šnē, Andris 2001a. Hillforts of the Late Prehistoric Livs: Evidence for Chiefdom? In: *Lübeck style? Novgorod style? Baltic Rim Central Places as Areas for Cultural Encounters and Urbanisation 1100 - 1400 AD. Transactions of the central level symposium of the Cultural Clash or Compromise (CCC) project held in Talsi September 18-21 1998.* CCC papers: 5. Riga: 337-343.

Šnē, Andris 2001b. Society and power in the late prehistoric chiefdoms of the livs. *Prehistoria 2000* 1/2001: 102-114.

Šnē, Andris 2005a. Archaeological evidence of social relations and power in the late prehistoric societies of the Livs. In: Mäntylä, Sari (ed.), *Rituals and Relations. Studies on the society and material culture of the Baltic Finns*. Suomalaisen Tiedeakatemian Toimituksia. Humaniora 336: 169-185.

Šnē, Andris 2005b. Understanding Power: On the Study of Late Prehistoric Social and Political Structures in Latvia. In: Lang, Valter (ed.), *Culture and Material Culture. Papers from the first theoretical seminar of the Baltic archaeologists (BASE) held at the University of Tartu, Estonia, October 17th -19th, 2003*. Interarchaeologia, 1: 53-70.

Šnore, E. 1935. Dignājas pilskalns (īss pārskats par 1939. G. izrakumiem). Senatne un Māksla IV, 1939: 46-64.

Solantie, Reijo 2005. Aspects of some prehistoric cultures in relation to climate in southwestern Finland. *Fennoscandia archaeologica* XXII: 28-42.

Sporrong, Ulf 1971. *Kolonisation, bebyggelseutveckling och administration. Studier i agrar kulturlandskapsutveckling under vikingatid och tidig medeltid med exempel från Uppland och Närke*. Lund.

Steane, John M. 2001. *The Archaeology of Power. England and Northern Europe AD 800-1600*. Tempus Publishing.

Stenberger, Mårten 1964. *Det forntida Sverige*. Uppsala.

Stenbäck, Niklas 1998. Gropkeramiken på Åland. Förändringar i materiell kultur i början av mellanneolitikum. In: *Aktuell Arkeologi VI*. Stockholm Archaeological Reports Nr. 35: 89-105.

Stenbäck, Niklas 2003. *Människorna vid havet. Platser och keramik på Ålandsöarna perioden 3500-2000 f.Kr*. Stockholm Studies in Archaeology 28.

Steponaitis, V. 2000. Bronze and Early Iron Age 18th c. B.C. up to the time of Christ. In: *Prehistoric Lithuania. Archaeological exposition guide*. National Museum of Lithuania: 58-63.

Stjernquist, Berta 1956. Einige Halsringe aus der Wende der Bronzezeit. *Meddelanden från Lunds universitets historiska museum.* K. humanistiska vetenskapssamfundets i Lund årsberättelse 1955-1956, III: 59-92.

Stjernquist, Berta 1992. Introduction. In: Larsson, Lars, Callmer, Johan & Stjernquist, Berta (eds.), *The archaeology of the cultural landsape. Field work and research in a south Swedish rural region*. Acta Archaeologica Lundensia. Series in 4°. N° 19: 9-16.

Storå, Jan 2000. Sealing and animal husbandry in the Ålandic Middle and Late Neolithic. *Fennoscandia archaeologica* XVII: 57-81.

Strandberg, Nina 1996. Kaarina Hulkkio - varhaismetallikauden ja vanhemman rautakauden kohtaamispaikka. In: Ranta, Helena (ed.), *Kentältä Poimittua 3. Kirjoitelmia arkeologian alalta*. Museoviraston arkeologian osaston julkaisuja N:o 6: 37-45.

Strandberg, Nina 1998. Rakennukset Kaarinan Hulkkion varhaismetallikautisella ja rautakautisella asuinpaikalla. *Muinaistutkija* 1/1998: 2-12.

Strandberg, Nina 2002. Houses by the shore - Early Metal Age and Iron Age houses at Hulkkio in Kaarina and Böle in Porvoo. In: Ranta, Helena (ed.), *Huts and houses. Stone Age and Early Metal Age buildings in Finland*. National Board of Antiquities. Jyväskylä: 211-226.

Stuiver, M., Reimer, P. J., Bard, E., Beck, J. W., Burr, G. S., Hughen, K. A., Kromer, B., McCormac, F. G., v. d. Plicht, J., and Spurk, M. 1998. INTCAL98 Radiocarbon age calibration 24,000 - 0 cal BP. *Radiocarbon* 40: 1041-1083.

Šturms, Ed. 1935. Die Kulturbeziehungen Estlands in der Bronze- und frühen Eisenzeit. *Õpetatud Eesti Seltsi Aastaraamat* 1932: 245-277.

Ståhlbom, Ulf 1994. Bodde de här, de som gjorde de berömda hällristningarna? *Populär Arkeologi* 2/1994: 24-26.

Suhonen, Mervi 2005. Way of life – a useful concept in archaeology? In: Mäntylä, Sari (ed.), *Rituals and Relations. Studies on the society and material culture of the Baltic Finns*. Suomalaisen Tiedeakatemian Toimituksia. Humaniora 336: 149-168.

Suistoranta, Kari 1985. *Paraisten historia*. Turku.

Suistoranta, Kari 1997. *Kemiön suurpitäjän historia I*. Tammisaari: 11-212.

Suomen tilastollinen vuosikirja 1998. Tilastokeskus. Hämeenlinna.

Suvanto, Seppo 1973. *Satakunnan historia III. Keskiaika*. Satakunnan maakuntaliitto r.y.

Säfvestad, Ulf & Björhem, Nils 1989. Från stolphål till stamterritorier. Ett försök att se mönster i sydvästskånsk bebyggelse. In: *Bosättningsmönster*. Kontaktstencil 30-31: 43-71.

Söyrinki-Harmo, Leena 1996. The Formation of the Vainionmäki cemetery. In: Purhonen, Paula (ed.), *Vainionmäki – a Merovingian Period Cemetery in Laitila, Finland*. National Board of Antiquities. Vammala: 102-118.

Taavitsainen, J.-P. 1982. Hollolan Kapatuosian linnamäki. *Fennoscandia Antiqua* I: 27-35.

Taavitsainen, J.-P. 1987. Suomalaiset limousiinit. In: *Tutkimustyö ja museotoimi. Juhlakirja Knut Draken täyttäessä 60 vuotta 6.3.1987.* Koteva Oy: 94-101.

Taavitsainen, Jussi-Pekka 1989. Finnish Limousines. Fundamental Questions about the Organizing Process of the Early Church in Finland. *Medium Aevum Quatidianum* 19: 75-88.

Taavitsainen, J.-P. 1990. *Ancient Hillforts of Finland. Problems of Analysis, Chronology and Interpretation with Special Reference to the Hillfort of Kuhmoinen.* Finska Fornminnesföreningens Tidskrift 94.

Taavitsainen, J.-P. 1992. Cemeteries or refuse heaps? Archaeological formation processes and the interpretation of sites and antiquities. *Suomen Museo* 1991: 5-14.

Taavitsainen, Jussi-Pekka 1999a. Etnisiteetin määrittelyn ongelmat ja savolainen kaskikulttuuri. In: Fogelberg, Paul (ed.), *Pohjan poluilla. Suomalaisten juuret nykytutkimuksen mukaan*. Bidrag till kännedom av Finlands natur och folk 153: 353-357.

Taavitsainen, J.-P. 1999b. Kun nuoruus on ongelma. – Rapolan muinaislinnan keskuslinna-ajatuksen purkuyritys. *Masunni. Kirjoituksia Tampereelta ja Pirkanmaalta* 3: 131-166.

Taavitsainen, J.-P. 2000. Häme ja Satakunta pakanuuden ajan lopulla. In: Linder, Marja-Liisa, Saloniemi, Marjo-Riitta & Krötzl, Christian (eds.), *Ristin ja Olavin kansaa. Keskiajan usko ja kirkko Hämeessä ja Satakunnassa*. Tampereen museoiden julkaisuja 55: 19-29.

Taavitsainen, Jussi-Pekka 2003a. Lapinraunioiden kronologis-funktionaalisten kysymysten hahmottelua – uusia AMS-ajoituksia Keski-Suomen lapinraunioiden palaneesta luusta. *Muinaistutkija* 1/2003: 2-23.

Taavitsainen, Jussi-Pekka 2003b. Lapp Cairns as a Source on Metal Period Settlement in the Inland Regions of Finland. *Acta Borealia* 1/2003: 21-47.

Taavitsainen, Jussi-Pekka 2003c. Nuijaniemen lapinraunio. *Pirkan maan alta* 4: 5-12.

Taavitsainen, J.-P., Sepänmaa, Timo, Miettinen, Mirja, Storå, Jan & Saarnisto, Matti 2004. Hietamäki in Jämsä – a multi-period dwelling site in Central Finland. *Fennoscandia archaeologica* XXI: 3-21.

Taavitsainen, Jussi-Pekka, Simola, Heikki & Grönlund, Elisabeth 1998. Cultivation History Beyond the Periphery: Early Agriculture in the North European Boreal Forest. *Journal of World Prehistory*, Vol. 12, No. 2: 199-253.

Taavitsainen, J.-P., Vilkuna, Janne & Forssell, Henry 2007. Suojoki at Keuruu. A mid 14th-century site of the wilderness culture in the light of settlement historical processes in Central Finland. *Annalen Academiœ Scientiarum Fennicœ. Humaniora* 346.

Tabaczyński, Stanisław 1998. Archaeological sources: Problems of identification and inference. In: Tabaczyński, Stanisław (ed.), *Theory and practice of archaeological research. Volume III. Dialogue with the data: The archaeology of complex societies and its context in the ´90s*. Institute of archaeology and ethnology. Committee of Pre- and Protohistoric sciences. Polish academy of sciences. Warszawa: 33-63.

Taivainen, Jouni 2005. Ajatuksia Retulansaaren rautakauden – keskiajan asutuksesta ja elinkeinoista. *Arx Tavastica* 12: 2-17.

Takala, Hannu 2004. *The Ristola Site in Lahti and the Earliest Postglacial Settlement of South Finland*. Lahti City Museum. Jyväskylä.

Tallgren, A. M. 1906. Tre nya bronsåldersfynd från Finland. *Suomen Museo Finskt Museum* XIII: 42-48.

Tallgren, A. M. 1931. *Varsinais-Suomen esihistoria*. Varsinais-Suomen historia I. Turku.

Tallgren, A. M. 1933. Hiisi ja moisio. *Virittäjä* 1933: 319-331.

Talvio, Tuukka 1994. *Tutkijoita, keräilijöitä ja lahjoittajia. Suomalaisia numismaatikkoja 1700-1917*. Suomen numismaattisen Yhdistyksen julkaisuja n:o 4.

Talvio, Tuukka 2002. *Coins and coin finds in Finland AD 800-1200*. Iskos 12.

Talvio, Tuukka 2004: Coin datings in Finnish archaeology. In: Uino, Pirjo (ed.), *Fenno-ugri et slavi 2002. Dating and Chronology*. Museoviraston arkeologian osaston julkaisuja N:o 10: 124-127.

Tamla, Toomas 1995. Einige estnische Moorfunde aus dem ersten Jahrtausend. In: Jansson, Ingmar (ed.), *Archaeology East and West of the Baltic. Papers from the Second Estonian-Swedish Archaeological Symposium. Sigtuna, May 1991*. Theses and Papers in Archaeology N.S. A 7. Stockholm: 103-110.

Tesch, Sten 1993. *Houses, Farmsteads, and Long-term Change. A Regional Study of Prehistoric Settlements in the Köpinge Area, in Scania, Southern Sweden.* Lund.

Thedéen, Susanne 2004. *Gränser i livet – gränser i landskapet. Gränsrelationer och rituella praktiker i södermanländska bronsålderslandskap*. Stockholm Studies in Archaeology 33.

Thrane, Henrik 1977. Afsluttende bemærkninger. In: Thrane, Henrik (ed.), *Kontinuitet oq bebyggelse. Beretning fra et symposium d. 12.-14. Maj 1977 afholdt af Odense universitet*. Odense Universitet. Skrifter fra institut for historie og samfundsvidenskab nr. 22: 117-123.

Thrane, Henrik 1994. Centres of Wealth in Northern Europe. In: Kristiansen, Kristian & Jensen, Jørgen (eds.), *Europe in the First Millennium B.C.* Sheffield Archaeological Monographs 6: 95-110.

Tikkanen, Matti & Westerholm, John 1992. *Kimitoön - en regionalgeografisk analys*. Bidrag till kännedom av Finlands natur och folk 143. Helsingfors.

Tilley, Christopher 1994. *A Phenomenology of Landscape. Places, Paths and Monuments.* Berg Publishers: Oxford / Providence, USA.

Toiviainen, Eino 1938. Uukuniemen ukonvakat ja Mantsinsaaren härkäpäivät. *Nuori Karjala* 1938: 75-78.

Tolonen, Kimmo, Tolonen, Mirja, Honkasalo, Liisa, Lehtovaara, Anja, Sorsa, Kirsti & Sundberg, Kaj 1976. Esihistoriallisen ja historiallisen maankäytön vaikutuksesta Lammin Lampellonjärven kehitykseen. *Luonnon Tutkija* 80: 1-15.

Tolonen, Kimmo, Siiriäinen, Ari & Hirviluoto, Anna-Liisa 1979. Iron Age cultivation in SW Finland. *Finskt Museum* 1976: 5-66.

Tolonen, M. 1978a. Paleoecology of annually laminated sediments in Lake Ahvenainen, S. Finland. I. Pollen and charcoal analyses and their relation to human impact. *Annales Botanici Fennici* 15: 177-208.

Tolonen, M. 1978b. Paleoecology of annually laminated sediments in Lake Ahvenainen, S. Finland. III. Human influence in the lake development. *Annales Botanici Fennici* 15: 223-240.

Tolonen, Mirjami 1983. Late Holocene vegetational history in Salo, Pukkila, SW Finland, with particular reference to human interference. *Annales Botanici Fennici* 20: 157-168.

Tolonen, Mirjami 1985a. Development of vegetation and changes in landscape caused by traditional land use in the Paimio area. *Iskos* 5: 472-479.

Tolonen, Mirjami 1985b. Palaeoecological reconstruction of vegetation in a prehistoric settlement area, Salo, SW Finland. *Annales Botanici Fennici* 22: 101-116.

Tolonen, Mirjami 1987a. Primary and secondary forest successions reflected in a Late Holocene pollen sequence from an upland mire near the SW coast of Finland. *Annales Botanici Fennici* 24: 97-109.

Tolonen, Mirjami 1987b. Vegetational history in coastal SW Finland studied on a lake and a peat bog by pollen and charcoal analyses. *Annales Botanici Fennici* 24: 353-370.

Tolonen, Mirjami & Kukkonen, Ilkka 1989. Postglacial landscape development in the lower reaches of the River Paimionjoki, SW Finland. *Annales Botanici Fennici* 26: 53-85.

Tornberg, Matleena 1989. Ilmaston- ja sadonvaihtelut Lounais-Suomessa 1550-luvulta 1860-luvulle. In: Kuparinen, Eero (ed.), *Työ tekijäänsä kiittää. Pentti Virrankoski 60 vuotta 20.6.1989*. Turun Historiallinen Arkisto 44: 58-87.

Tõnisson, Evald 1985. Zum Problem der großen wetestnischen Wallburgen. In: Loit, Aleksander & Selirand, Jüri (eds.), *Die Verbindungen zwischen Skandinavien und Ostbaltikum aufgrund der archäologischen Quellenmaterialen. I. Symposium der sowjetestnischen und schwedischen Archäologen. Tallinn 12.-15. Oktober 1982*. Acta Universitatis Stockholmiensis. Studia Baltica Stockholmiensia 1: 99-110.

Tuan, Yi-Fu 1977. *Space and place. The perspective of experience*. Edward Arnold: London.

Tuovinen, Tapani 1980. Mäkelä ja Peltomäki: kaksi hautarauniota Ulvilassa. *Karhunhammas* 4: 181-193.

Tuovinen, Tapani 1985. Saaristomeren varhaismetallikautiset hautarauniot. *Karhunhammas* 10: 31-89.

Tuovinen, Tapani 1988. Klingande sten, uppradad sten – två maritima fornlämningar i Nagu och Korpo skärgård. In: Korkeakoski-Väisänen, Kristiina, Lähdesmäki, Ulla, Nissinaho, Aino, Pihlman, Sirkku & Tuovinen, Tapani (eds.), *Baskerilinja. Unto Salo 60 vuotta*. Vammala: 111-119.

Tuovinen, Tapani 1990a. Fornfynden och deras uttolkning. In: *"Finska skären". Studier i åboländsk kulturhistoria utgivna av Konstsamfundet till dess 50-årsjubileum 1990*. Helsingfors: 15-113.

Tuovinen, Tapani 1990b. Om maritim anpassning. *Skärgård* 3/1990: 14-19.

Tuovinen, Tapani 1993. Turunmaan saariston ja Kemiönsaaren kivirauniot. In: Purhonen, Paula (ed.), *Lapinraunioita ja hiidenkiukaita. Kansallismuseossa 17.10.1991 pidetyn "Epämääräisiä kiviröykkiöitä" koskevan seminaarin alustukset*. Museovirasto. Arkeologian osasto. Julkaisu N:o 3: 37-47.

Tuovinen, Tapani 1997. De arkeologiska fynden. In: *En bok om Houtskär I. Bygdens öden till slutet av 1800-talet*. Vasa: 13-32.

Tuovinen, Tapani 2000a. *Ulkosaariston arkeologiaa. Saaristomeren kansallispuiston yhteistoiminta-alueen inventointi 1994-1997.* Metsähallituksen luonnonsuojelujulkaisuja. Sarja A, No 122.

Tuovinen, Tapani 2000b. Löytö toteuttaa etsijän tahtoa. In: Maaranen, Päivi & Kirkinen, Tuija (eds.), *Arkeologinen inventointi. Opas inventoinnin suunnitteluun ja toteuttamiseen*. Museovirasto. Helsinki: 33-41.

Tuovinen, Tapani 2002a. *The Burial Cairns and the Landscape in the Archipelago of Åboland, SW Finland, in the Bronze Age and the Iron Age*. Acta Universitatis Ouluensis B Humaniora 46.

Tuovinen, Tapani 2002b. Järnåldersgravar i Åbolands yttre skärgård. In: Ivars, Ann-Marie & Huldén, Lena (eds.), *När kom svenskarna till Finland?* Svenska litteratursällskapet i Finland. Ekenäs: 107-118.

Tuovinen, Tapani 2005a. Kring skärgårdsarkeologi. *Nordenskiöld-samfundets tidskrift* 65: 5-23.

Tuovinen, Tapani 2005b. Landskapsarkeologi i Åbolands skärgård. *Maritimhistorisk konferens Bottnisk kontakt XII. Forum Marinum i Åbo 6-8- februari 2004*. Meddelanden från Sjöhistoriska institutet vid Åbo Akademi Nr 27: 211-222.

Tuovinen, Tapani, Ek, Paul, Huldén, Stig-Göran & Kroneld, Rolf 1992. Geokemi och arkeologi på Borgholm, en fornborg i Iniö. *Finskt Museum* 1991: 29-40.

Tuovinen, Tapani & Vuorinen, Juha-Matti 1992. Luettelo Suomen rannikon hautaraunioista. *Karhunhammas* 14: 9-122.

Tusa, Maija 1993. Kylän muodostuminen - Kernaalanjärven pohjoisrannan asutushistoriaa. In: *RASI. Interaction between Coastal and Inland Societies in the Iron Age I*. Helsinki Papers in Archaeology No. 5: 49-75.

Tvauri, Andres 1997. Eesti lohukivid. In: Valk, Heiki (ed.), *Arheoloogilisi uurimusi 1*. Tartu Ülikooli Arheoloogia Kabineti Toimetised 9: 11-53.

Uino, P. 1982. Investigations of Iron Age dwelling places in Isokylä, Salo, South-West Finland: An archaeological review. In: *Second Nordic conference on the application of scientific methods in archaeology*. Pact 7/1982: 123-128.

Uino, Pirjo 1986. An Iron Age community at Ketohaka in Salo and other remains of Metal Period buildings in Finland. In: *Iron Age studies in Salo I-II*. Suomen Muinaismuistoyhdistyksen Aikakauskirja 89:1: 25-201.

Uino, Pirjo 1997. *Ancient Karelia. Archaeological studies – Muinais-Karjala. Arkeologisia tutkimuksia*. Suomen Muinaismuistoyhdistyksen Aikakauskirja 104.

Uino, Pirjo 2000. Inventoinnin raportointi ja muinaisjäännösrekisteri - alustava ohjeisto. In: Maaranen, Päivi & Kirkinen, Tuija (eds.), *Arkeologinen inventointi. Opas inventoinnin suunnitteluun ja toteuttamiseen*. Museovirasto. Helsinki: 236-245.

Ukkonen, Pirkko 1996. Osteological analysis of the refuse fauna in the Lake Saimaa rea. In: Kirkinen, Tuija (ed.), *Environmental Studies in Eastern Finland. Reports of the Ancient lake Saimaa Project*. Helsinki Papers in Archaeology. No. 8: 63-91.

Uotila, Kari 1998. *Medieval Outer Baileys in Finland, With Special Reference to Turku Castle*. Archaeologia Medii Aevi Finlandiae III.

Uotila, Kari 2003. Keskiajan kirkot ja linnat. In: Kaitanen, Veijo, Laukkanen, Esa & Uotila, Kari (eds.), *Muinainen Kalanti ja sen naapurit. Talonpojan maailma rautakaudelta keskiajalle*. Suomalaisen Kirjallisuuden Seuran Toimituksia 825. Hämeenlinna: 366-374.

Vahtola, Jouko 1988. Keskiaika. In: *Suomen historian pikkujättiläinen*. Porvoo: 40-125.

Vandkilde, Helle, Rahbek, Uffe & Lund Rasmussen, Kaare 1996. Radiocarbon dating and the chronology of Bronze Age southern Scandinavia. In: Randsborg, Klavs (ed.), *Absolute Chronology. Archaeological Europe 2500-500 BC*. Acta Archaeologica vol. 67: 183-198.

Vanhatalo, Simo 1994. Ett märkligt boplatsfynd - en fibula från bronsåldern. *Finskt Museum* 1992: 5-10.

Vankina, L. 1962. Kalniešu pirmais kapulauks. *Latvijas PSR Vēstures muzeja raksti. Arheoloģija*. Riga: 7-36.

Vasks, A.V. 1991. *Keramika epohi pozdnei bronzi i rannegoželeza Latvii*. Riga.

Vasks, Andrejs 1994a. *Brikuļu nocietinātā apmetne. Lubāna zemiene vēlajā bronzas un dzelzs laikmetā (1000. g.pr.Kr.-1000.g.pēc Kr.)*. Riga.

Vasks, A. 1994b. Agrā dzelzs laikmeta apmetne Kerkūzos. *Arheoloģija un etnogrāfija* XVI: 46-64.

Vasks, A. 1994c. Tīģeļi un lejamveidnes Brikuļu nocietinātajā apmetnē. *Arheoloģija un etnogrāfija* XVII: 120-123.

Vasks, Andrejs 1995. New data on Early Iron Age settlement in south-eastern Latvia. In: Kazakevičius, Vytautas & Sidrys, Raymond (eds.), *Archaeologia Baltica*. Vilnius: 57-80.

Vasks, Andrejs 1999. Latvian archaeology: research and conclusions. In: Jensen, Ola W. & Karlsson, Håkan & Vijups, Armands (eds.), *Inside Latvian Archaeology*. Gotarc Series A, Vol. 2: 3-88.

Vasks, Andrejs 2001. Agrais dzelzs laikmets 1.–.400. g. *Latvijas senākā vēsture 9. g. pr. Kr.–1200. g.* Riga: 186-231.

Vasks, Andrejs 2006. Stone Grave Cemeteries in Western Latvia. In: *Etnos ja Kultuur. Uurimusi Silvia Laulu auks*. Muinasaja teadus 18: 99-110.

Vassar, A. 1938. Drei Steinkistengräber aus Nordestland. *Őpetatud Eesti Seltsi Aastaraamat* 1937, I: 304-364.

Vassar, A. 1956. Lisandeid eesti hõimudest I aastatuhande viimasel poolel e. m. a. ja meie ajaarvutuse I aastatuhande algupoolel. In: Moora, H. (ed.), *Eesti rahva etnilisest ajaloost. Artiklite kogumik.* Eesti Riiklik Kirjastus: Tallinn: 160-190.

Vedru, Gurly 2001. Põhja-Eesti muinasaegsest rannikukasutusest. *Eesti Arheoloogia Ajakiri* 5, 2: 110-127.

Vencl, Sl. 1984. War and Warfare in Archaeology. *Journal of Anthropological Archaeology* 3: 116-132.

Venclová, Natalie 1995. Settlement area, production area and industrial zone. In: Kuna, Martin & Venclová, Natalie (eds.), *Whither Archaeology? Papers in Honour of Evžen Neustupný*. Praha: 161-169.

Vikkula, Anne, Seppälä, Sirkka-Liisa & Lempiäinen, Terttu 1994. The ancient field of Rapola. *Fennoscandia archaeologica* XI: 41-59.

Viklund, Karin 2002. Österbottens järnåldersbygd och kontinuitetesproblematiken. In: Viklund, Karin & Gullberg, Kurt (eds.), *Från romartid till vikingatid. Pörnullbacken – en järnålderstida bosättning i Österbotten*. Acta Antiqua Ostrobotniensia 5: 25-44.

Vilkuna, Janne 1978. Julius Ailion muinaistieteelliset tutkimukset. *Sosialistinen Aikakauslehti* 1/1978: 25-29.

Vilkuna, Janne 1996. Siperiasta vai? Uusia tulkintoja suomalaisten alkuperästä. In: Roiko-Jokela, Heikki (ed.), *Siperiasta siirtoväkeen. Murrosaikoja ja käännekohtia Suomen historiassa*. Jyväskylä: 7-30.

Vilkuna, Janne 1999. Keski-Suomen esihistoria. In: Jokipii, Mauno (ed.), *Keski-Suomen historia 1. Keski-Suomen vanhin historia.* Jyväskylä: 32-77.

Vilkuna, Kustaa 1964. *Kihlakunta ja häävuode. Tutkielmia suomalaisen yhteiskunnan järjestäytymisen vaiheilta*. Keuruu.

Vilkuna, Kustaa 1976. Lehmän kotiutuminen perheeseen, naudan asettuminen yhteiskuntaan. *Virittäjä* 1/1976: 19-30.

Villstrand, Nils 1987. Befolkningen i Kimitobygden. *Kimitobygdens historia III*. Ekenäs: 15-72.

Vita-Finzi, C. & Higgs, E. S. 1970. Prehistoric Economy in the Mount Carmel Area of Palestine: Site Catchment Analysis. *Proceedings of the Prehistoric Society* XXXVI: 1-37.

Voionmaa, Väinö 1911. *Suomen vanhin maakunta- ja pitäjälaitos*. Suomalainen tiedeakatemia: Esitelmät ja pöytäkirjat 1911, I.

Voionmaa, Väinö 1912. *Suomalaisia keskiajan tutkimuksia. Veroja, laitoksia, virkamiehiä.* Porvoo.

Vuorela, Irmeli 1972. Human Influence on the Vegetation of Katinhäntä Bog, Vihti, SW Finland. *Acta Botanica Fennica* 98: 1-21.

Vuorela, Irmeli 1975. Pollen Analysis as a Means of Tracing settlement History in SW Finland. *Acta Botanica Fennica* 104: 1-48.

Vuorela, Irmeli 1982. Tidigt jordbruk i S-SW Finland enligt pollenanalys och C-14-dateringar. In: Sjøvold, Thorleif (ed.), *Introduksjonen av jordbruk i Norden. Foredrag holdt ved fellesnordisk symposium i Oslo april 1980.* Universitetsforlaget: 253-266.

Vuorela, Irmeli 1983. Vohtenkellarinsuo, a bog in Paimio, SW Finland with a cultural origin. *Bulletin of the Geological Society of Finland* 55, 1: 57-66.

Vuorela, Irmeli 1985. On the vegetational and agricultural history of Perniö, SW Finland. Results of pollen and ash residue analyses and 14C-datings. *Annales Botanici Fennici* 22: 117-127.

Vuorela, Irmeli 1990. Pollenanalytiska studier. In:*"Finska skären". Studier i åboländsk kulturhistoria utgivna av Konstsamfundet till dess 50-årsjubileum 1990*. Helsingfors: 115-132.

Vuorela, Irmeli 1998. The Transition to Farming in Southern Finland. In: Zvelebil, Marek, Domańska, Lucyna & Dennell, Robin (eds.), *Harvesting the Sea, Farming the Forest. The Emergence of Neolithic Societies in the Baltic Region.* Sheffield Archaeological Monographs 10: 175-180.

Vuorela, Irmeli 1999. Viljelytoiminnan alku Suomessa paleoekologisen tutkimuksen kohteena. In: Fogelberg, Paul (ed.), *Pohjan poluilla. Suomalaisten juuret nykytutkimuksen mukaan.* Bidrag till kännedom av Finlands natur och folk 153: 143-151.

Vuorela, Irmeli 2002. Luonnon kerrostumat säilövät menneisyyttä. In: Grünthal, Riho (ed.), *Ennen, muinoin. Miten menneisyyttämme tutkitaan*. Tietolipas 180. Suomalaisen Kirjallisuuden Seura. Helsinki: 76-92.

Vuorela, Irmeli & Lempiäinen, Terttu 1988. Arhaeobotany of the site of the oldest cereal grain find in Finland. *Annales Botanici Fennici* 25: 33-45.

Vuorela, Irmeli, Saarnisto, Matti, Lempiäinen, Terttu & Taavitsainen, Jussi-Pekka 2001. Stone Age to recent land-use history at Pegrema, northern Lake Onega, Russian Karelia. *Vegetation History and Archaeobotany* (2001) 10: 121-138.

Vuorinen, Juha-Matti 1993. Pikku-Myy-projekti - mitä se on? *Varelia* 2/1993: 17-23.

Vuorinen, Juha-Matti 1997. Rakentamisesta Raision Mullissa rautakauden lopulla ja varhaiskeskiajalla. *Muinaistutkija* 4/1997: 45-48.

Vuorinen, Juha-Matti 2000a. Röykkiöiden inventointia lounaisessa Suomessa. In: Maaranen, Päivi & Kirkinen, Tuija (eds.), *Arkeologinen inventointi. Opas inventoinnin suunnitteluun ja toteuttamiseen*. Museovirasto. Helsinki: 180-184.

Vuorinen, Juha-Matti 2000b. Frequency of Early Metal Period and Iron Age archaeological remains in the northern part of SW Finland. In: Nissinaho, Aino (ed.), *Sites and settlement*. Turku: 193-197.

Vuorinen, Juha-Matti 2000c. On the spatial relationships between Iron Age cemeteries and dwelling sites in northern Finland Proper. In: Nissinaho, Aino (ed.), *Sites and settlement*. Turku: 199-224.

Vuorinen, Juha-Matti 2000d. Iron Age research in Finland Proper. Chronological and spatial review of the Iron Age sites investigated by archaeological excavations in Finland Proper. In: Nissinaho, Aino (ed.), *Sites and settlement*. Turku: 225-276.

Vuorinen, Juha-Matti 2003. Hallitalo ja hirsirakennus – elämää ahtaassa asumuksessa mutta väljässä pihapiirissä. In: Kaitanen, Veijo, Laukkanen, Esa & Uotila, Kari (eds.), *Muinainen Kalanti ja sen naapurit. Talonpojan maailma rautakaudelta keskiajalle*. Suomalaisen Kirjallisuuden Seuran Toimituksia 825. Hämeenlinna: 185-198.

Vähäkangas, Ismo 2006. Vapaudenajalta kunnallishallinnon perustamiseen (1721-1868). In: Pylkkänen, Ali, Vähäkangas, Ismo & Laine Esko M., *Joki yhdisti ihmiset – Salon ja Uskelan historia n. 1150-1868*. Salon kaupunki. Gummerus kirjapaino Oy.

Välimäki, Hannu 2000. Raamatusta ruokalisään. Kirkollisverotuksen taustaa ja alkuvaiheita Suomessa. In: Lappalainen, Jussi T. (ed.), *Verotushistoriaa 2*. Turun yliopiston historian laitoksen julkaisuja 58: 47-72.

Wahlberg, Jan-Erik 1994. Kuusiston linnasaaren kehitys keskiajalla. In: *Kuusiston linna. Tutkimuksia 1985-1993*. Museoviraston rakennushistorian osaston raportteja 8: 66-78.

Wall, Åsa 2002. Borderline Viewpoints. The Early Iron Age Landscapes of Henged Mountains in East Central Sweden. *Current Swedish Archaeology*, Vol. 10. 2002: 95-114.

Wall, Åsa 2003. *De hägnade bergens landskap*. Om den äldre järnåldern på Södertörn. Stockholm Studies in Archaeology 27.

Wallerstein, Immanuel 1974. *The Modern World-System. Capitalist Agriculture an the Origins of the European World-Economy in the Sixteenth Century*. Academic Press.

Węgrzynowicz, Teresa 1995. On the need to discuss the relationship between Pomeranian and Cloche Grave Cultures. In: Węgrzynowicz, Teresa, Andrzejowska, Miroslawa, Andrzejowski, Jacek & Radziszewska, Elżbieta (eds.), *Kultura pomorska i kultura grobów kloszowych. Razem czy osobno? Materiały z konferencij w dniach 24_26 listopada 1993.* Warszawa: 17-18.

Węgrzynowicz, Teresa, Andrzejowska, Miroslawa, Andrzejowski, Jacek & Radziszewska, Elżbieta (eds.), *Kultura pomorska i kultura grobów kloszowych. Razem czy osobno? Materiały z konferencij w dniach 24_26 listopada 1993.* Warszawa.

Welinder, Stig 1979. *Prehistoric demography*. Acta Archaeologica Lundensia. Series in 8°minore. N° 8.

Welinder, Stig 1984. Ekologisk arkeologi – hur en forskningsinriktning kommer och går. In: *Foredrag holdt på norsk arkeologmøtes symposium i Trondheim 1983*. Det Kgl. Norske Videnskabers Selskab, Muséet, Rapport. Arkeologisk serie 1984:1: 111-117.

Welinder, Stig 1986. *Det arkeologiska perspektivet*. Från forntid och medeltid 9. Lund.

Welinder, Stig 1992. *Människor och landskap*. Aun 15.

Welinder, Stig 1998. Neoliticum - bronsålder 3900-500 f.Kr. In: Welinder, Stig, Pedersen, Ellen Anne & Widgren, Mats, *Jordbrukets första femtusen år.* Det svenska jordbrukets historia. Borås: 11-236.

Wickholm, Anna & Raninen, Sami 2003. Rautakautinen riesa – polttokenttäkalmistojen problematiikkaa. *Muinaistutkija* 2/2003: 2-14.

Widgren, Mats 1986. Fossilt odlingslandskap i fornminnesregistret. Några användarsynpunkter. *Bebyggelsehistorisk tidskrift* Nr 11: 164-174.

Widgren, Mats 1998. Kulturgeografernas bönder och arkeologernas guld – finns det någon väg till en syntes? In: Larsson, Lars & Hårdh, Birgitta (eds.), *Centrala Platser – Centrala Frågor. Samhällsstrukturen under Järnåldern. En vänbok till Berta Stjernquist*. Acta Archaeologica Lundensia. Series in 8°, No. 28: 281-296.

Widgren, Mats 2005. Fimbulvintern – fanns den? In: Bunte, Carin, Berglund, Björn E. & Larsson, Lars (eds.), *Arkeologi och naturvetenskap. Gyllenstiernska Krapperupstiftelsens symposium nr 6 år 2003*. Lund: 62-70.

Wigren, Sonja 1987. *Sörmländsk bronsåldersbygd. En studie av tidiga centrumbildningar daterade med termoluminescens*. Theses and Papers in North-European Archaeology 16.

Wuolijoki, Helena 1972. *Suomen rautakauden silmäkirveet*. Helsingin yliopiston arkeologian laitos. Moniste n:o 4.

Ylikangas, Heikki 2007. *Suomen historian solmukohdat*. Juva.

Ylimaunu, Timo 1999. Pohjanrannan metallikaudesta - etnisyysongelma. *Muinaistutkija* 2/1999: 2-11.

Zariņa, A. 1996. Indricas un Slobodas agrā dzelzs laikmeta apmetnes ar apidzīvotību arī viduslaikos. *Arheoloģija un etnogrāfija* XVIII: 191-211.

Ziemlińska-Odojowa, Włodzimiera 1999. *Niedanowo. Ein Gräberfeld der Przeworsk- und Wielbark-Kultur in Nordmasovien*. Monumenta Archaeologica Barbarica. Tomus VII. Kraków.

Zimmermann, W. Haio 1999. Why was cattle-stalling introduced in prehistory? The significance of byre and stable and of outwintering. In: Fabech, Charlotte & Ringtved, Jytte (eds.*), Settlement and Landscape. Proceedings of a conference in Århus, Denmark, May 4-7 1998*. Jutland Archaeological Society. Aarhus University Press: 301-318.

Zvelebil, Marek 1981. *From Forager to Farmer in the Boreal Zone*. BAR International Series 115(i).

Åhlen, Marit, Tuovinen, Tapani & Myhrman, Hans 1997. Runstensfragmentet från Hitis – ett arkeologiskt nyfynd. *Skärgård* 4/1997: 52-53.

Åhlen, Marit, Tuovinen, Tapani & Myhrman, Hans 1998. Ett runstensfragment från Hitis. *Muinaistutkija* 1/1998: 18-20.

Åkerlund, Agneta 1996. *Human Responses to Shore Displacement. Living by the Sea in Eastern Middle Sweden during the Stone Age.* Riksantikvarieämbetet. Arkeologiska undersökningar. Skrifter nr. 16. Studier från UV Stockholm.

Äikäs, Tiina & Ikäheimo, Janne 2005. Hiilen murusia ja muutama palanut kivi. *Muinaistutkija* 4/2005: 2-14.

Äyräpää, Aarne 1942. Kampakeraamisen kulttuurin savikuviot. *Suomen Museo* 1941: 82-123.

Äyräpää, Aarne 1951. Kulturförhållandena i Finland före finnarnas invandring. *Suomen Muinaismuistoyhdistyksen Aikakauskirja* LII: 1: 77-98.

Field reports according to municipality

Dragsfjärd

Asplund, Henrik 1985. Dragsfjärd, Kärra, Jordbro. Tarkastuskäynti kivikautiselle asuinpaikalle 20.05.1984.

Asplund, Henrik 1985. Dragsfjärd, Söderlångvik, Nöjis. Kompletterande provutgrävning av en stenåldersboplats 01.06.1985.

Asplund, Henrik 1985. Dragsfjärd, Söderlångvik, Nöjis. Provutgrävning av en stenåldersboplats 19-20.05.1984.

Asplund, Henrik 1987. Dragsfjärd, Ansvedja. Tarkastuskäynti kivikautiselle asuinpaikka-alueelle 08.11.1986.

Asplund, Henrik 1987. Dragsfjärd, Hertsböle, Senatsberget. Selvitys syksyllä vuonna 1986 löytyneestä kivikautisesta asuinpaikasta.

Asplund, Henrik 1987. Dragsfjärd, Kärra, Jordbro. Tarkastuskäynti kivikautiselle asuinpaikalle 08.11.1986.

Asplund, Henrik 1987. Dragsfjärd, Söderlångvik, Knipängsbacken. Tarkastuskäynti kivikautiselle asuinpaikalle 08.11.1986.

Asplund, Henrik 1987. Dragsfjärd, Söderlångvik, Nöjis. Kompletterande provutgrävning av en stenåldersboplats 24-25.05.1986.

Asplund, Henrik 1987. Dragsfjärd, Söderlångvik, Söderby I. Selvitys syksyllä vuonna 1986 löytyneestä kivikautisesta asuinpaikasta.

Asplund, Henrik 1987. Dragsfjärd, Söderlångvik, Söderby II. Selvitys syksyllä vuonna 1986 löytyneestä kivikautisesta asuinpaikasta.

Asplund, Henrik 1987. Selvitys syksyllä vuonna 1986 löytyneestä kivikautisesta asuinpaikasta.

Asplund, Henrik 1988. Dragsfjärd, Ansvedja. Selvitys kivikautisen asuinpaikan löytymisestä kesällä vuonna 1987. Selvitys kahdesta kiviesineestä, jotka löytyivät ennestään tunnetulta Ansvedjan kivikautiselta asuinpaikalta.

Asplund, Henrik 1988. Dragsfjärd, Hertsböle. Selvitys kahden kivikautisen asuinpaikan löytymisestä vuoden 1987 lokakuussa.

Asplund, Henrik 1988. Dragsfjärd, Nordanå. Selvitys kolmen kivikautisen asuinpaikan löytymisestä syys- ja lokakuussa vuonna 1987.

Asplund, Henrik 1988. Dragsfjärd, Söderlångvik, Nöjis. Kompletterande provutgrävning av en stenåldersboplats 15-17.05.1987.

Asplund, Henrik 1989. Dragsfjärd, Storfinhofva ja Lillfinhofva. Selvitys syksyllä vuonna 1988 tehdyistä kivikauden asuinpaikkahavainnoista.

Asplund, Henrik 1989. Dragsfjärd, Söderlångvik, Nöjis. Kompletterande provutgrävning av en stenåldersboplats 28-29.05.1988.

Asplund, Henrik 1989. Dragsfjärd, Ölmos, Sandbrinkarna. Selvitys kivikautisen asuinpaikka-alueen löytymisestä vuoden 1988 syyskuussa.

Asplund, Henrik 1989. Selvitys uusista havainnoista Ansvedjan kivikautisella asuinpaikka-alueella vuonna 1988.

Asplund, Henrik 1989. Selvitys uusista havainnoista Ansvedjan kivikautisella asuinpaikka-alueella vuonna 1988.

Asplund, Henrik 1990. Dragsfjärd, Ölmos, Hammarsboda. Selitys kivi- ja varhaismetallikautisista asuinpaikkalöydöistä vuosilta 1989-1990.

Asplund, Henrik 1991. Dragsfjärd, Söderlångvik, Nöjis. Avslutande provutgrävning av en stenåldersboplats 20.-21.05.1989.

Asplund, Henrik 1992. Dragsfjärd (tid. Hitis), Kyrksundet. NAU-läger 27.7.-7.8.1992. Fältrapport över delområde x 827-830 / y 4800-4801.50.

Asplund, Henrik 1992. Dragsfjärd, Ölmos, 28:17. Selvitys kivikautisen asuinpaikan löytymisestä keväällä vuonna 1991.

Asplund, Henrik 1994. Dragsfjärd (ent. Hiittinen), Kyrksundet. Rautakautisen ja keskiaikaisen muinaisjäännösalueen tutkimukset 2.-20.8.1993.

Asplund, Henrik 1994. Dragsfjärd (ent. Hiittinen), Rosala. Koekaivaus tienparannusalueella 18.-20.8.1993.

Asplund, Henrik 1994. Dragsfjärd, Hammarsboda 2. Provutgrävning av en senneolitisk boplats 29.-30.5. och 11.-12.9.1993.

Asplund, Henrik 1994. Dragsfjärd, Nordanå (D). Selvitys kivikautisen asuinpaikan löytymisestä keväällä vuonna 1993.

Asplund, Henrik 1994. Dragsfjärd, Storfinhofva, Oxmossen. Selvitys kivikautisen asuinpaikan löytymisestä keväällä vuonna 1989.

Asplund, Henrik 1996. Dragsfjärd, Krogarudden 1995. Museovirasto, Muinaisjäännösten hoito. Seurantaraportti.

Asplund, Henrik 1996. Dragsfjärd, Söderlångvik, Söderby I. Provutgrävning av en stenåldersboplats 16.-17.9.1995.

Asplund, Henrik & Salomonsson, Henrik 1985. Dragsfjärd, Ölmos-Purunpää, Jungfrusund. Rapport angående fornfynd gjorda på Krogarudden vid Jungfrusund i Dragsfjärd, samt kort redogörelse för lokalisering och uppmålning av hällristningar på samma plats.

Bergström, Matti 1985. Dragsfjärd, Söderlångvik (Söderby) - kiviröykkiön osan kaivaus.

Cleve, Nils 1943. Redogörelse för en fornminnesrekognosering i Dragsfjärd sommaren 1943 utförd med understöd av Nordenskiöld-samfundet i Finland.

Cleve, Nils 1946. Redogörelse för arkeologiska undersökningar på Jordbromalmen i Dragsfjärd, utförda med understöd av Nordenskiöld-samfundet i Finland.

Edgren, Helena 1985. Dragsfjärd. Arkeologisk inventering 1985. Konstsamfundets Insula Nova -område.

Fagerström, Levi & Roth, Harto 1992. Hiittisten Kirkkosalmi. Koekuopitus 1991.

Fagerstöm, Levi & Roth, Harto 1992. Dragsfjärdin saariston inventointi 1991.

Heikkinen, Titta & Näränen, Jari 1992. Hiittisten saariston inventointi 1992.

Hirviluoto, Anna-Liisa 1993. Dragsfjärd, Kyrksundet. Rautakauden lopulle ajoittuvan löytöpaikan kaivaus 1992.

Jäkärä, Tiina 1994. Dragsfjärd (ent. Hiittinen), Kyrksundet. Kappelialueen hautausten tutkimukset - osaraportti 1994.

Jäkärä, Tiina 1995. Dragsfjärd (ent. Hiittinen), Kyrksundet. Tutkimukset kappelialueella - osaraportti 1995.

Jäkärä, Tiina 1996. Dragsfjärd (ent. Hiittinen), Kyrksundet. Tutkimukset kappelialueella - osaraportti 1996.

Jäkärä, Tiina 1997. Dragsfjärd (ent. Hiittinen), Kyrksundet. Rautakautisen ja keskiaikaisen muinaisjäännösalueen tutkimukset 28.7.-8.8.1997.

Kankkunen, Päivi 1992. Dragsfjärd, Nordanå, Bötesberget. Mesoliittisen asuinpaikan koekaivaus.

Kivikoski, Ella 1936. Kertomus kaivauksesta Dragsfjärdin pit. Söderbyn kl. maalla heinäkuun 20 päivänä 1935.

Kostet, Juhani & Itkonen, Pertti & Mikkonen-Hirvonen, Satu 1989. Dragsfjärd, Söderlångvik, Söderby 1988. Kertomus kiviröykkiön kaivauksesta 6.-10.10.1988.

Lempiäinen, Terttu 1993. Dragsfjärd/Hiittinen, Kyrksundet, arkeologiset kaivaukset 1993. Makrofossiilitutkimukset.

Lempiäinen, Terttu 1994. Hiittinen, Kyrksundet; makrofossiilitutkimus 1994.

Lempiäinen, Terttu 1995. Hiittinen, Kyrksundet; makrofossiilitutkimus 1995.

Mäntylä, Sari 1995. Dragsfjärd (ent. Hiittinen), Kyrksundet. Rautakautisen ja keskiaikaisen muinaisjäännösalueen tutkimukset 17.7.-4.8.1995.

Mäntylä, Sari 1995. Dragsfjärd (ent. Hiittinen), Kyrksundet. Rautakautisen ja keskiaikaisen muinaisjäännösalueen tutkimukset 18.7.-5.8.1994.

Mäntylä, Sari 1996. Dragsfjärd (ent. Hiittinen), Kyrksundet. Rautakautisen ja keskiaikaisen muinaisjäännösalueen tutkimukset 1.7.-26.7.1996.

Nordman, C.O. 1938. Grävningar på kyrkogården vid Kyrksundet i Hitis i juli 1938.

Nordman, C.O. 1939. Utgrävning av kyrkogården på Kyrkön invid Kyrksundet i Hitis, juni - juli 1939.

Näränen, Jari 1996. Nauvon ja Dragsfjärdin alueilla sijaitsevien hylkyjen ja läheisten maa-alueiden kiinteiden rakenteiden välisistä suhteista. Kenttätyöraportti 8.-11.5.1995.

Sipilä, Marja 1996. Dragsfjärd, Hertsböle, Senatsberget. Kivikautisen asuinpaikan koekaivaus 25.-26.5.1996.

Sipilä, Marja 1996. Dragsfjärd, Hertsböle, Senatsberget. Kivikautisen asuinpaikan koekaivaus 21.-22.9.1996.

Tuovinen, Tapani 1985. Dragsfjärd, Ölmos, Hälsingholmen. Ryssänuuniryhmän tarkastus 30.5.1985.

Tuovinen, Tapani 1985. Dragsfjärd, Ölmos, Kolaskär. Ryssänuunin tarkastus 7.6.1985.

Tuovinen, Tapani 1988. Dragsfjärd, Krogarudden-Jungfrusund. Maastotarkastus 22.-23.06.1987 ja 11.08.1987.

Tuovinen, Tapani 1991. Dragsfjärd, Hammarsboda. Maastokäynti 19.12.1990.

Tuovinen, Tapani 1991. Dragsfjärd, Ölmos, Östergård 2. Arkeologisk undersökning av ett gravröse den 6.-9.9.1990.

Tuovinen, Tapani 1992. Dragsfjärd, Holma, Stora Ängeskär. Labyrintin tarkastus 13.6.1989.

Tuovinen, Tapani 1993. Dragsfjärd, Söderlångvik. Kahden kivirakenteen tarkastus 7.8.1992.

Tuovinen, Tapani 1993. Dragsfjärd. Selvennyksiä ja täydennyksiä Levi Fagerströmin ja Harto Rothin raporttiin Hiittisten Kirkkosalmi, Koekuopitus 1991.

Tuovinen, Tapani 1993. Dragsfjärdin Hammarsboda 3:n tutkimukset 1991.

Halikko

Appelgren, Hjalmar 1896. Redogörelse för de af undertecknad under September månad 1896 utförda antiqvariska arbetena.

Asplund, Henrik 2002. Halikko, Hirvikallio, Rikala Linnamäki. Linnavuoren fosforikartoitus 10.8. ja 15.8.2001.

Asplund, Henrik 2007. Halikko, Hirvikallio, Rikala Linnamäki. Koekaivaus 30.10.2002.

Brusila, Heljä 2002. Raportti arkeologisesta seurannasta, jonka Turun maakuntamuseon tutkija Heljä Brusila suoritti 5.11.2002 vesijohtokaivantotyömaalla Halikon Puotilan tilalla, rautakautisella löytöalueella.

Brusila, Heljä 2006. Halikko, Paimion yhteismetsä. Arkeologisen kohteen tarkastus.

Hirviluoto, Anna-Liisa 1966. Halikon Kultolan Katunpään rautakautisen löytöpaikan tarkastus 24.9.1963.

Hirviluoto, Anna-Liisa 1991. Halikon Märyn Munismäen kuppikallion tarkastus 1983.

Hirviluoto, Anna-Liisa 1998. Halikon Märyn Pihkon kuppikiven tarkastus kesäkuussa 1983.

Katiskoski, Kaarlo 1983. Halikko Pappila Kirkonmäki.

Koskimies, Anna Kerttu 1955. Angelniemen kiinteät muinaisjäännökset.

Koskimies, Anna Kerttu 1955. Halikon kiinteät muinaisjäännökset.

Leppäaho, Jorma 1952. Halikon pitäjän Toijalanmäen huvila-alueella, Väinö Salosen tontilla esineen E.O. 12691 löytöpaikalla suoritettu kaivaus 11/6 - 21/6 1951.

Leppäaho, Jorma 1952. Uhrikivi Halikon pitäjän Ketolan kylän Meisalan ent. kruununvirkatalon maalla.

Leppäaho, Jorma 1955. Intendentti Jorma Leppäahon tutkimukset Halikon pitäjän Rikalanmäellä pienviljelijä August Tuomisen ent. tontilla olevassa ruumiskalmistossa.

Mikkola, Esa 1994. Halikko Märy Munismäki. Rautakautisen kalmiston / asuinpaikan ? tarkastus.

Mikkola, Esa 1995. Halikon Märyn rautakautisten kohteiden kaivaukset vuonna 1994. Riihikankare Krapuoja ja Myllyoja.

Mikkola, Esa 1996. Halikko Märy Munismäki. Rautakautisen asuinpaikan koekuopitus.

Mikkola, Esa 1998. Halikon läntisen ohikulkutien sekä MT 2351 ja MT 2355 varteen rakennettavan kevyen liikenteen väylän arkeologinen inventointi 1.-6.10.1998.

Mikkola, Esa 1999. Halikon kunnan kiinteiden muinaisjäännösten inventointi 2.-30.9.1998.

Mikkola, Esa 2000. Halikko Puotila Wuorenrinta. Rautakautisen löytöpaikan koekaivaus 19.7.-13.8.1999.

Mäntylä, Sari 2004. Raportti saviastian palojen (KM 34664) löytymisestä Halikon Märyn Pihkosta 10.4.2004.

Poutiainen, Hannu 1990. Perniö – Piikkiö -ratalinjan arkeologinen inventointi toukokuussa 1989.

Raike, Eeva 2004. Halikon Kirkkomäen koekaivaukset ja kaivaukset 16.6.-27.6.2003 & 8.9.-19.9.2003.

Riikonen, Jaana 1988. Halikko, Angelniemi. Kiviröykkiöiden tarkastus 13.6.1988.

Riikonen, Jaana 1990. Kertomus Halikon Rikalassa Pauli Heinon tontilla 20.-28.8.1990 tehdystä koekaivauksesta.

Riikonen, Jaana 2001. Parkkipaikaksi tasoitetun ns. Kaijankallion koekuopitus Halikon Rikalan alueella 15. ja 16.11.1999.

Saloranta, Elina 1989. Halikko Rikala Kihinen ja Halikko Joensuu.

Saloranta, Elina 1991. Halikko Rikala.

Saloranta, Elina 1991. Halikko Rikala Kihinen.

Saloranta, Elina 1991. Halikko Joensuu.

Sarvas, Anja 1968. Halikko, Kuttila, Vuorela. Kivikautisen tasataltan KM 17607 löytöpaikan tarkastus.

Sarvas, Anja 1968. Halikko, Kytö, Lisälehtola. Kivikautisen karhunpääkirveen KM 17610 löytöpaikan tarkastus heinäkuussa 1968.

Sarvas, Anja 1968. Halikko, Melkola, Melkola. Kivikautinen asuinpaikka.

Sarvas, Anja 1968. Halikko, Melkola, Melkola. Kourutaltan KM 17611 löytöpaikan tarkastus.

Sarvas, Anja 1968. Halikko, Pitkäoja, Koivusilta. Liuskekeihäänkärjen KM 17608 ja liuskekeihäänkärjen katkelman KM 17608 löytöpaikan tarkastus.

Sarvas, Anja 1968. Halikon Muntolan Isoriihenmäen viikinkiaikaisen polttokenttäkalmiston kaivauskertomus.

Sarvas, Anja 1968. Halikon Mustamäen rautakautisen löytöpaikan tarkastus ja koekaivaus heinäkuussa 1968.

Sarvas, Anja 1969. Halikon Muntolan Isoriihenmäen viikinkiaikaisen polttokenttäkalmiston kaivauskertomus.

Seppänen, Kimmo 1975. Halikko, Rikala. Kertomus maanäytteiden otosta fosfaattianalyysiä varten ajalla 8.-19.9.1975.

Seppänen, Kimmo 1976. Halikon Rikalanmäen kaivauskertomus 1.-17.6.1976.

Seppänen, Kimmo 1977. Halikko, Mustamäki, Suutarin tontti. Tarkastuskertomus löydetystä nokimaakerroksesta 22.8.1976.

Seppänen, Kimmo 1978. Halikon Rikalanmäen kaivauskertomus 13.6.-8.7.1977.

Seppänen, Kimmo 1978. Halikon Rikalanmäen kaivauskertomus 3.7.-29.8.1978.

Strandberg, Nina 2000. Halikko, läntisen ohikulkutien ja mt 2355 koekaivauskohteet 1999. Halikko Lempolanmäki S, Halikko Kihistenmäki SW, Halikko Mörlingin pelto, Halikko Kannikon makasiini, Halikko Mattila, Halikko Torkkelin pelto. Koekaivauksia inventoiduissa kohteissa.

Vanhatalo, Simo 2006. Halikko Wuorenrinta, rautakautisen löytöpaikan ympäristön koekaivaus.

Voionmaa, Jouko 1955. Halikko, Rikala, Linnamäki.

Kemiö

Asplund, Henrik 1985. Kemiö, Östermark. Ilmoitus 11.05.1985 löydetystä kivikautisesta asuinpaikasta.

Asplund, Henrik 1985. Kimito, Östermark. Provutgrävning av en stenåldersboplats 14.09.1985.

Asplund, Henrik 1987. Kemiö, Östermark. Uusia irtolöytöjä Kiukaisten kulttuurin asuinpaikalta.

Asplund, Henrik 1989. Kemiö, Östermark, Österbacka. Selvitys mahdollisesti esihistoriallisen lieden löytymisestä syksyllä vuonna 1988.

Asplund, Henrik 1989. Selvitys keväällä vuonna 1988 tehdystä kivikauden asuinpaikkahavainnosta.

Asplund, Henrik 1990. Kemiö, Engelsby, Brudbergen. Selvitys mahdollisista kivikautisista asuinpaikkalöydöistä.

Asplund, Henrik 1991. Kemiö, Löfböle, Vestergård. Selvitys mahdollisen esihistoriallisen asuinpaikan löytymisestä syksyllä v. 1989.

Asplund, Henrik 1991. Kemiö, Pedersjö, Lillgård. Tarkastuskäynti mahdollisella kivikautisella asuinpaikalla 15.10.1989.

Asplund, Henrik 1992. Kemiö, Branten. Raportti myöhäisneoliittisen asuinpaikan löytymisestä vuonna 1989 sekä 25.5.1991 suoritetusta seulontatyöstä.

Asplund, Henrik 1992. Kemiö, Makila. Käynti varhaismetallikautisella asuinpaikka-alueella 26.7.1992.

Asplund, Henrik 1992. Kimito, Makila, Östergård. Preliminära undersökningar av en förromersk boplats 1989-90.

Asplund, Henrik 1994. Kemiö, Bogsböle. Selvitys kivikautisen asuinpaikan löytymisestä keväällä vuonna 1993.

Asplund, Henrik 1994. Kemiö, Hulta. Selvitys esihistoriallisista löydöistä keväältä vuonna 1993.

Asplund, Henrik 1994. Kemiö, Rugnola ja Kalkila. Raportti inventointiluontoisista tutkimuksista vuosina 1986-88.

Asplund, Henrik 1996. Kemiö, Berghäll. Museovirasto. Muinaisjäännösten hoito. Seurantaraportti.

Asplund, Henrik 1998. Kemiö, Makila. Koetutkimus historiallisen ajan kylässä 04.06.1998.

Asplund, Henrik & Saarinen, Riikka 1998. Kemiö, Makila, Majberget. Varhaismetallikautisen röykkiön kaivaus 02.-06.06., 11.09. ja 14.11.1997.

Tuovinen, Tapani 1992. Kemiö, Makila, Östergård. Varhaismetallikautisen löytöpaikan tarkastus 5.11.1991.

Kuusjoki

Laakso, Ville 1997. Kuusjoki. Muinaisjäännösinventointi 1997.

Sarvas, Anja 1974. Kuusjoen kunnan kiinteät muinaisjäännökset. Inventointi 1972.

Muurla

Hackman, Alfred 1916. Muurla socken. Fyndställena på Äijälä eller Heinäkari. H.M. 2589:1-4; 6762:3,4; 7014.

Hirviluoto, Anna-Liisa 1962. Muurlan pitäjän esihistoriallisten muinaisjäännösten tarkastus 17.10.1961.

Huurre, Matti 1965. Muurlan inventointikertomus 1963.

Laukkanen, Esa 2003. Muurlan kiinteät muinaisjäännökset ja maalöydöt. Kertomus v. 2002 tehdystä arkeologisesta inventoinnista.

Schvindt, Theodor 1888. Till arkeologiska kommissionen! Den 12. September 1888 No: 470.

Söyrinki-Harmo, Leena 1977. Kertomus tarkastusmatkasta kivikautiselle asuinpaikalle 28.06.1976.

Nauvo

Asplund, Henrik 1991. Nauvo, Finby, Hvits. Jatulintarhan tarkastus 27.04.1991.

Asplund, Henrik 1994. Nauvo, Simonby. Selvitys myöhäisneoliittisen asuinpaikan löytymisestä 4.9.1993.

Mickelson, Georg 1955. Inventarieförteckning över de fasta fornlämningarna i Nagu socken.

Rajala, Ulla 1992. Nauvon ja Paraisten välisen kiinteän yhteyden yleissuunitelman linjausvaihtoehtojen arkeologinen inventointi 3.-18.6.1992.

Tuovinen, Tapani 1983. Nauvo, Innamo, Gaudis. Maanalaisia kivirakenteita koskeva ilmoitus 17.6.1983.

Tuovinen, Tapani 1985. Nauvo, Innamo, Suranpäudden. Kalliokirjoitusten tarkastus 28.8.1985.

Tuovinen, Tapani 1985. Nauvo, Innamo, Tammort. Kalliokirjoituksen tarkastus 28.8.1985.

Tuovinen, Tapani 1988. Nauvo, Innamo, Lilla Kuusis. Kalliomerkkiryhmien tarkastus 24.08.1986 ja 29.06.1987.

Tuovinen, Tapani 1988. Nauvo, Mielis, Västra Petisholmen. Ryssänuuniryhmän tarkastus 28.06.1987.

Tuovinen, Tapani 1988. Nauvo, Nötö, Klockarstenen. Soivan kiven maastotarkastus 26.05.1987 ja 08.07.1987.

Tuovinen, Tapani 1988. Nauvo, Puotuis, Vessor. Kiviraunio- tai kummeliryhmän tarkastus 27.06.1987.

Tuovinen, Tapani 1989. Nauvo, Halsholm. Labyrintin tarkastus 5.5.1988.

Tuovinen, Tapani 1989. Nauvo, Innamo, Vähä-Kuusinen (Lilla Kuusis). Metallikautisen hautaraunion tutkimus 10.7.-19.7.1988.

Tuovinen, Tapani 1989. Nauvo, Nötö, Sundbergen 1988. Kaivausraportti.

Tuovinen, Tapani 1992. Nauvo 533, Bryggars. Arkeologisen kohteen tarkastus.

Tuovinen, Tapani 1992. Nauvo 533, Bårnholm. Arkeologisen kohteen tarkastus 22.9.1989.

Tuovinen, Tapani 1993. Nauvon Ängesnäs bergenin tutkimukset 1993.

Paimio

Asplund, Henrik & Luoto, Jukka 1984. Paimio, Spurila. Tarkastuskäynti 24.10.1984.

Asplund, Henrik & Luoto, Jukka 1984. Paimio, Spurila. Vanhemman rautakauden asuinpaikkakerrostuman kaivaus 04-12.08.1983.

Asplund, Henrik & Luoto, Jukka 1985. Paimio, Kruusila. Turun Maakuntamuseossa säilytettävän viikinkiaikaisen kaularenkaan (TKHM 13181) löytöpaikalle suoritettu tarkastuskäynti 23.05.1985.

Asplund, Henrik & Luoto, Jukka 1985. Paimio, Spurila, (asuinpaikka G). Tarkastuskäynti nuoremman rautakauden asuinpaikalle 23.05.1985.

Asplund, Henrik & Luoto, Jukka 1985. Paimio, Spurila, (kalmisto C). Nuoremman rautakauden kalmiston koekaivaus 08.07-31.07.1985.

Asplund, Henrik & Luoto, Jukka 1985. Paimio, Spurila, (löytöpaikka h). Rautakautisen muinaisjäännöksen koetutkimus 22.07.-31.07.1985.

Asplund, Henrik & Luoto, Jukka 1985. Paimio, Spurila. Roomalaisaikaisen kalmiston kaivaus sekä sen ympäristön koetutkimukset 04.06-31.07.1984.

Asplund, Henrik & Luoto, Jukka 1986. Paimio, Spurila, (kalmisto H). Roomalaisaikaisen hautarakennelman koekaivaus 01.07-31.07.1985.

Asplund, Henrik & Luoto, Jukka 1986. Paimio, Spurila, kalmisto A. Roomalaisaikaisen kalmiston jatkotutkimus 03.06.-31.07.1985.

Asplund, Henrik & Luoto, Jukka & Vuorinen, Juha-Matti 1983. Eräiden Spurilan rautakautiseen muinaisjäännöskompleksiin kuuluvien kohteiden tarkastus 12.11.1983.

Asplund, Henrik & Luoto, Jukka & Vuorinen, Juha-Matti 1983. Paimio, Spurila. Rautakautiseksi kalmistoksi epäillyn kohteen tarkastus 22.10.1983.

Bilund, Antti 1997. Paimio, Askala, Nummenalho. Arkeologisen kohteen tarkastus.

Bilund, Antti 1997. Paimio, Munkkila, Laukonmäki. Arkeologisen kohteen tarkastus.

Bilund, Antti 1997. Paimio, Vuohimäki, Vuohimäki. Arkeologisen kohteen tarkastus.

Brusila, Heljä 1990. Paimio, Askala, Toispuolojannummi. Arkeologisen kohteen tarkastus.

Brusila, Heljä 1992. Paimio, Maljamäki, Litto. Arkeologisen kohteen tarkastus.

Brusila, Heljä 1993. Paimio, Leikola. Arkeologisen kohteen tarkastus.

Europaeus, Aarne 1928. Alholan kivikautinen asuinpaikka Paimion pitäjän Oinilan kylässä.

Europaeus, Aarne 1928. Paimion Toispuolojannummen kivikautinen asuinpaikka. Alustava tutkimus paikalla v. 1928.

Europaeus, Aarne 1928. Tietoja uhrikuopista Paimiossa.

Fischer, Riitta & Luoto, Jukka 1982. Paimio, Sievola 1982. 15.6.-28.7.1982.

Fischer, Riitta & Luoto, Jukka 1983. Paimio, Spurila 1982. Rautakautinen polttokenttäkalmisto 15.7.-15.8.1982.

Hirviluoto, Anna-Liisa 1961. Paimio, Askala, Nummentalo. Hautaraunion tarkastus 19.4.1961.

Hirviluoto, Anna-Liisa 1961. Paimion esihistoriallisten muinaisjäännösten tarkastuksia Paimion Oinilan kylässä 18.-19.4.1961.

Hirviluoto, Anna-Liisa 1961. Paimion Penimäen Hiidenalan hiidenkiukaan tarkistus 19.4.1961.

Kivikoski, Ella 1933. Paimio, Rukkijoki, Kehinoja. Tutkimus 24-26 p:nä heinäk. 1933.

Kivikoski, Ella 1934. Kertomus E. Kivikosken kaivauksista Paimion pitäjän Askalan kylän Alitalon ja Keskitalon mailla kesällä 1934.

Kivikoski, Ella 1934. Paimio, Herrankartano. Kaivaus v. 1934.

Kivikoski, Ella 1934. Tarkastusmatka Paimion pitäjän Maljamäen kylään pronssikirveen (N:o 9830) löytöpaikalle.

Kivikoski, Ella 1936. Kaivaus Paimion pitäjän Isokuusvuoren tilan Peltomäellä heinäkuun 22-23 p:nä 1935.

Leppäaho, Jorma 1933. Kertomus Historiallisen osaston intendentin maisteri I. Kronqvistin Paimion retkikunnan tekemistä esihistoriallisista löydöistä ja havainnoista.

Leppäaho, Jorma 1952. Paimion Askalan Alitalon Huhdan santakuoppa. Tyypillisen kampakeramiikan löytöpaikka (9605.13).

Leppäaho, Jorma 1957. Intendentti Jorma Leppäahon suorittama kaivaus Paimion pitäjän Oinilan kylän Lautelan kartanon maalla 17.6.-22.6.1954.

Lindroos, Allan 1928. Förteckning och beskrivning över fornlämningarna i Pemar socken.

Luoto, Jukka 1979. Kertomus kaivauksista Paimion Nakolinnalla ja sen ympäristössä 18.6-18.8.1979.

Luoto, Jukka 1981. Kertomus kaivauksista Paimion Katajamäellä syyskuussa 1980.

Luoto, Jukka 1981. Paimio, Askala, Toispuolojannummi. Kaivauskertomus 1981.

Luoto, Jukka 1981. Paimio, Spurila, Spurilanmäki 1980. Koekaivaus.

Luoto, Jukka 1982. Paimio, Sievola. Kaivauskertomus 1980-81.

Luoto, Jukka 1984. Paimio, Oinila. Uhrikivilöytö syksyllä 1983.

Oksala, Hilkka 1990. Paimio, Huso 1990. Kertomus tarkastuksista Paimion Husossa 12.9.1990.

Palo, Jyrki 1996. Paimion Askala ja Oinila, arkeologinen kivikauden inventointi 2.5.-26.5.1995.

Poutiainen, Hannu 1988. Turku - Paimio -moottoritielinjan inventointi 11.5.-31.5.1987.

Pälsi, Sakari 1933. Paimio, Askala, Rakisaaren nummen kaivaus 1932.

Pärssinen, Martti 1984. Kertomus kaivauksesta, joka suoritettiin Paimiossa, Spurilan kartanon Lopen kylämäellä 1.6.-2.8.1983.

Raike, Eeva 2005. Paimion arkeologinen inventointi 25.4.-10.6.2005.

Ruonavaara, Leena 1974. Paimio, Askala, Toispuolojannummi. Kivikautisen asuinpaikan koekaivaus 24.-28.9.1973.

Schvindt, Theodor 1887. Paimio, Vista, Koskenniittu. Till Arkeologiska kommissionen.

Tallgren, A. M. 1926. Paimio.

Parainen

Asplund, Henrik 1990. Provutgrävning av en medeltida kapellplats 05-09.06.1989.

Asplund, Henrik 1991. Kompletterande provutgrävning av en medeltida kapellplats 11.-15.6.1990.

Asplund, Henrik 1992. Parainen, Jermo. Selvitys rautakautisen kirveen löytymisestä.

Asplund, Henrik 1994. Avslutande provutgrävning av en medeltida kapellplats 13.6.1992.

Asplund, Henrik 2007. Pargas, Koupo, Rösbacken. Arkeologisk undersökning av en lokal från senneolitikum / bronsålder 15.5. och 19.-20.5.2007.

Brusila, Heljä 1989. Parainen, Tojoinen, Vivalängsberg. Esihistoriallisen kohteen tarkastus.

Brusila, Heljä 1993. Parainen, Jermo, Roparudden. Arkeologisen kohteen tarkastus.

Kehusmaa, Anu 1999. Parainen, Degerby, Fagervik. Kivikautisen asuinpaikan kaivaus 22.-23.05.1999.

Lehtonen, Kaisa 2003. Parainen, Kapellstrand, Nunnavuori. Arkeologisen kohteen tarkastus.

Mickelson, Georg 1954. Inventarieförteckning över de fasta fornlämningarna i Pargas socken.

Nyberg, Ragnar 1984. Fasta fornlämningar i Pargas.

Raike, Eeva 1999. Parainen, Degerby, Fagervik. Kivikautisen asuinpaikan kaivaus. Pargas-Nagu Medborgarinstitut, lokakuu 1996, toukokuu 1997, kahden viikonlopun arkeologinen kaivaus.

Rajala, Ulla 1992. Nauvon ja Paraisten välisen kiinteän yhteyden yleissuunnitelman linjausvaihtoehtojen arkeologinen inventointi 3.-18.6.1992.

Sjöstrand, Peter 1980. Parainen, Vallis, Södergård. Löytökertomus.

Tuovinen, Tapani 1985. Rymättylä, Ojainen, Alistalo. Kivikautisen asuinpaikan tarkastus 15.8.1985.

Tuovinen, Tapani 1989. Parainen, Sydmo malmarna. Mahd. kivikautisen asuinpaikan tarkastus 21.8.1989.

Tuovinen, Tapani 1995. Paraisten Lenholmin arkeologinen inventointi.

Perniö

Ailio, Julius 1900. Tyynelän rautakautinen polttokalmisto Perniön Ylikylässä Arpalahden maalla.

Ailio, Julius 1912. Hautaraunion tutkimus Vaarnummella Perniössä, Kivelän talon maalla.

Appelgren, Hjalmar 1896. Bjerno. Å Parskylä gårdsplan i Bjerno socken ...

Appelgren, Hjalmar 1896. Redogörelse för de af undertecknad under September månad 1896 utförda antiqvariska arbetena.

Appelgren, Hjalmar 1897. Perniö. Paarskylän kartanon …

Appelgren, Hjalmar 1897. Perniö. Yliskylän kappelin kirkkomaan …

Asplund, Henrik 1992. Perniö, Teijo. Raportti alueella havaituista kiviuuneista.

Asplund, Henrik 1992. Perniö, Viipuri, Kallela. Sudenkuopan tarkastus 19.5.1992.

Asplund, Henrik 1992. Perniö, Viipuri, Ylitalo, Aateliskankare. Tarkastuskäynti 19.5.1992.

Asplund, Henrik 1996. Perniö, Lupaja, Tiikkinummi 22-25.8.1994. Museovirasto, Muinaisjäännösten hoito. Seurantaraportti.

Bilund, Antti 1994. Perniö, Suksenböle. Arkeologisen kohteen tarkastus.

Brusila, Heljä 1990. Raportti tarkastuskäynnistä, joka tehtiin 10.10.1990 Perniön Skoilan kylään, opettaja Hans Myhrmanin löytämälle kivikautiselle asuinpaikalle.

Cleve, Nils 1930. Järnåldersgravfältet å Tyynelä i Bjerno (Perniö).

Cleve, Nils 1930. Perniö, Kokkila, Hakala.

Europaeus, Aarne 1924. Hautaraunioita Perniön Knaapilan talon Varemäellä ja lähistöllä.

Hackman, Alfred 1916. Bjerno socken. Uppgifter om fyndstället för bronsdolken H.M. 6795:5.

Keskitalo, Oiva 1966. Perniö, Paarskylä. Myöhäisrautakautisen polttokenttäkalmiston pikakaivaus 18-19.10.1966.

Kivikoski, Ella 1937. Perniö, Knaapila, Varemäki. Röykkiö N:o d:n kaivaus 1937.

Lähdesmäki, Ulla & Ruotsalainen, Teija 1982. Kertomus Perniön Lemun kylän Lehmihaassa 1982 suoritetuista kaivauksista.

Lähdesmäki, Ulla & Salo, Unto 1982. Kertomus Perniön Lemun kylän Lehmihaassa 1981 suoritetuista kaivauksista.

Lähdesmäki, Ulla 1980. Kertomus Perniön Lemun kylän Lehmihaassa 1979 suoritetuista rauniokaivauksista.

Lähdesmäki, Ulla 1980. Kertomus Perniön Lemun kylän Lehmihaassa 1980 suoritetuista kaivauksista.

Meinander, C. F. 1961. Perniö, Mutainen. Kivikautisen asuinpaikan tarkastus.

Poutiainen, Hannu 1989. Perniö - Piikkiö -ratalinjan inventointi 1989.

Poutiainen, Hannu 1989. Perniö. Radanoikaisulinjan inventointi 1988.

Pälsi, Sakari 1930. Pronssikeihäs 9138, Perniö, Kokkilan Hakala.

Raike, Eeva 1998. Perniön inventointi 1997.

Salmo, Helmer 1927. Perniön esihistoriallisten löytöjen ja kiinteiden muinaisjäännösten luetteloiminen.
Salmo, Helmer 1929. Kaivauskertomus.
Salmo, Helmer 1940. Kertomus polttokenttäkalmiston tutkimisesta Perniön pitäjän Paarskylän kartanon puutarhassa 6-16/VIII 1940.
Salmo, Helmer 1945. Perniön pitäjän Osalan talon roomalaisaikainen kalmisto.
Salmo, Helmer 1955. Perniön pitäjän kiinteiden muinaisjäännösten tarkastus 20-21.9.1955.
Salmo, Helmer 1958. Tarkastusmatka Perniön Paarskylään konstaapeli Uuno Laineen omistamalle palstalle 14.11.1958.
Salmo, Helmer 1959. Polttokenttäkalmiston tutkimus Perniön pitäjän Paarskylän Pääris´issä, konstaapeli Uuno Laineen tontilla kesäk. 3-10. p:nä 1959.
Salmo, Helmer 1963. Tarkastusmatka Perniön Aimontapon kylän Kuusimäen tilalle 28.5.1963.
Salmo, Helmer 1963. Tarkastusmatka Perniön Aimontapon kylän Salminiemen (ent. Ilolan) talon maalle 28.5.1963.
Salmo, Helmer 1963. Tarkastusmatka Perniön Korvenkylän Ahjon talon maalle 28.5.1963.
Salmo, Helmer 1964. Tarkastusmatka Perniön Asteljoen kylään 11.6.1964.
Salonen, Helmer 1929. Perniö, Knaapila. Kaivauskertomus.
Sirelius, U. T. 1902. Hautareukki Kivelän yksityistilalla Perniön pitäjässä.
Tallgren, A. M. 1925. Esihist. Os. 16.9.1925.
Voionmaa, Jouko & Leppäaho, Jorma 1938. Rautakautinen polttokalmisto Perniön Paarskylän puutarhassa, tutkineet Muinaistieteellisen toimikunnan määräyksestä J. Leppäaho ja J. Voionmaa huhtikuussa 1938.
Voionmaa, Jouko 1938. Uhrikuppeja kalliossa Perniön pitäjän Paarskylän kartanon maalla, Anttilan palstatilan lähellä; tutkinut J. Voionmaa huhtikuussa 1938.

Pertteli

Appelgren-Kivalo, Hjalmar 1909. Pertteli, Wihmoilan kylä, Sipilän talo.
Huurre, Matti 1965. Perttelin kiinteät muinaisjäännökset.
Pukkila, Jouko 2002. Pertteli. Arkeologinen perusinventointi 2002.
Salmo, Helmer 1961. H. Salmon kertomus tarkastusmatkasta rannerenkaan n:o 15229 löytöpaikalle Perttelin pitäjän Kaivolan kylään.

Piikkiö

Asplund, Henrik 1987. Piikkiö, Isohepojoki, Lausmäki. Tarkastuskäynti kivikautiselle asuinpaikalle 18.09.1986.
Asplund, Henrik 1987. Piikkiö, Moisio, Moision Alitalo. Tarkastuskäynti esiroomalaisen ajan asuinpaikalle 23.09.1986.
Asplund, Henrik 1988. Piikkiö, Bussila. Tarkastuskäynnit 05.06. ja 08.06.1987.
Asplund, Henrik 1991. Piikkiö, Tammisilta, Kerätie 5. Mahdollisen kiviesineen löytöpaikan tarkastus 28.03.1991.
Asplund, Henrik 1996. Piikkiö, Hadvala. Museovirasto. Muinaisjäännösten hoito. Seurantaraportti.
Asplund, Henrik & Jukka Luoto 1993. Piikkiö, Huttalan linnavuori. Koekaivaus 19.07.-28.07.1983.

Asplund, Henrik & Luoto, Jukka 1983. Piikkiö, Hadvala, Mattilanmaa. Tienlevennystyön takia suoritettu tarkastuskäynti 02.11.1983.

Asplund, Henrik & Luoto, Jukka 1983. Piikkiö, Huttala, Huttalanmäki. Inventointi ja koekaivaus 04.07.-06.07. ja 28.07.1983.

Asplund, Henrik & Luoto, Jukka 1983. Piikkiö, Moisio, Kalmuskankare. Vesijohdon vetämisen takia suoritettu tarkastus 22.07.1983.

Asplund, Henrik & Luoto, Jukka 1983. Piikkiö, Moisio. Esihistorialliseksi haudaksi epäillyn raunion tarkastus 21.07.1983.

Asplund, Henrik & Luoto, Jukka 1983. Piikkiö, Viukkala, Leskelä ja Kurkkala. Inventointi ja koekaivaus 01.08.-02.08.1983.

Asplund, Henrik & Luoto, Jukka 1983. Piikkiö, Hadvala. Inventointi ja koekaivaus 07.07.-20.07.1983.

Asplund, Henrik & Luoto, Jukka 1984. Piikkiö, Bussila. Tutkimussuunnitelma sekä kertomus 24.11.1984 suoritetusta tarkastuskäynnistä.

Asplund, Henrik & Luoto, Jukka 1984. Piikkiö, Isohepojoki, Lausmäki. Kivikautisen asuinpaikan tarkastus 25.10.1984.

Asplund, Henrik & Luoto, Jukka 1984. Piikkiö, Makarla, Kylänpää. Kivikautisen asuinpaikan tarkastus 27.08.1984.

Asplund, Henrik & Luoto, Jukka 1984. Piikkiö, Katari, Yli-Katari. Hajoitetuksi hautaraunioksi epäillyn kohteen tarkastus 27.08.1984.

Asplund, Henrik & Luoto, Jukka 1984. Piikkiö, Moisio, Moision Alistalo. Esihistorialliseksi epäillyn tulisijan tarkastus 27.08.1984.

Asplund, Henrik & Luoto, Jukka 1985. Piikkiö, Huttala, Huttalanmäki. Rautakautisen asuinpaikan kaivaus 05.08.-04.09.1985.

Asplund, Henrik & Luoto, Jukka 1985. Piikkiö, Huttala, Huttalanmäki. Ristiretkiaikaisen rakennuksenpohjan kaivaus sekä sen ympäristön koetutkimukset 06.08.-14.09.1984.

Asplund, Henrik & Luoto, Jukka 1988. Piikkiö, Moisio, Moision Alitalo. Esiroomalaisen asuinpaikan koekaivaus 15.07.1987.

Brusila, Heljä 1994. Piikkiön kuppikivet. Kuppikivien tarkastus 1993.

Brusila, Heljä 1995. Piikkiön kiinteät muinaisjäännökset. Inventointi 1995.

Hirviluoto, Anna-Liisa 1963. Piikkiön Huttalan linnavuoren tarkastus 12.5, 16.5 ja 6.9 1962.

Hirviluoto, Anna-Liisa 1963. Piikkiön Moision hautaraunion tarkastus 16.5, 6.9.1962.

Hirviluoto, Anna-Liisa 1963. Piikkiön Teppalan kylän Myrskylinnan rautakautisen polttokalmiston tarkastus 6-7.9. 1962.

Hirviluoto, Anna-Liisa 1964. Piikkiön Teppalan Myrskylinnan rautakautisen kalmiston kaivaus 14.8. ja 30.8. ja 2-3.9. 1963

Kivikoski, Ella 1937. Kertomus kaivauksesta Piikkiön pitäjän Rungon kl. Koskenhaan rautakauden kalmistossa 31.5.-4.6. ja 6-14.7. 1937.

Kivikoski, Ella 1937. Kertomus koekaivauksesta rehtori Lembergin huvilapalstalla Piikkiössä marraskuun 17 päivänä 1937.

Kivikoski, Ella 1937. Ristkankareenmäki Rungon pysäkin luona Piikkiössä.

Kivikoski, Ella 1939. Kertomus kaivauksesta Piikkiön Rungon Koskenhaan kalmistossa 28/6 - 1/7 1938.

Kivikoski, Ella 1941. Kertomus kaivauksesta Piikkiön Rungon Tiitusmäen kalmistossa kesäkuun 9-13 p:nä 1941.

Koskimies, Anna Kerttu & Haapanen, Virve 1954. Kertomus ylioppilaiden Anna Kerttu Koskimiehen ja Virve Ruudun suorittamasta Piikkiön pitäjän kiinteiden muinaisjäännösten luetteloinnista kesäkuussa 1954.

Lehtosalo, Pirkko-Liisa 1968. Kertomus kaivauksesta, jonka Pirkko-Liisa Lehtosalo suoritti heinäkuussa 1967 Piikkiön pitäjän Teppalan kylässä Myrskylinna -nimisellä mäellä.

Lehtosalo-Hilander, Pirkko-Liisa 1969. Kertomus kaivauksesta, jonka Pirkko-Liisa Lehtosalo suoritti Piikkiön Myrskylinnanmäellä syys - lokakuussa 1968.

Liippo, Lassi 1985. Piikkiö, Huttala, Huttalanmäki. Fosfaattianalyysi.

Poutiainen, Hannu 1988. Turku - Paimio -moottoritielinjan inventointi 11.5.-31.5.1987.

Rinne, Juhani 1905. Kaularenkaan löytöpaikka Suutari Antero Toivosen tontilla Piikkiössä.

Saarinen, Riikka 1999. Piikkiö, Moisio, Moision Alitalo. Esiroomalaisen asuinpaikan kaivaus 23.5.-29.5.1997.

Salmo, Helmer 1953. Hopea-aarteen löytöpaikka Piikkiön pitäjän Hadvalan kylän Ylhäisten talon maalla.

Salo, Unto 1975. Piikkiö, Moisio, Kalmumäki.

Salo, Unto 1975. Piikkiö, Moisio, Kalmumäki. Kertomus 6.-10.6.1975 välisen ajan kaivauksista.

Sartes, Minna 1993. Piikkiö, Koski. Rautakautisen asuinpaikan pelastuskaivaus 14.-24.6.1993.

Tamminen, Marketta 1965. Kertomus rautakautisen kalmistoalueen kaivauksesta 4.6.-17.6.1963 Piikkiön pitäjän Teppalan kylän Myrskylinna -nimisellä mäellä, paikalla, jonka omistavat rakennusmestari Lindqvist ja bensiiniaseman hoitaja Antti Niinistö.

Tiitinen, Teija 1992. Piikkiö, Runko, Koskenhaka / Onnela. Rautakautisen asuinpaikka / kalmistoalueen koekuopitus ja pintapoiminta.

Viitaharju, Johanna 1984. Piikkiö, Raadelma. Mahd. rautakautisen röykkiöhaudan pohjan tarkastus 17.11.1984.

Viitaharju, Johanna 1984. Piikkiö, Tuorla. Mahd. pronssikautisten haudanpohjien tarkastus 20.11.1984.

Vikkula, Anne 1981. Piikkiö, Myrskylinna. Tarkastus 8.10.1981.

Vikkula, Anne 1982. Piikkiö, Myrskylinna. Koekaivaus rautakautisen kalmiston alueella.

Salo

Appelgren, Hjalmar 1896. Redogörelse för de af undertecknad under September månad 1896 utförda antiqvariska arbetena.

Appelgren, Hjalmar 1896. Uskela. Isokylä.

Appelgren, Hjalmar 1898. Uskela. Hakastaro by. Kankare hmn.

Asplund, Henrik 1996. Salo, Viitamäki 1995. Museovirasto. Muinaisjäännösten hoito. Seurantaraportti.

Asplund, Henrik 1998. Salo, Tampaltan kruunu. Tarkastuskäynti 26.09.1994.

Asplund, Henrik 1998. Salo, Vuohensaari. Tarkastuskäynti 01.08.1998.

Brusila, Heljä 2005. Salo, Breidilä, Friisinkruunu. Arkeologisen kohteen tarkastus.

Brusila, Heljä 2005. Salo, Pelimäki. Arkeologisen kohteen tarkastus.

Brusila, Heljä 2006. Salo, Varesvuori. Arkeologisen kohteen tarkastus.

Carpelan, Christian & Schauman-Lönnqvist, Marianne & Uino, Pirjo 1980. Salo, Isokylä, Ketohaka. Kaivauskertomus v. 1980.

Carpelan, Christian & Schauman-Lönnqvist, Marianne & Uino, Pirjo 1981. Salo, Isokylä, Ketohaka 1981. Rautakautinen asuinpaikka ja hautaröykkiö 11.

Carpelan, Christian & Uino, Pirjo 1978. Salo, Isokylä, Katajamäki & Ketohaka. Kaivauskertomus v. 1978.

Cleve, Nils 1930. Kertomus muinaistieteellisistä kaivauksista Uskelan Lukkarinmäen rautakautisella kalmistolla kesällä 1930.

Europaeus, Aarne 1914. Kertomus kaivauksista Uskelan pitäjän Isokylän Nohterin Ketohaassa Katajamäen palstatilan asuinrakennuksen paikalla 9-13/X 1913.

Europaeus, Aarne 1914. Kertomus muinaistieteellisistä kaivauksista Uskelassa kesäk. 1914.

Europaeus, Aarne 1917. Pronssikauden keihäänkärjen (H.M.l. 7109) löytöpaikka Uskelan pitäjän Villilän kylässä Tomman talon Myllypakan torpan pihamaalla.

Europaeus, Aarne 1917. Uusia löytöjä Uskelan Isokylän Nohterin talon Ketohaasta (Katajamäen palstalta).

Europaeus, Aarne 1923. Kivikautisia asuinpaikkalöytöjä Katajamäeltä Uskelan pitäjän Isossakylässä.

Europaeus, Aarne 1923. Käynti Uskelan Sinivuoren kivikautisella asuinpaikalla.

Europaeus, Aarne 1924. Vaakitusmatka Uskelan Sinivuoren kivikautiselle asuinpaikalle.

Hackman, Alfred 1910. Uskela. En brandgraf från folkvandringstiden på Palomäki backe i Isokylä by.

Hackman, Alfred 1914. Fortsatt undersökning af ett röse från folkvandringstiden på Palomäki backe å Puonti hemmans mark i Isokylä by, Uskela socken.

Hackman, Alfred 1914. Undersökning af två brandgrafvar på Ketohaka på Nohteri hemmans mark i Isokylä by af Uskela socken.

Hackman, Alfred 1915. Uskela socken. Undersökning av röset nr 6 på Ketohaka på Nohteri hemmans mark i Isokylä by.

Hackman, Alfred 1916. Uskela socken. Undersökning av ett fyndställe från folkvandringstiden på Perälä torps mark i Isokylä by.

Hackman, Alfred 1916. Uskela socken. Undersökning av ett röse på Ketomäki torps gårdsplan å Puonti hemmans mark i Isokylä by i juni 1916.

Hackman, Alfred 1916. Uskela socken. Undersökning av röset nr 6 på Ketohaka på Nohteri hemmans mark i Isokylä by.

Hirviluoto, Anna-Liisa 1962. Uskelan Isonkylän hautaraunioiden merkitseminen Uskelan rakennuskaavaan 12-13/10; 16/11 1961.

Hirviluoto, Anna-Liisa 1963. Salon (ent. Uskelaa) Isonkylän Ketohaan rauniokalmiston tarkastus 26.9.1963.

Hirviluoto, Anna-Liisa 1963. Uskelan Pappilan haassa sijaitsevan rautakautisen kalmiston tarkastus 11-12.9.1962.

Hirviluoto, Anna-Liisa 1966. Salon kaupungin, Mököisten kl:n Mahlakankareen esihistoriallisten löytöpaikkojen tarkistus 25.9.1963.

Katiskoski, Kaarlo 1983. Salo, Isokylä, Koivumäki. Koekaivaus rautakautisella muinaisjäännösalueella 1983.

Kivikoski, Ella 1931. Kertomus Uskelan Isossakylässä Hämeenojan tilalla sijaitsevan rautakautisen hautaroukkion osittaisesta kaivauksesta elok. 3-5 p:nä 1931.

Kivikoski, Ella 1934. Kaivaus Uskelan pitäjän Isonkylän Perälän palstalla 14-16 p:nä toukok. 1934.

Kivikoski, Ella 1936. Kertomus kaivauksesta Uskelan pitäjän Isonkylän Vanutehtaan maalla toukokuun 9 päivänä 1936.

Kivikoski, Ella 1937. Hautaröykkiön kaivaus Salon (Halikon) Joensuun kartanon maalla, n.s. Valhojanmäessä kesällä 1937.

Kivikoski, Ella 1937. Kertomus röykkiön kaivauksesta Salon (Uskelan) Isonkylän Isontuvan maalla 1937.

Leppäaho, Jorma 1934. Kertomus Jorma Leppäahon tarkastusmatkalta Salon Seudun kunnallissairaalarakennustyömaalle Uskelan pitäjässä, tutkimaan rautamiekan 9849:n löytöpaikkaa.

Leppäaho, Jorma 1939. Vanhemman rautakauden polttohauta Salon kauppalan Ylhäisten Metsärannan huvilapalstalla.

Leppäaho, Jorma 1950. Intendentti Jorma Leppäahon tarkastuskäynti Salon kauppalaan liitetyllä Isonkylän alueella 11.7.1949.

Leppäaho, Jorma 1953. Hautakuoppien tarkastus Uskelan Isokylän Peltolan tilan maalla.
Linturi, Elvi 1980. Salo, Vanutehdas. Rautakautinen asuinpaikka ja röykkiö.
Linturi, Elvi 1981. Salo, Vanutehdas 1. Rautakautinen asuinpaikka.
Linturi, Elvi 1981. Salo, Vanutehdas 2. Rautakautinen asuinpaikka.
Linturi, Elvi 1982. Salo, Vanutehdas 3. Rautakautinen kalmistoalue.
Linturi, Elvi 1983. Salo, Vanutehdas 4. Rautakautinen kalmisto ja asuinpaikka.
Luho, Ville 1945. Kertomus Uskelan pitäjän Pukkilan kartanon maalla olevien kivikautisten asuinpaikkojen kartoittamisesta.
Nordman, C. A. 1922. Fyndplats på Lukkarinmäki, Uskela socken.
Poutiainen, Hannu 1989. Turku - Helsinki -moottoritielinjan arkeologinen inventointi välillä Paimio - Muurla 1.6.-23.6. ja 25.9.-6.10.1989.
Pälsi, Sakari 1934. Salo, Perälä, tehtailija A. Digertin huvilapalstan rautakauden löydöt keväällä 1934.
Raike, Eeva 2001. Salon kaupungin arkeologinen inventointi 2001.
Rinne, Juhani 1905. Palomäen kalmisto Puonnin talon maalla Uskelan pitäjän Isossakylässä.
Salmo, Helmer 1930. Uskela, Moisionkylä, Mahlakankare.
Salonen, Helmer 1927. Selostus kiinteiden muinaisjäännösten muistiinmerkitsemisestä kesällä 1927 Uskelan pitäjässä Turun ja Porin läänissä.
Schauman-Lönnqvist, Marianne 1987. Salo: Vanutehdas 3, röykkiöt 1 ja 2. Kaivaus 1982.
Tallgren, A. M. 1906. Plooperin l. Sinivuoren kivikautinen asuinpaikka Villilän l. Villän Pukkilan talon maalla Uskelan pitäjässä.
Tallgren, A. M. 1912. Kertomus allekirjoittaneen toimittamista tutkimuksista Uskelan Isokylän hautaroukkioilla v. 1912.
Tallgren, A. M. 1913. Kertomus allekirjoittaneen muinaistieteellisistä tutkimuksista Uskelan Pukkilan Sinivuoren kivikauden asuinpaikalla elokuussa v. 1913.
Tallgren, A. M. 1916. Kertomus tutkimuksistani Uskelan Isonkylän vanutehtaan kalmistolla 25-26p/9 1916.
Vikkula, Anne 1983. Salo, Aninen, Mahlakankare. Rautakautinen löytöpaikka. Koekaivauskertomus.
Vikkula, Anne 1983. Salo, Mököinen, Ilola. Kivikautinen löytöpaikka. Koekaivauskertomus.
Vikkula, Anne 1983. Salo, Pahkavuori, Hopeakankare. Rautakautisen löytöpaikan koekaivaus.

Sauvo

Anttila, Marja 1996. Sauvo, Korpela (Patarautila), Keskitalo. Arkeologisen kohteen tarkastus.
Appelgren-Kivalo, Hjalmar 1909. Sauvo, Salmen kylä.
Asplund, Henrik 1996. Sauvo, Riihipelto. Museovirasto. Muinaisjäännösten hoito. Seurantaraportti.
Bilund, Antti 1994. Sauvo, Timperlä. Arkeologisen kohteen tarkastus.
Bilund, Antti 1996. Sauvo, Ristniemi, Ullaskrooppi. Arkeologisen kohteen tarkastus.
Bilund, Antti 1997. Sauvo, Danskulla. Arkeologisen kohteen tarkastus.
Brusila, Heljä 1983. Tarkastuskäyntiraportti Jukka Rinteen ilmoituksen perusteella 27.10.1983 Sauvon Talinkylään tehdystä tarkastusmatkasta.
Brusila, Heljä 1987. Raportti tarkastuskäynnistä Sauvon (Karunan) Orssaaren kylään, Isotalon tilalle 22.10.1987.
Brusila, Heljä 1995. Sauvo, Koivumaa. Arkeologisen kohteen tarkastus.
Brusila, Heljä 1995. Sauvo, Steninge. Arkeologisen kohteen tarkastus.

Brusila, Heljä 1999. Sauvo, Rajalahti, Rajalahti 1. Arkeologisen kohteen tarkastus.

Brusila, Heljä 1999. Sauvo, Rajalahti, Rajalahti 2. Arkeologisen kohteen tarkastus.

Brusila, Heljä 1999. Sauvo, Rajalahti, Rölax. Arkeologisen kohteen tarkastus.

Brusila, Heljä 1999. Sauvo, Rajalahti, Soreala. Arkeologisen kohteen tarkastus.

Hackman, Alfred 1909. Sagu. På den Kylänpää hemman tillhöriga delen af Myllymäki backe vid Salmi by i Sagu socken …

Hirviluoto, Anna-Liisa 1965. Sauvon Finskilän rautakautisten hautaraunioiden tarkastuksia 29.9.1964.

Hirviluoto, Anna-Liisa 1965. Sauvon Mäntykylässä olevan kivikautisen asuinpaikan tarkastus 12.11.1964.

Koskimies, Mirja 1965. Kertomus Sauvon Vähänkylän Silkkilänjärven miekan (KM 16742) löytöpaikasta.

Koskimies, Mirja 1966. Kertomus Sauvon Mäntykylän Nummenharjan kivikautisen asuinpaikan kaivauksesta 28/7-10/8 1966.

Koskimies, Mirja 1966. Sauvo, Mäntykylä: Nummenharjan kivikautisen asuinpaikan kaivaus kesäkuussa 1965.

Koskimies, Mirja 1967. Lisätietoja Sauvon pitäjän Ruonlahden ja Osmalahden kylien kiinteistä muinaisjäännöksistä.

Koskimies, Mirja 1968. Sauvo, Saustila, Heinilä. Kivikautinen asuinpaikka?

Koskimies, Mirja 1969. Sauvo, Ryttarböle, Ratsula. Kivikautinen asuinpaikka?

Lehtosalo, Pirkko-Liisa 1967. Kertomus tarkastuskaivauksesta, jonka Pirkko-Liisa Lehtosalo suoritti heinäkuussa 1966 Sauvon Finskilän yksinäistilasta eroitetun mv. Erkki Niemisen (os. Karunantie, Sauvo) omistaman Ala-Junnolan palstan maalla sijaitsevassa kalmistossa.

Lehtosalo, Pirkko-Liisa 1968. Kertomus kaivauksesta, jonka Pirkko-Liisa Lehtosalo suoritti 21.7.-10.8. 1967 Sauvon Finskilän yksinäistilasta eroitetun ja mv. Väinö Niemisen (os. Karunantie, Sauvo) omistaman Ala-Junnolan palstan maalla sijaitsevassa kalmistossa.

Leppäaho, Jorma 1950. Pronssikautisten hautaraunioiden tarkastus ja erään tutkiminen Sauvon pitäjän Ristniemen kylän alueella ja erään raunion tutkiminen mainitun kylän Pellonpäässä (Nieminen).

Luoto, Jukka & Riikonen, Jaana 1984. Sauvo, Vahtinen, Pulkin omakotipalsta. Pelastuskaivaus 5.7.-7.7.1983.

Luoto, Jukka 1979. Kertomus koetutkimuksista Sauvon Lautkankareen muinaislinnalla ja sen ympäristössä 15.6.-15.7.1978.

Raike, Eeva 2001. Sauvon arkeologinen inventointi.

Rinne, Juhani 1906. Sauvo, Kirkonkylä, Laurilan talon "Ison niityn" löytö.

Rinne, Juhani 1906. Sauvo. Salmenkylä ja Lautakankare.

Salmo, Helmer 1954. Roomalaisaikaisen kalmiston tutkimus Sauvon pitäjän Finskilän yksinäistilan Niemisen palstalla v. 1954.

Schauman-Lönnqvist, Marianne 1998. Sauvo, Korvala 1997. Vanhemman rautakauden kalmiston kaivaus 2-30.6.1997.

Seppänen, Kimmo 1977. Sauvo, Järvenkylä, Nummi. Tarkastuskertomus ilmoitetuista "kalliopiirroksista" 22.8.1976.

Seppänen, Kimmo 1978. Kertomus koekuoppien kaivamisesta Sauvon Kalmasmäkeen 29.06.1978.

Tallgren, A. M. 1926. Sauvo. Salmen kylässä oleva Säkkäreenmäki.

Tallgren, A. M. 1930. Sauvo, Mäenalan Isoniityn makasiinin löytökohta.

Tuovinen, Tapani 1977. Uhrikiven tarkastuskertomus.

Waris, Marketta 1960. Karunan pitäjän inventointikertomus.

Waris, Marketta 1960. Sauvon pitäjän inventointikertomus.

Vikkula, Anne 1982. Sauvo, Ristniemi, Yli-Ristniemi (Ullaskroop). Röykkiön tarkastus.

Särkisalo

Ruohonen, Juha 2002. Särkisalon arkeologinen perusinventointi 2002.

Västanfjärd

Asplund, Henrik 1987. Västanfjärd, Galtarby, Råberget. Selvitys syksyllä vuonna 1986 löytyneestä kivikautisesta asuinpaikasta.

Asplund, Henrik 1988. Västanfjärd, Galtarby, Råberget. Provutgrävning av en stenåldersboplats 23-24.05.1987.

Asplund, Henrik 1989. Västanfjärd, Galtarby (II). Provutgrävning av en stenåldersboplats tillhörande båtyxkulturen 04.06-05.06.1988.

Asplund, Henrik 1989. Västanfjärd, Galtarby. Selvitys vuonna 1988 tehdyistä kivikauden asuinpaikkahavainnoista.

Asplund, Henrik 1991. Västanfjärd, Tappo. Provutgrävning av en epineolitisk boplats 1.-4.6.1989.

Kankkunen, Päivi 1996. Västanfjärd, Tappo, Vesteräng - varhaismetallikautisen asuinpaikan koekaivaus.

Planting, Hildur 1933. Fasta fornlämningar i Västanfjärds socken.

The sites

The list of sites is a printout of some main information concerning all of the 3,226 sites included in the study.[188] Basic information as to location, type and dating as well as references have been included. The site names have been assembled from information regarding both village and site name in the way they have been presented in documents and literature. In several cases either the place-name or the name of the village is missing, which should be taken into account when reading the list. Some identical site names also occur, which is partly due to the need to separate multiperiod or multifunctional sites in the classification.[189]

Geographical coordinates have been recalculated to the Finnish coordinate system (*KKJ*) zone 3 grid (X0, Y0) as well as to the WGS-84 compatible EUREF-FIN system (E-X, E-Y). Zone 3 is commonly used as a general grid (*YKJ*) in Finland, and the European Reference System (EUREF) has emerged as the new basic grid in Europe. The recalculation of old coordinates has been done in order to make the treatment of the data easier. The boundary of the Finnish coordinate zones 1 and 2 divide the study area, which means that most coordinates of sites in the western part of the study area were originally given in a different coordinate system from the coordinates of sites in the eastern part. The coordinates in the list have been rounded off and presented with a number of digits referring to a ten-metre accuracy. Some coordinates, furthermore, refer only to a certain point within the site, or within the probable location of the site, *i.e.* the mean calculated from the X and Y minimum and maximum.

188 In addition to the actual sites the list contains 10 items, which have been given the classification 'non-site'. These are catalogued finds that are not artefacts as well as some reported sites later identified as natural formations. The concept should not be confused with the issue of non-site archaeology discussed in chapter 1.4.

189 There are also other, more general, problems regarding site-names. In surprisingly many cases site-names have been changed within more recent survey reports – often without any explanation. The same site may thus occur under several names, which further complicates the comparison of older data with current reports. In other publications a few sites thus may occur under a different name than in this appendix. The changing of site-names is not the only problem, but also the lack of explanation why and stating under which name a site (or some part of it) has previously been registered. One thing promoting the blurring of older names and data is the current tendency of grouping together old sites and observations into bigger entities in order to distinguish larger areas or landscapes for protection. This is good for protective purposes, but makes it more difficult to use the survey data for research.

In addition to referring to site borders, the X and Y minimum and maximum may refer to the inexactness of the location of the site. In cases where the uncertainty of coordinates (or site borders) has been indicated in the referenced sources, an imprecision (or site size) equal to, or exceeding ± 10 metres, but less than ± 100 metres, has been indicated by placing an asterisk (*) after the site name. One exception is the cairns listed by Tuovinen & Vuorinen (1992) where the ± 25 m precision refers to the most accurate class of measurement. If the precision is equal to, or poorer than ± 100 metres the sites have been marked with two asterisks (**). Sites measured with such a poor precision as ± 1000 metres have usually been left without coordinates; the cases where such coordinates have been used are ones presented in (or estimated from) literature or reports as having such an error, even though in most of these cases it can be assumed that the accuracy is better. In the case of some coordinates (especially regarding stray finds), obtained from a database called TYARKTIKA at the University of Turku (*cf*. Tuovinen & Vuorinen 1992; Vuorinen 2000d), the coordinates have been marked as having poor accuracy (**). This has been done as the data utilized was incomplete and it is thus somewhat uncertain from what sources the coordinates were originally acquired. Similar problems occur in other cases as well. It is surprisingly common that the location of sites in survey reports and other sources do not contain information specifying the exactitude of measurements. This means that some coordinates referred to without an asterisk in reality could have a poor accuracy.[190] This does not lead to distortion of site locations in the scales used within this study, but it means that a few coordinates in Appendix 1 may contain errors that could become apparent if using them as a basis for further surveys or other detailed fieldwork.

The type of the sites is generally presented in the way it has been registered during surveys and excavations. The general dating has been given in accordance with the chronological framework used in the Registry of Ancient Monuments at the National Board of Antiquities, complemented with some more detailed information reagarding periods, especially in the case of Iron Age cemeteries and

[190] The accuracy of the geographical location of registered sites has emerged as a new type of problem within recent survey reports. It seems to be quite common that locations of sites are given with a one metre accuracy, regardless of whether the location has been measured so exactly. One reason promoting this mostly false exactness is the use of handheld (in reality inexact) GPS equipment, without realising that the readings may contain several errors, which make the one metre accuracy doubtful. Another reason may be related to the fact that the National Board of Antiquities has started to require that coordinates are given within a specific coordinate system (the Finnish grid 3). This is not a problem as such, but as coordinate recalculations mostly are done with programs using a one metre accuracy, more inexact coordinates may have been recalculated with this accuracy and the rounding off to reach the original accuracy may have been forgotten.

stray finds. The period codes are as follows: MES = Mesolithic, CC = Comb Ceramic, BAT = Battle Axe Culture, LNE/EBA = Late Neolithic and/or Early Bronze Age, LBA = Late Bronze Age, PRIA = Pre-Roman Iron Age, ERA = Early Roman Iron Age, LRA = Late Roman Iron Age, MIG = Migration Period, MER = Merovingian Period, VA = Viking Age, CP = Crusades Period.

In just about all cases main references regarding the sites have been listed. These include calologue numbers of finds, report references and literature.[191] When, in a few cases, the comment "part of" occur in brackets after the list of cataloque numbers, it indicates an exceptionally mixed find material, where part of the finds signify the site in question, while others represent another site-type or dating. In some cases literature has been regarded as more important than field reports – in other cases the reverse; this means that the list should not be regarded as a complete list of all documents or literature concerning single sites. This is especially true concerning the literature references, while the listed catalogue numbers and report references are somewhat more complete. Unreferenced sites may occur in cases when sites have been located, but not yet documented in writing, or cases when the sources used have been incomplete. Identical references concerning reports mean that there are several reports by the same author from the same year.

191 The report originals are kept in different archives. All of the reports listed above and referenced in Appendix 1 are, however, available either as originals or copies at the National Board of Antiquities in Helsinki.

Dragsfjärd

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
Ansvedja					Settlement site	Stone Age	CC	KM 14289:1-5	Cleve 1943	
Biskopsö					Stray find	Stone Age		KM 14333:1-2		
Björkboda	667249	325186	666969	25179	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Björkboda					Stray find	Undated		KM 19439		
Bolax, Tjukan	664873	326142	664594	26135	Tomtning	Medieval or Post-Medieval			Heikkinen & Näränen 1992	
Böhle, Storholmen	664510	324353	664231	24347	Cairn?	Undated			Heikkinen & Näränen 1992	
Böle, Kyrksundet **	664818	324724	664539	24717	Stray find	Iron Age	VA	KM 2503A:3		
Fåfängskär	665868	324784	665588	24777	Stone oven	Undated			Fagerstöm & Roth 1991	
Fåfängskär	665893	324766	665613	24760	Tomtning?	Undated			Fagerstöm & Roth 1991	
Genböle	667232	324965	666952	24958	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Genböle	667223	325129	666942	25122	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Genböle, Tallkullen	667173	325000	666893	24994	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666662	325295	666382	25288	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666614	325226	666334	25220	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666613	325226	666333	25219	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666643	325182	666363	25175	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666674	325270	666394	25263	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666633	325277	666353	25270	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666562	325160	666282	25153	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666541	325158	666261	25151	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666606	325165	666326	25158	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666576	325169	666296	25162	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666570	325175	666291	25168	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle	666558	325237	666278	25230	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hertsböle, Ansvedja B	666829	325011	666549	25004	Stray find	Stone Age		TYA 360:6-12	Asplund 1987	Myhrman 1990b
Hertsböle, Ansvedja D	666823	325022	666543	25015	Stray find	Stone Age		TYA 440:1-5	Asplund 1988	Myhrman 1990b
Hertsböle, Ansvedja E	666786	325066	666506	25059	Settlement site	Stone Age		TYA 441:1-22	Asplund 1988	
Hertsböle, Ansvedja L1	666839	325006	666559	24999	Stray find	Stone Age		TYA 476:1-2	Asplund 1989	
Hertsböle, Masugnsträsket	666572	325026	666292	25019	Settlement site	Stone Age		TYA 366:1-2	Asplund 1987	Myhrman 1990b
Hertsböle, Senatsberget	666635	325136	666355	25129	Settlement site	Stone Age	CC, BAT	TYA 365:1-9, TYA 634:1-47, TYA 638:1-97	Asplund 1987; Sipilä 1996; Sipilä 1996	Myhrman 1990b
Hiittinen, Bötskäret	664773	325024	664494	25017	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hiittinen, Bötskäret	664761	325029	664482	25022	Tomtning	Undated			Fagerstöm & Roth 1991; Heikkinen & Näränen 1992	

Hiittinen, Bötskäret	664777	325034	664498	25027	Cairn	Undated			Heikkinen & Näränen 1992	
Hiittinen, Högholmen	665060	325012	664781	25005	Harbour	Medieval				Edgren 1977
Hiittinen, Högholmen	665060	325007	664781	25000	Harbour	Medieval				Edgren 1977
Hiittinen, Kalvholmen	665014	324741	664735	24734	Cairn?	Undated			Fagerstöm & Roth 1991; Heikkinen & Näränen 1992	
Hiittinen, Kalvholmen	664991	324753	664711	24746	Cairn?	Undated			Fagerstöm & Roth 1991; Heikkinen & Näränen 1992	
Hiittinen, Kyrksundet	664918	324692	664639	24685	Stray find	Undated			Fagerstöm & Roth 1991	
Hiittinen, Kyrksundet **	664929	324752	664650	24745	Settlement site	Iron Age and/or Medieval	VA, CP	KM 26619:1-133, KM 27813:1-164, KM 28363:1-303, KM 28832:1-226, KM 29578:1-240, KM 29658:1, KM 30324:1-90, Rahak. 93042:1-6 (part of)	Fagerstöm & Roth 1991; Asplund 1992; Fagerström & Roth 1992; Jussila 1992; Tuovinen 1993; Hirviluoto 1993; Lempiäinen 1993; Jäkärä 1994; Lempiäinen 1994; Asplund 1994; Jäkärä 1995; Lempiäinen 1995; Mäntylä 1995; Mäntylä 1995; Mäntylä 1996; Jäkärä 1997	
Hiittinen, Kyrksundet	664922	324732	664643	24726	Chapel site	Medieval		KM (hist.) 38086:1-5, KM (hist.) 39097:1-2, KM 26619:1-133, KM 27813:1-164, KM 28363:1-303, KM 28832:1-226, KM 29578:1-240, KM 29658:1, KM 30324:1-90, Rahak. 93042:1-6 (part of)	Nordman 1938; Nordman 1939; Jäkärä 1994; Asplund 1994; Mäntylä 1995; Jäkärä 1995; Mäntylä 1995; Mäntylä 1996; Jäkärä 1996; Jäkärä 1997	
Hiittinen, Mossarna	665096	324810	664817	24804	Stone oven	Historical Period			Heikkinen & Näränen 1992	
Hiittinen, Mossarna	665095	324822	664816	24815	Stone oven	Historical Period			Heikkinen & Näränen 1992	
Hiittinen, Mossarna	665101	324828	664821	24821	Stone oven	Historical Period			Heikkinen & Näränen 1992	
Hiittinen, Stora Ängesö Skepparhamn	665709	324884	665430	24877	Tomtning	Historical Period			Heikkinen & Näränen 1992	
Holma, Hamnholmen	664995	324170	664716	24164	Cairn	Undated			Heikkinen & Näränen 1992	
Holma, Kaldoholmen	665159	324247	664880	24241	Cairn	Iron Age?				Tuovinen & Vuorinen 1992
Holma, Kaldoholmen	665181	324264	664901	24258	Cairn	Iron Age?				Tuovinen & Vuorinen 1992
Holma, Stora Ängeskär	665093	324374	664814	24367	Cairn	Iron Age?				Tuovinen & Vuorinen 1992
Holma, Stora Ängeskär	665103	324373	664823	24366	Cairn	Iron Age?				Tuovinen & Vuorinen 1992
Holma, Stora Ängeskär	665112	324389	664833	24382	Labyrinth	Medieval or Post-Medieval			Tuovinen 1992	
Holma, Stora Ängeskär	665093	324302	664814	24295	Cairn	Iron Age	VA	TMM 12960		Tuovinen 1990a; Tuovinen & Vuorinen 1992; Tuovinen 1994
Holma, Västerfladan	665294	324045	665015	24038	Labyrinth	Undated			Heikkinen & Näränen 1992	
Högsåra	665657	324003	665377	23997	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Högsåra, Byviken	665823	324129	665543	24122	Inscription	Post-Medieval			Heikkinen & Näränen 1992	

Högsåra, Långfuruholm	666072	323893	665792	23887	Cairn	Medieval or Post-Medieval		KM 9749:2		Tuovinen & Vuorinen 1992
Högsåra, Nämanön	666040	324061	665761	24055	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Högsåra, Nämanön	666043	324062	665763	24056	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kasnäs, Byholmen	665465	324355	665185	24348	Cairn?	Undated			Fagerstöm & Roth 1991; Heikkinen & Näränen 1992	
Kasnäs, Byholmen	665476	324346	665196	24339	Cairn?	Undated			Fagerstöm & Roth 1991	
Kasnäs, Garpholmen	665490	324334	665210	24327	Clearance cairn	Undated			Fagerstöm & Roth 1991; Heikkinen & Näränen 1992	
Kasnäs, Garpholmen	665482	324327	665202	24320	Clearance cairn	Undated			Fagerstöm & Roth 1991; Heikkinen & Näränen 1992	
Kasnäs, Kasnäs näset	665551	324360	665271	24354	Cairn	Undated			Fagerstöm & Roth 1991; Heikkinen & Näränen 1992	
Kråkvik	666915	324912	666635	24905	Stray find	Stone Age		TYA 646:1		
Kråkvik, Ansvedja					Stray find	Stone Age		KM 2503A:13		
Kråkvik, Ansvedja					Boat find	Undated		KM 2503A:16		
Kråkvik, Ansvedja					Stray find	Undated		KM 8871:1-2		
Kråkvik, Ansvedja					Stray find	Stone Age		TMM 14122:1b		
Kråkvik, Ansvedja A *	666854	324994	666574	24988	Settlement site	Stone Age	CC	TYA 360:1-5, TYA 434:1-3; TYA 476:3-5	Asplund 1987; Asplund 1988; Asplund 1989	
Kråkvik, Ansvedja C	666890	324986	666609	24979	Settlement site	Stone Age	CC	TYA 433:1-9, TYA 476:6	Asplund 1988; Asplund 1989	Myhrman 1990b
Kråkvik, Ansvedja L2	666877	324981	666597	24974	Settlement site	Stone Age		TYA 476:7-8	Asplund 1989	
Kråkvik, Ansvedja L3	666892	324981	666612	24974	Stray find	Stone Age		TYA 476:9	Asplund 1989	
Kärra, Furuborg					Stray find	Stone Age		TMM 14122:1a		
Kärra, Jordbro **	667016	324698	666736	24691	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kärra, Jordbro **	667016	324698	666736	24691	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kärra, Jordbro **	667016	324698	666736	24691	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kärra, Jordbro	667020	324702	666740	24695	Cairn	Bronze and/or Iron Age		KM 2503A:22		Tuovinen & Vuorinen 1992
Kärra, Jordbro	667025	324704	666745	24698	Settlement site	Stone and/or Bronze Age	LNE/ EBA	KM 2503A:22, TMM 13691, TMM 14122:1-136 (cf. KM 11832:1-9), KM 11720:1-126, KM 16544:1-169, KM 17329:1-2, KM 19709:1-9, KM 21217:1-2, TYA 242:1-5, TYA 361	Cleve 1943; Cleve 1946; Asplund 1985; Asplund 1987	Meinander 1954a
Kärra, Jordbro					Cairn	Bronze and/or Iron Age	VA	KM 9575:1		
Kärra, Uppgård					Stray find	Stone Age		KM 11993		

Lillfinhofva	667638	325190	667357	25183	Charcoal burning or tar extraction site	Historical Period			Asplund 1989	
Lillfinhofva	667638	325190	667357	25183	Settlement site	Stone Age	CC	TYA 475:1-11	Asplund 1989	Myhrman 1990b
Långnäs	666927	324789	666647	24782	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Långnäs, Långnäsudden	666951	324786	666671	24779	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Långnäs, Långnäsudden	666951	324788	666671	24781	Cairn	Bronze Age	LNE/EBA	KM 2503A:1		Tuovinen & Vuorinen 1992
Långnäs, Nyhem					Stray find	Stone Age		KM 10109		
Långnäs, Nyhem					Stray find	Stone Age		KM 10702		
Långnäs, Söljeholmen	666229	324627	665949	24620	Cairn	Bronze and/or Iron Age			Edgren 1985	Tuovinen & Vuorinen 1992
Nordanå	667532	324781	667252	24774	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Nordanå					Stray find	Stone Age				
Nordanå, Bredö **	667708	324389	667427	24382	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Nordanå, Bötesberget	667674	325079	667393	25072	Settlement site	Stone Age	MES	TYA 443:1-12, KM 266616:1-600, KM 27002:1-14	Asplund 1988; Kankkunen 1992	Myhrman 1990b
Nordanå, Mellangård					Stray find	Stone Age		KM 11722		
Nordanå, Nordanå A	667581	325045	667301	25038	Settlement site	Stone Age	MES	TYA 432:1-10	Asplund 1988	Myhrman 1990b
Nordanå, Nordanå B	667640	325049	667360	25042	Settlement site	Stone Age	MES	TYA 442:1-14	Asplund 1988	Myhrman 1990b
Nordanå, Nordanå D	667617	325111	667337	25104	Settlement site	Stone Age	MES	TYA 612:1	Asplund 1994	
Nordanå, Nyborg					Stray find	Stone Age		KM 17856		
Nordanå, Storölandet	667592	324392	667311	24386	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Rosala *	664663	324361	664384	24354	Village	Medieval or Post-Medieval		KM 27812:1-14	Asplund 1994	
Rosala, Brunkholmen	664747	324186	664468	24179	Cairn	Undated			Heikkinen & Näränen 1992	
Rosala, Enholmen	664907	324906	664628	24899	Tomtning?	Undated			Fagerstöm & Roth 1991	
Rosala, Hamnholmen	664964	324179	664685	24173	Cairn	Undated			Heikkinen & Näränen 1992	
Rosala, Lattopete	664612	324342	664333	24336	Inscription	Post-Medieval			Fagerstöm & Roth 1991; Heikkinen & Näränen 1992	
Rosala, Ryssberget	664650	324366	664371	24359	Cairn?	Undated			Fagerstöm & Roth 1991	
Rosala, Snåldö	664785	323852	664506	23845	Cairn	Undated			Heikkinen & Näränen 1992	
Rosala, Sommarö	664653	324275	664374	24268	Inscription	Post-Medieval			Fagerstöm & Roth 1991	
Rosala, Storholmen	664545	324308	664266	24302	Tomtning?	Undated			Fagerstöm & Roth 1991	
Rosala, Västra Granholmen	664624	324609	664345	24602	Cairn	Undated			Fagerstöm & Roth 1991; Heikkinen & Näränen 1992	
Rosala, Örö	664207	323825	663928	23819	Cairn	Undated			Fagerstöm & Roth 1991	
Rosendal **	667534	325510	667254	25503	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Rosendal	667604	325544	667324	25537	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992

Rosendal	667564	325509	667284	25502	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Rosendal	667593	325529	667313	25522	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Rosendal, Kulla					Cairn	Bronze and/or Iron Age		KM 9575:2		
Rosendal, Lappokullen	667437	325447	667156	25440	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Rövik	666392	324706	666112	24699	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Rövik **	666410	324703	666130	24696	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Skinnarvik, Falkön	667766	324385	667486	24379	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Skinnarvik, Falkön	667773	324410	667493	24403	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Skogskär	666158	323589	665878	23582	Cairn?	Iron Age?			Näränen 1996	
Stora Ängesön *	665573	324877	665294	24870	Stray find	Iron Age	VA	KM 30661		Åhlen, Tuovinen & Myhrman 1997; Åhlen, Tuovinen & Myhrman 1998
Storfinhofva, Oxmossen **	667604	325177	667324	25170	Settlement site	Stone Age	CC	TYA 517:1-33	Asplund 1994	Myhrman 1990b
Storfinhofva, Storfinhofva 1	667704	325131	667424	25124	Settlement site	Stone Age	BAT	TYA 474:1-5	Asplund 1989	Myhrman 1990b
Storfinhofva, Storfinhofva 2	667702	325123	667421	25116	Settlement site	Stone Age	BAT	TYA 474:6-7	Asplund 1989	Myhrman 1990b
Storfinhofva, Storfinhofva 3	667657	325141	667376	25134	Settlement site	Stone Age		TYA 474:8-9	Asplund 1989	Myhrman 1990b
Storfinhofva, Storfinhofva 4	667651	325162	667370	25155	Settlement site	Stone Age		TYA 474:10-16	Asplund 1989	Myhrman 1990b
Söderby	667006	324698	666726	24691	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Söderby	667007	324698	666727	24691	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Söderby	667006	324700	666726	24693	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Söderby	667007	324700	666727	24693	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Söderby	667010	324699	666730	24692	Cairn	Bronze and/or Iron Age		KM 10108:1-5	Kivikoski 1936	Tuovinen & Vuorinen 1992
Söderlångvik	666685	324544	666405	24537	Stray find	Undated				
Söderlångvik, Knipängsbacken	666952	324697	666672	24690	Settlement site	Stone and/or Bronze Age	LNE/ EBA	TMM 14122:1c, KM 11721:1-22, TYA 362:1-2	Cleve 1943; Asplund 1987	Meinander 1954a
Söderlångvik, Kosackkullan	666683	324599	666403	24592	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Söderlångvik, Kosackkullan	666680	324600	666400	24593	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Söderlångvik, Nöjis **	666983	324553	666703	24547	Settlement site	Stone Age	CC	TYA 243:1-24, TYA 275:1-14, TYA 327:1-31, TYA 389:1-25, TYA 471:1-88, TYA 516:1-32	Asplund 1985; Asplund 1985; Asplund 1987; Asplund 1988; Asplund 1989; Asplund 1991	Myhrman 1990b
Söderlångvik, Söderby	666846	324639	666566	24632	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Söderlångvik, Söderby	667005	324702	666725	24695	Cairn	Bronze and/or Iron Age			Bergström 1985; Kostet et al. 1989	
Söderlångvik, Söderby I	666927	324617	666647	24611	Settlement site	Stone Age	CC, BAT	TYA 363:1-7, TYA 630:1-40	Asplund 1987; Asplund 1996	Myhrman 1990b
Söderlångvik, Söderby II	666932	324608	666652	24601	Settlement site	Stone Age	CC	TYA 364:1-17	Asplund 1987	Myhrman 1990b
Söderlångvik, Söderby R1	667006	324699	666726	24693	Cairn	Bronze and/or Iron Age			Kostet et al. 1989	
Söderlångvik, Söderby R2	667007	324699	666727	24692	Cairn	Bronze and/or Iron Age			Kostet et al. 1989	

Söderlångvik, Söderby R3	667005	324697	666725	24690	Cairn	Bronze and/or Iron Age			Kostet et al. 1989	
Söderlångvik, Söderbyträsket	666912	324597	666632	24590	Pollen sample site					
Söderlångvik, Söderlångvik 1	666707	324561	666427	24554	Cairn?	Undated			Tuovinen 1993	
Söderlångvik, Söderlångvik 2	666747	324566	666467	24559	Cairn?	Undated			Tuovinen 1993	
Vänö, Härön	664750	322689	664471	22683	Cairn	Undated			Fagerstöm & Roth 1991	
Vänö, Trollberget	664968	323171	664688	23165	Labyrinth	Undated			Fagerstöm & Roth 1991	
Ytterkulla, Labbnäsåsen	667051	324963	666771	24956	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Ytterkulla, Malmisberget	667143	324929	666863	24922	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Ytterölmoss, Bösvik					Stray find	Stone Age		KM 2503A:11		
Ölmos	667063	324415	666783	24408	Stray find	Stone Age		TYA 590:1	Cleve 1943; Asplund 1992	
Ölmos					Stray find	Stone Age		TYA 649:1-2		
Ölmos, Finnviken	666450	324288	666170	24282	Tomtning?	Undated			Tuovinen 1991	
Ölmos, Hälsingholmen	666678	323758	666398	23752	Stone oven	Medieval or Post-Medieval			Tuovinen 1985	
Ölmos, Hälsingholmen	666679	323768	666399	23761	Stone oven	Medieval or Post-Medieval			Tuovinen 1985	
Ölmos, Hammarsboda	666875	324432	666595	24425	Cairn?	Bronze and/or Iron Age			Asplund 1994	
Ölmos, Hammarsboda 1	666920	324387	666640	24381	Settlement site	Stone Age		TYA 518:1-14	Asplund 1990; Tuovinen 1991	Myhrman 1990b
Ölmos, Hammarsboda 10	666875	324434	666594	24427	Cairn	Bronze and/or Iron Age			Tuovinen 1991; Asplund 1994	
Ölmos, Hammarsboda 106	666924	324455	666644	24449	Cairn	Bronze Age	LNE/EBA	KM 1910	Tuovinen 1991	Tuovinen & Vuorinen 1992
Ölmos, Hammarsboda 107	666927	324459	666646	24453	Cairn	Bronze and/or Iron Age			Tuovinen 1991	Tuovinen & Vuorinen 1992
Ölmos, Hammarsboda 108	666924	324457	666644	24451	Cairn	Bronze and/or Iron Age		KM 2503A:23	Tuovinen 1991	Tuovinen & Vuorinen 1992
Ölmos, Hammarsboda 109	666926	324448	666645	24442	Cairn	Bronze and/or Iron Age			Tuovinen 1991	Tuovinen & Vuorinen 1992
Ölmos, Hammarsboda 11	666885	324467	666605	24460	Cairn	Bronze and/or Iron Age			Tuovinen 1991	
Ölmos, Hammarsboda 12	666879	324420	666599	24413	Pit-trap?	Undated			Tuovinen 1991	
Ölmos, Hammarsboda 13	666869	324432	666589	24425	Pit-trap?	Undated			Tuovinen 1991	
Ölmos, Hammarsboda 14	666878	324426	666598	24419	Charcoal burning or tar extraction site	Historical Period			Tuovinen 1991	
Ölmos, Hammarsboda 2 **	666875	324431	666595	24424	Settlement site	Stone and/or Bronze Age	LNE/ EBA, LBA	TYA 518:15-41, TYA 575:9, TYA 611:1-80	Asplund 1990; Tuovinen 1991; Asplund 1994	
Ölmos, Hammarsboda 3 *	666881	324454	666601	24448	Settlement site	Stone and/or Bronze Age	LNE/ EBA	TYA 518:42-46, TYA 575:1-6, TYA 588:1-270	Asplund 1990; Tuovinen 1991; Tuovinen 1993	
Ölmos, Hammarsboda 4	666890	324461	666610	24455	Stray find	Stone and/or Bronze Age		TYA 518:47-49	Asplund 1990; Tuovinen 1991	
Ölmos, Hammarsboda 5	666902	324410	666622	24403	Stray find	Stone Age		TYA 575:7-8	Asplund 1990; Tuovinen 1991	Myhrman 1990b
Ölmos, Hamnholmen	666523	324118	666244	24112	Stone oven	Medieval or Post-Medieval			Heikkinen & Näränen 1992	

Ölmos, Hamnholmen	666641	324111	666361	24104	Stone oven	Medieval or Post-Medieval			Heikkinen & Näränen 1992	
Ölmos, Hamnholmen	666518	324092	666238	24085	Stone oven	Medieval or Post-Medieval			Heikkinen & Näränen 1992	
Ölmos, Hamnholmssundet	666523	324266	666243	24259	Cairn	Bronze and/or Iron Age			Edgren 1985	Tuovinen & Vuorinen 1992
Ölmos, Högholmen	666327	324268	666047	24262	Labyrinth	Undated			Edgren 1985	
Ölmos, Jungfruholmen	666394	324251	666114	24245	Fortification	Post-Medieval			Edgren 1985	
Ölmos, Kammarbergen	667478	324494	667198	24487	Cairn	Bronze and/or Iron Age			Edgren 1985	Tuovinen & Vuorinen 1992
Ölmos, Kolaskär	667010	323998	666730	23991	Stone oven	Medieval or Post-Medieval			Tuovinen 1985	
Ölmos, Krogarudden	666363	324323	666083	24316	Cairn	Bronze and/or Iron Age			Tuovinen 1988	Tuovinen & Vuorinen 1992
Ölmos, Krogarudden	666362	324323	666082	24316	Cairn?	Bronze and/or Iron Age			Tuovinen 1988	Tuovinen & Vuorinen 1992
Ölmos, Krogarudden	666337	324317	666057	24311	Cairn?	Undated			Tuovinen 1988	
Ölmos, Krogarudden	666338	324311	666058	24305	Inscription	Post-Medieval			Tuovinen 1988	
Ölmos, Krogarudden	666341	324313	666061	24306	Stone oven	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Krogarudden	666343	324317	666063	24310	Stone oven	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Krogarudden	666353	324311	666073	24304	Stone oven	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Krogarudden	666357	324310	666077	24304	Stone oven	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Krogarudden	666359	324312	666079	24306	Stone oven	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Krogarudden	666378	324329	666098	24322	Stone oven?	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Krogarudden	666359	324331	666079	24325	Stone oven	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Krogarudden	666355	324330	666076	24323	Stone oven	Historical Period			Tuovinen 1988	
Ölmos, Krogarudden	666355	324330	666076	24323	Stone oven	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Krogarudden	666355	324330	666076	24323	Stone oven	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Krogarudden	666351	324328	666071	24321	Stone oven	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Krogarudden	666334	324334	666054	24328	Inscription	Post-Medieval			Asplund & Salomonsson 1985; Edgren 1985; Tuovinen 1988	
Ölmos, Krogarudden	666332	324326	666052	24319	Inscription	Post-Medieval			Asplund & Salomonsson 1985; Edgren 1985	

Ölmos, Krogarudden	666332	324330	666053	24323	Harbour	Medieval or Post-Medieval		Dalsbruks Bruks-museum 2000-2002, 2003:1-5, 2004-2008, 2009:1-4, 2010-2015, 2016:1-3, 2017, 2018:1-3, 2019-2022, 2023:1-7, 2024-2026, 2027:1-7, KM 30443, KM hist. 99006	Asplund & Salomonsson 1985; Edgren 1985; Asplund 1996	Asplund 1996; Edgren 1996a
Ölmos, Oxholmen	666322	324354	666042	24348	Inscription	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Oxholmen	666311	324355	666031	24349	Stone oven	Medieval or Post-Medieval			Tuovinen 1988	
Ölmos, Purunpää	666346	324351	666067	24345	Stray find	Iron Age and/or Medieval		SMM 96028		Edgren 1997
Ölmos, Sandbrinkarna Ia	667072	324549	666792	24542	Settlement site	Stone Age	MES	TYA 472:1-9	Asplund 1989	Myhrman 1990b
Ölmos, Sandbrinkarna Ib	667069	324550	666789	24543	Settlement site	Stone Age	MES	TYA 472:10-19	Asplund 1989	Myhrman 1990b
Ölmos, Sandbrinkarna II	667053	324538	666773	24532	Settlement site	Stone Age	MES	TYA 472:20-23	Asplund 1989	Myhrman 1990b
Ölmos, Sandbrinkarna III	667057	324542	666777	24535	Settlement site	Stone Age	MES	TYA 472:24-30	Asplund 1989	Myhrman 1990b
Ölmos, Sandbrinkarna IV	667059	324548	666779	24541	Settlement site	Stone Age	MES	TYA 472:31-38	Asplund 1989	Myhrman 1990b
Ölmos, Skansholmen	666301	324275	666021	24268	Fortification	Post-Medieval			Edgren 1985	
Ölmos, Stornäset **	667389	324573	667109	24566	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Ölmos, Västerbergen	667293	324421	667013	24415	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Ölmos, Västersjälsmalmen	667195	324428	666914	24421	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Ölmos, Västersjälsmalmen	667201	324428	666920	24421	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Ölmos, Östergård 1	666520	324307	666240	24300	Cairn	Bronze and/or Iron Age			Edgren 1985	Tuovinen & Vuorinen 1992
Ölmos, Östergård 1	666517	324304	666237	24297	Cairn	Bronze and/or Iron Age			Edgren 1985	Tuovinen & Vuorinen 1992
Ölmos, Östergård 2	666473	324297	666193	24290	Cairn	Bronze and/or Iron Age			Edgren 1985; Tuovinen 1991	Tuovinen & Vuorinen 1992
Ölmos, Östergård 2	666473	324297	666193	24290	Cairn	Bronze and/or Iron Age			Edgren 1985; Tuovinen 1991	Tuovinen & Vuorinen 1992
Ölmos, Östergård 2	666473	324297	666193	24290	Cairn	Bronze and/or Iron Age			Edgren 1985; Tuovinen 1991	Tuovinen & Vuorinen 1992
Ölmos, Östergård 2	666474	324297	666194	24290	Cairn	Bronze and/or Iron Age			Edgren 1985; Tuovinen 1991	Tuovinen & Vuorinen 1992
Ölmos, Östergård 2	666474	324298	666194	24291	Cairn	Iron Age?			Edgren 1985; Tuovinen 1991	Tuovinen & Vuorinen 1992
Ölmos, Östergård 2	666473	324297	666193	24290	Cairn	Iron Age?			Edgren 1985; Tuovinen 1991	Tuovinen & Vuorinen 1992
Ölmos, Östergård 2 **	666480	324298	666200	24292	Cairn	Bronze and/or Iron Age			Edgren 1985; Tuovinen 1991	Tuovinen & Vuorinen 1992

Halikko

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
					Stray find	Stone Age	MES	Halikon kotis.museo 1896		
					Stray find	Stone Age		Halikon kotis.museo 1897		
					Stray find	Stone Age		Halikon kotis.museo 1898		
					Stray find	Stone Age		Halikon kotis.museo 1899		
					Stray find	Stone Age		Halikon kotis.museo 1900		
					Stray find	Undated		Halikon kotis.museo 1901		
					Stray find	Undated		Halikon kotis.museo 1902		
					Stray find	Stone Age		Halikon kotis.museo 1904		
					Stray find	Undated		Halikon kotis.museo 1905		
					Stray find	Stone Age		Halikon kotis.museo 1906		
					Stray find	Stone Age		Halikon kotis.museo 1907		
					Stray find	Iron Age		Halikon kotis.museo 1908		
					Stray find	Stone Age		Halikon kotis.museo 1949		
					Stray find	Stone Age	MES	Halikon kotis.museo 302		
					Stray find	Stone Age		Halikon kotis.museo 304		
					Stray find	Stone Age		Halikon kotis.museo 305		
					Stray find	Stone Age		Halikon kotis.museo 306		
					Stray find	Stone Age		Halikon kotis.museo 307		
					Stray find	Stone Age	MES	Halikon kotis.museo 308		
					Stray find	Stone Age	MES	Halikon kotis.museo 309		
					Stray find	Stone Age		Halikon kotis.museo 310		
					Stray find	Stone Age	MES	Halikon kotis.museo 311		
					Stray find	Stone Age		Halikon kotis.museo 312		
					Stray find	Stone Age		Halikon kotis.museo 313		
					Stray find	Stone Age		Halikon kotis.museo 314		
					Stray find	Stone Age		Halikon kotis.museo 315		
					Stray find	Stone Age		Halikon kotis.museo 316		
					Stray find	Stone Age	BAT	Halikon kotis.museo 317		
					Stray find	Stone Age		Halikon kotis.museo 318		
					Stray find	Stone Age		Halikon kotis.museo 319		
					Stray find	Undated		Halikon kotis.museo 321		
					Stray find	Undated		Halikon kotis.museo 322		
					Stray find	Undated		Halikon kotis.museo 3986		

					Stray find	Stone Age		Halikon kotis.museo 3989		
					Stray find	Stone Age		Halikon kotis.museo 3990		
					Stray find	Undated		Halikon kotis.museo 3991		
					Stray find	Undated		Halikon kotis.museo 3992		
					Stray find	Iron Age		Halikon kotis.museo 4		
					Stray find	Undated		Halikon kotis.museo 4002		
					Stray find	Undated		Halikon kotis.museo 4003		
					Stray find	Stone Age		Halikon kotis.museo 4672		
					Stray find	Stone Age		Halikon kotis.museo 6584		
					Stray find	Stone Age		Halikon kotis.museo 6585		
					Stray find	Stone Age		Halikon kotis.museo 6586		
					Stray find	Stone Age		Halikon kotis.museo 6587		
					Stray find	Stone Age		Halikon kotis.museo 6590		
					Stray find	Stone Age		Halikon kotis.museo 6594		
					Stray find	Undated		Halikon kotis.museo 6595		
					Stray find	Undated		Halikon kotis.museo 6596		
					Stray find	Undated		Halikon kotis.museo 6597		
					Stray find	Undated		Halikon kotis.museo 6598		
					Stray find	Undated		Halikon kotis.museo 6599		
					Stray find	Stone Age		Halikon kotis.museo 6602		
					Stray find	Stone Age		Halikon kotis.museo 6603		
					Stray find	Stone Age		Halikon kotis.museo 6604		
					Stray find	Stone Age		Halikon kotis.museo 6605		
					Stray find	Stone Age		Halikon kotis.museo 6606		
					Stray find	Stone Age	MES	Halikon kotis.museo 6607		
					Stray find	Stone Age		Halikon kotis.museo 6608		
					Stray find	Stone Age		Halikon kotis.museo 6611		
					Stray find	Stone Age		Halikon kotis.museo 6612		
					Stray find	Undated		Halikon kotis.museo 6613		
					Stray find	Stone Age		Halikon kotis.museo 6614		
					Stray find	Stone Age		Halikon kotis.museo 6616		
					Stray find	Stone Age		Halikon kotis.museo 6617		
					Stray find	Stone Age		Halikon kotis.museo 6619		
					Stray find	Stone Age		Halikon kotis.museo 6620		
					Undefined	Undated		Halikon kotis.museo 70		
					Stray find	Iron Age	VA	Halikon kotis.museo 854		

					Stray find	Iron Age		Halikon kotis.museo 855		
					Stray find	Iron Age	VA	Halikon kotis.museo 856		
					Stray find	Historical Period		Halikon kotis.museo 857		
					Stray find	Historical Period		Halikon kotis.museo 892a		
					Stray find?	Stone Age		Hämeen museo / Lindel-lin kokoelma 96		
					Stray find	Iron Age	VA	KM 10756:1		
					Stray find	Stone Age		KM 13744:2-7		
					Stray find?	Iron Age		KM 15752		
					Stray find	Stone Age	MES	KM 20202		
					Stray find	Iron Age		KM 2025:17	Koskimies 1955	
					Stray find	Stone Age		KM 22805		
					Stray find	Iron Age		KM 26736		
					Stray find	Stone Age	BAT	KM 2823:1		
					Stray find	Undated		KM 2823:2		
					Stray find	Stone Age		KM 3187:11		
					Stray find	Stone Age	MES	KM 3187:12		
					Stray find	Stone Age	MES	KM 3187:13		
					Stray find	Stone Age	MES	KM 3187:14		
					Stray find	Stone Age		KM 3187:15		
					Stray find	Stone Age		KM 3187:16		
					Stray find	Stone Age?		KM 3187:17		
					Stray find	Stone Age		KM 3187:18		
					Stray find	Stone Age		KM 3187:19		
					Stray find	Iron Age		KM 3696:2		
					Stray find	Iron Age	CP	KM 5362:3		
					Stray find	Iron Age		KM 5492:2		
					Stray find	Stone Age	BAT	KM 5512:11-12		
					Stray find	Bronze Age	LNE/EBA	KM 5512:21		
					Stray find?	Stone Age		KM 5512:2-10		
					Stray find	Iron Age		KM 5512:22		
					Stray find	Iron Age	MIG	KM 5512:23		
					Stray find	Iron Age		KM 5512:44-45		
					Stray find?	Undated		KM 5531:10		
					Stray find?	Stone Age		KM 5531:1-9		
					Stray find	Stone Age	BAT	KM 5721:1		

					Stray find	Stone Age		KM 9218		
					Stray find	Stone Age		Perniön museo 12:1		
					Stray find	Historical Period		Pohjanmaan museo 3137		
					Stray find	Stone Age		TMM 127		
					Stray find	Stone Age		TMM 128		
					Stray find	Stone Age		TMM 137		
					Stray find	Stone Age		TMM 138		
					Stray find	Stone Age		TMM 139		
					Stray find	Stone Age		TMM 144		
					Stray find	Stone Age		TMM 145		
					Stray find	Stone Age		TMM 151		
					Stray find	Stone Age		TMM 152		
					Stray find	Stone Age		TMM 153		
					Stray find	Stone Age		TMM 154		
					Stray find	Stone Age		TMM 155		
					Stray find	Stone Age?		TMM 165		
					Stray find	Stone Age		TMM 167		
Ammakko, Kotikulma					Stray find	Stone Age		KM 12300		
Ammakko, Kotikulma					Stray find	Historical Period		KM 29605		
Ammakko, Laihkoski					Stray find	Stone Age		Halikon kotis.museo 6593		
Ammakko, Laihkoski					Stray find	Stone Age		Halikon kotis.museo 6610		
Ammakko, Poukari					Stray find	Stone Age		KM 3684:6		
Ammakko, Puokari					Stray find	Stone Age		KM 13746		
Angela, Nokkala	669508	327553	669227	27545	Stray find	Stone Age	BAT	KM 19359		
Angelan saari					Undefined	Undated		KM 2435:3	Koskimies 1955	
Böylä					Stray find	Stone Age		KM 13744:1		
Hajala	670751	327365	670469	27357	Stray find	Stone Age		KM 20428		
Hajala					Stray find	Stone Age		KM 26424		
Hajala, Heiniluoma					Stray find	Stone Age		KM 25606		
Hajala, Kunnalliskoti	670759	327377	670478	27370	Settlement site?	Stone Age		KM 23326:1-2	Mikkola 1999	
Hajala, Piintilä					Stray find	Stone Age	BAT	KM 6190:42		
Hajala, Sarkola					Stray find	Stone Age		TYA 136:1-2		
Hakala					Stray find	Stone Age	MES	Halikon kotis.museo 3982		
Hakala					Stray find	Stone Age	MES	Halikon kotis.museo 3983		
Hakola					Stray find	Stone Age		KM 9210		
Hevonpää, Alatalon pelto	670292	327411	670011	27403	Settlement site	Stone Age		KM 31397	Mikkola 1999	

Hevonpää, Alitalo					Stray find	Stone Age		KM 6013:1-2		
Hirvikallio					Stray find	Stone Age		KM 12842		
Hirvikallio					Stray find	Iron Age		KM 14776:1		
Hirvikallio, Heino	670476	328342	670195	28334	Undefined	Historical Period?		KM 25925:1-8	Riikonen 1990; Saloranta 1991; Mikkola 1999	
Hirvikallio, Kaijankallio	670427	328302	670145	28294	Undefined	Undated			Riikonen 2001	
Hirvikallio, Kaijankallio 1	670422	328304	670140	28296	Cup-marked stone?	Iron Age?			Mikkola 1999	
Hirvikallio, Kaijankallio 2	670424	328300	670142	28291	Cup-marked stone?	Iron Age?			Mikkola 1999	
Hirvikallio, Kotimäki 1	670427	328291	670146	28282	Settlement site	Iron Age		KM 27788:1-19 (part of)	Mikkola 1999	
Hirvikallio, Kotimäki 1-3 *	670421	328285	670139	28277	Stray find	Stone Age?		KM 27788:1-19 (part of)	Mikkola 1999	
Hirvikallio, Kotimäki 2	670415	328280	670133	28272	Settlement site	Iron Age		KM 27788:1-19 (part of)	Mikkola 1999	
Hirvikallio, Kotimäki 3	670415	328290	670134	28282	Settlement site	Iron Age		KM 27788:1-19 (part of)	Mikkola 1999	
Hirvikallio, Lehtola					Stray find	Undated		TYA 108		
Hirvikallio, Mäkelä					Stray find	Iron Age?		KM 27787		
Hirvikallio, Rikala **	670466	328344	670184	28336	Stray find	Undated		TYA 88:1-2	Seppänen 1975	
Hirvikallio, Rikala Linnamäki	670403	328265	670122	28256	Hillfort	Bronze and/or Iron Age		KM 16750; TYA 157:1-2; TYA 817:1-40	Koskimies 1955; Voionmaa 1955; Mikkola 1999; Asplund 2002; Asplund 2007	
Hirvikallio, Rikalanmäki	670441	328317	670160	28309	Stray find	Iron Age	CP	KM 2058:3; KM 5512:46-47		
Hirvikallio, Rikalanmäki	670452	328333	670171	28325	Stray find	Historical Period		TYA 106	Seppänen 1978	
Hirvikallio, Rikalanmäki (3) *	670447	328322	670166	28313	Settlement site?	Iron Age		TYA 89:1-29; TYA 97:1-83; TYA 105:1-39,41-42,44-47,116-118	Seppänen 1976; Seppänen 1978; Seppänen 1978; Mikkola 1999	
Hirvikallio, Rikalanmäki (5)	670441	328326	670159	28318	Cup-marked stone	Iron Age?			Mikkola 1999	
Hirvikallio, Rikalanmäki (A)	670446	328319	670165	28310	Settlement site?	Stone and/or Bronze Age	LNE/EBA	TYA 105:40,43	Seppänen 1978; Mikkola 1999	Hirviluoto 1992: 39-40
Hirvikallio, Rikalanmäki (B) *	670439	328323	670158	28315	Settlement site	Bronze and/or Iron Age	PRIA	TYA 105:48-115,119	Seppänen 1978; Mikkola 1999	
Hirvikallio, Rikalanmäki (SW) *	670433	328314	670151	28306	Cemetery	Iron Age	MER	TYA 105:120-307,309-314,316-378; KM 24857:1-4	Seppänen 1978; Mikkola 1999	
Hirvikallio, Rikalanmäki (SW) *	670433	328314	670151	28306	Settlement site?	Early Metal Period	PRIA	TYA 105:308,315	Seppänen 1978	
Hirvikallio, Rikalanmäki (Tuominen)	670454	328324	670172	28316	Cemetery	Iron Age	CP	KM 12033; KM 12549:1-73; KM 12690:1-483; KM 12841:1-90; KM 13298:1-154	Koskimies 1955; Leppäaho 1955; Mikkola 1999	Hirviluoto 1992: 82-127; Mäntylä 2005a; Mäntylä 2006; Mäntylä 2007

Hirvikallio, Torkkelin pelto	670394	328244	670113	28236	Stray find	Iron Age		KM 31034:1-6	Mikkola 1998; Mikkola 1999; Strandberg 2000	
Hulvela, Hakala	670516	327416	670235	27409	Stray find	Iron Age	VA	KM 13889		
Hulvela, Pitkäporras					Stray find	Stone and/or Bronze Age		KM 4113		
Hyyperä, Kallela					Stray find	Stone Age		KM 13747		
Hyypperä, Moisio					Stray find	Stone Age		KM 8905:12		
Ikelä					Stray find	Undated		Halikon kotis.museo 739		
Ikelä, Kuuka					Stray find	Stone Age		KM 29819		
Ikelä, Markkula	670437	327972	670155	27964	Stray find	Stone Age		KM 20974		
Ikelä, Markula					Stray find	Stone Age		KM 23219:1-2		
Immola, Haapalahti					Stray find	Undated		KM 10126:1		
Joensuu					Stray find	Stone Age		KM 6037:5		
Joensuu					Stray find	Iron Age	ERA	KM 7059		Salo 1968: 85; Schauman-Lönnqvist 1989: 90
Joensuu, Halikonjoki	670473	328383	670192	28375	Settlement site	Iron Age		KM 25043:1-60; KM 25352:1-11; KM 25924:1-23	Saloranta 1989; Poutiainen 1990; Saloranta 1991: Mikkola 1999	
Joensuu, Joensuun kartano					Stray find	Iron Age?		KM 7019		
Joensuu, Joensuun kartano					Stray find	Iron Age?		KM 7570	Koskimies 1955	
Jokisato					Stray find	Historical Period		Halikon kotis.museo 323		
Juva, Lähteenmäki					Stray find	Undated		KM 17613		
Kalmusnäs	669250	327427	668969	27419	Stone oven?	Historical Period?			Riikonen 1988	
Kalmusnäs	669250	327411	668969	27403	Stone oven?	Historical Period?			Riikonen 1988	
Kalmusnäs	669250	327411	668969	27403	Stone oven?	Historical Period?			Riikonen 1988	
Kalmusnäs, Sapalahti					Stray find	Stone Age?		KM 3883		
Kanamäki					Stray find	Stone Age		KM 2722:2		
Kanamäki, Mustanummi					Settlement site?	Stone Age?			Koskimies 1955	
Kaninkola					Stray find	Stone Age		Halikon kotis.museo 3994		
Kaninkola, Hiisimäki	670108	327934	669827	27926	Stray find	Iron Age	MIG	KM 10549:2	Mikkola 1999	
Kaninkola, Hiisimäki	670108	327934	669827	27926	Cemetery	Iron Age	MIG	KM 1842:1-3; KM 22493:1-8; KM 23608:1-94	Koskimies 1955; Mikkola 1999	
Kaninkola, Hiisimäki	670110	327941	669828	27933	Stray find	Iron Age	MER	KM 27991	Mikkola 1999	
Kaninkola, Immala **	670062	327949	669781	27941	Stray find	Iron Age	VA, CP	KM 10549:1	Koskimies 1955	
Kaninkola, Immala **	670053	327946	669772	27938	Stray find	Iron Age		KM 9276:6	Koskimies 1955	
Kankareenjärvi	670929	327815	670647	27807	Pollen sample site					Tolonen 1985a; Tolonen 1987b
Kankarpyöli					Stray find	Stone Age	BAT	KM 6759:1-2		
Karviainen, Lammasmäki	669778	327690	669496	27682	Cairn	Bronze and/or Iron Age			Koskimies 1955	Tuovinen & Vuorinen 1992

Kaxunge, Hakoniitty	669017	327518	668736	27510	Cairn	Bronze and/or Iron Age			Koskimies 1955; Mikkola 1999	Tuovinen & Vuorinen 1992
Kaxunge, Hakoniitty	669012	327515	668731	27507	Cairn	Bronze and/or Iron Age			Koskimies 1955	Tuovinen & Vuorinen 1992
Ketola					Stray find	Stone Age	BAT	KM 23615:1-2		
Ketunpesänahde					Stray find	Iron Age	VA	KM 12543		
Kierilä, Kulmala					Stray find	Stone Age		KM 13226:1-2		
Kihisten kylä, Saarinen					Stray find	Stone Age		KM 6687		
Kirjola, Ylöstupa					Stray find	Stone Age	BAT	Halikon kotis.museo 4674		
Kirkonkylä, Kirkkomäki *	670519	328370	670237	28362	Cemetery	Iron Age	VA	KM 2058:4-6; KM 3187:45-46; KM 5512:24-26; KM 34020:1-350; TYA 107	Koskimies 1955; Katiskoski 1983; Mikkola 1999; Raike 2004	Kehusmaa & Raike 2004
Kokkila, Keskitalo	669678	327610	669397	27602	Cairn	Bronze and/or Iron Age			Koskimies 1955	Tuovinen & Vuorinen 1992
Kokkila, Keskitalo	669684	327613	669403	27605	Cairn	Bronze and/or Iron Age			Koskimies 1955	Tuovinen & Vuorinen 1992
Kokkila, Tammenpää	669649	327564	669368	27556	Undefined pit site	Undated			Koskimies 1955	
Kokkila, Tammenpää (2)	669649	327564	669368	27556	Cairn	Iron Age	VA, CP	KM 2435:4-9	Koskimies 1955; Mikkola 1999	Hirviluoto 1992: 68
Kokkila, Tammenpää (3)	669649	327564	669368	27556	Cairn	Iron Age?		KM 2435:10	Koskimies 1955; Mikkola 1999	
Konkola, Aro	670701	327310	670420	27302	Settlement site	Stone Age		KM 16748:1-14; KM 23323:1-23; KM 26423:1-2; TYA 109:1-24	Mikkola 1999	
Konkola, Ilola Alapelto	670747	327283	670465	27275	Settlement site	Stone Age		KM 13264:1-8; KM 23320:1-26; KM 26422	Mikkola 1999	
Konkola, Ilola Välipelto					Stray find	Undated		KM 23327:1-4		
Konkola, Ilola Yläpelto	670744	327261	670462	27254	Settlement site	Stone Age		KM 13264:1-8; KM 23321:1-4	Mikkola 1999	
Kultola, Katunpää	670669	327892	670387	27884	Stray find	Iron Age	CP	KM 15676; KM 15895	Hirviluoto 1966; Mikkola 1999	
Kultola, Takala/Hannula *	670834	327495	670552	27487	Stray find	Stone Age		KM 26737:1-3	Mikkola 1999	
Kumio, Hakala					Stray find	Stone Age		KM 2436:6		
Kumio, Mäenrinne					Stray find	Undated		Halikon kotis.museo 6601		
Kumio, Pikkamäki					Stray find	Undated		Perttelin museo		
Kumio, Pikkumäki					Stray find	Undated		Halikon kotis.museo 1903		
Kumio, Ristimäki					Stray find	Stone Age	MES	Halikon kotis.museo 737		
Kumio, Saari					Stray find	Stone Age		KM 10709		
Kumio, Tapani					Stray find	Historical Period?		Halikon kotis.museo 3987		
Kutela, Tapani	671706	327416	671424	27408	Stray find	Undated		KM 20972		
Kuttila, Koivikko					Stray find	Stone Age		KM 17837		
Kuttila, Puntamäki					Stray find	Stone Age?		KM 17609		
Kuttila, Tapani	671706	327417	671424	27409	Stray find?	Stone Age			Mikkola 1999	
Kuttila, Vuorela					Stray find	Stone Age		KM 17607	Sarvas 1968	

Kytö, Isokankareenmäki	671379	327332	671097	27325	Stray find	Stone Age		KM 20973		
Kytö, Lisälehtola					Stray find	Stone Age		KM 17610	Sarvas 1968	
Kytö, Varvikko	670701	327310	670420	27302	Stray find	Stone Age		KM 16749		
Lautela					Stray find	Stone Age?		Halikon kotis.museo 3984		
Lempilä	670187	327977	669906	27969	Cairn	Bronze and/or Iron Age			Mikkola 1999	Tuovinen & Vuorinen 1992
Lempolanmäki S **	670436	328270	670154	28261	Settlement site?	Iron Age and/or Medieval		KM 31029:1-15; KM 31609:1-88	Mikkola 1998; Mikkola 1999; Strandberg 2000	
Linnamaa, Mätikkö					Stray find	Stone Age		Halikon kotis.museo 6589		
Meisala	669954	328078	669673	28070	Cup-marked stone	Iron Age?			Leppäaho 1952; Koskimies 1955; Mikkola 1999	
Meisala, Haukkamäki	669965	328030	669684	28022	Cairn	Bronze and/or Iron Age			Koskimies 1955; Mikkola 1999	Tuovinen & Vuorinen 1992
Meisala, Haukkamäki	669964	328031	669683	28023	Cairn	Bronze and/or Iron Age			Koskimies 1955; Mikkola 1999	Tuovinen & Vuorinen 1992
Meisala, Haukkamäki	669965	328031	669684	28023	Stray find	Iron Age		KM 10756:2	Koskimies 1955; Mikkola 1999	
Meisala, Lehtiniemi **	669985	328128	669704	28120	Stray find	Undated		KM 14776:2		
Meisala, Soikvuori S	670009	328078	669728	28070	Clearance cairn	Historical Period?			Mikkola 1999	
Meisala, Soikvuori S	670009	328078	669728	28070	Stray find	Undated		KM 31399	Mikkola 1999	
Melkola	671312	327967	671030	27959	Settlement site	Stone Age	MES	KM 12734:1-2; KM 13748; KM 14274; KM 17798, KM 18137:1-4; KM 31408:1-	Koskimies 1955; Sarvas 1968; Mikkola 1999	
Melkola					Stray find	Undated		KM 26332		
Melkola, Flakumäki					Stray find	Stone Age		KM 17611	Sarvas 1968	
Mikkola, Keala					Stray find	Stone Age		KM 18004		
Muntola					Stray find?	Stone Age		Hellstenin kokoelma		
Muntola					Stray find?	Stone Age		Hellstenin kokoelma		
Muntola					Stray find	Stone Age		KM 17797		
Muntola					Stray find	Stone Age		TMM 8096		
Muntola, Isoriihenmäki	670646	327770	670365	27762	Cemetery	Iron Age	VA	KM 13790:1-2; KM 17705:1-575; KM 17796; KM 17910:1-582; KM 18837:1-1161; TMM 8095	Koskimies 1955; Sarvas 1968; Sarvas 1969; Mikkola 1999	
Muntola, Isoriihenmäki	670646	327770	670365	27762	Stray find	Bronze and/or Iron Age		KM 17909	Mikkola 1999	
Muntola, Isoriihenmäki (Montola)	670639	327759	670357	27751	Cup-marked stone	Iron Age?			Mikkola 1999	
Mustamäki	670460	328211	670178	28203	Stray find	Iron Age		Halikon kotis.museo 324		
Mustamäki	670460	328211	670178	28203	Stray find	Iron Age	VA	KM 5512:27-43; KM 5721:2-3; KM 6378:2; Perniön museo 2171-2174	Koskimies 1955; Sarvas 1968; Mikkola 1999	Hirviluoto 1992: 71-73
Mustamäki, Suutarin tontti	670454	328205	670173	28197	Undefined	Historical Period?			Seppänen 1977	

Märy					Stray find	Stone Age		KM 2436:5		
Märy					Stray find	Stone Age		KM 9684:2		
Märy, Ala-Häävälän Linnamäki	671022	328087	670741	28079	Hillfort?	Iron Age?			Mikkola 1999	Appelgren 1891: 65
Märy, Ali-Satuli	670783	328103	670502	28094	Cemetery?	Iron Age		KM 29604:1-2	Mikkola 1999	
Märy, Asumettä	670801	328325	670520	28317	Settlement site?	Iron Age		KM 25382:1-3	Mikkola 1999	
Märy, Kaakanmäki	670885	328120	670603	28112	Undefined	Undated			Mikkola 1999	Hirviluoto 1992: 80, 144
Märy, Kaakanmäki	670886	328126	670605	28118	Cemetery?	Iron Age		KM 25378:1-2	Mikkola 1999	
Märy, Krapuoja	670824	328149	670543	28140	Settlement site	Iron Age		KM 25380:1-4; KM 28387:1-122; KM 28827; KM 31404	Mikkola 1995; Mikkola 1999	
Märy, Munismäki	670815	328128	670534	28120	Settlement site	Iron Age	VA	KM 25381:1-4; KM 28388:1-7; KM 28826; KM 29603:1	Mikkola 1994; Mikkola 1996; Mikkola 1999	
Märy, Munismäki S	670812	328125	670531	28117	Cup-marked stone	Iron Age?			Hirviluoto 1991; Mikkola 1999	Hirviluoto 1992: 80, 143
Märy, Myllyoja	670827	328190	670546	28182	Cup-marked stone	Iron Age?			Mikkola 1999	
Märy, Pihko	670875	328118	670593	28110	Settlement site?	Iron Age and/or Medieval		KM 31843:1-4; KM 34664:1	Mäntylä 2004	
Märy, Pihko (1)	670875	328119	670593	28111	Cup-marked stone	Iron Age?			Hirviluoto 1998; Mikkola 1999	
Märy, Pihko (2)	670875	328117	670593	28109	Cup-marked stone	Iron Age?			Mikkola 1999	
Märy, Riihikankare	670763	328153	670481	28145	Settlement site	Iron Age		KM 25379:1-3; KM 28386:1-781; KM 28825:1-1197; KM 29602:1-7; KM 31403	Mikkola 1995; Mikkola 1996; Mikkola 1999	
Märy, Riihikankare (Ali-Satuli)	670763	328153	670481	28145	Stray find	Iron Age	VA	KM 12540	Mikkola 1999	
Märy, Riihikankare (Satuli)	670763	328153	670481	28145	Cup-marked stone	Iron Age?			Mikkola 1999	
Märy, Sairaala					Stray find	Stone Age		KM 13196:1		
Märy, Sairaala					Stray find	Stone Age		KM 13196:2		
Märy, Sairaala	670912	328203	670630	28194	Settlement site?	Stone Age		KM 20975:1-2	Mikkola 1999	
Märy, Seppälä					Stray find	Stone Age		KM 6704:1-3		
Märy, Seppälä					Stray find	Stone Age		KM 9684:1		
Märy, Sikamäki	671011	328072	670729	28064	Settlement site?	Stone Age?		KM 25317	Mikkola 1999	
Märy, Somerojan lähde	671303	328528	671021	28520	Holy well	Historical Period?			Koskimies 1955; Mikkola 1999	
Märy, Yli-Heikkilä					Stray find	Stone Age		Halikon kotis.museo 6618		

Mätikkö					Stray find	Stone Age		KM 6013:3		
Naapala, Kaitaniitty					Stray find	Stone Age		Halikon kotis.museo 735		
Naapala, Ojanperä					Stray find	Stone Age	BAT	KM 13001		
Nummi, Kettuojan pelto	670946	328340	670664	28332	Settlement site?	Stone Age?		KM 31405:1	Mikkola 1999	
Nummi, Märyn risteys *	670918	328256	670636	28248	Settlement site?	Stone Age?			Mikkola 1999	Hirviluoto 1992: 135
Nummi, Sikaoja	670962	328347	670680	28339	Undefined pit site	Undated			Mikkola 1999	
Nummi, Urheilutie 15	670933	328283	670652	28275	Settlement site	Stone Age	BAT	KM 21713:1-8; KM 22008:1-249	Mikkola 1999	Hirviluoto 1992: 33-37
Nummisten kylä, Kankare					Stray find	Stone Age		KM 6713:1-2		
Padanoja					Stray find	Stone Age		KM 6561:3-4		
Pailinna					Stray find	Stone Age		KM 6744:1		
Pailinna					Stray find	Stone Age		KM 6744:2		
Pailinnan koski					Stray find	Stone Age	BAT	KM 12709		
Paimion yhteismetsä	671284	327499	671002	27492	Cairn?	Undated			Brusila 2006	
Paimoinen					Stray find	Stone and/or Bronze Age		Halikon kotis.museo 738		
Pappila, Ahola	670757	327254	670475	27246	Settlement site?	Stone Age		KM 23322:1-13	Mikkola 1999	
Pappila, Portaanpää	670773	327284	670491	27276	Settlement site	Stone Age		KM 23325:1-5; KM 31398:1	Mikkola 1999	
Pappila, Vuohikallio	670713	328499	670432	28491	Settlement site	Stone Age	MES, BAT	KM 10673; KM 28978:1-29; KM 29607:1-6; KM 29734:1-420; KM 30639:1-594	Mikkola 1999	
Pappila, Väljälä	670749	327306	670467	27298	Settlement site?	Stone Age		KM 23324:1-7	Mikkola 1999	
Peksala					Stray find	Stone Age		Juho Wiinamäen museo Salossa 205		
Perälä					Stray find	Stone Age		Halikon kotis.museo 6609		
Perälä					Stray find	Stone Age		Sauvon Korpelan kansa-koulu		
Piintilä					Stray find	Stone Age		KM 2025:4		
Piintilä, Piintilän Linnamäki	670836	327678	670554	27670	Hillfort?	Undated			Koskimies 1955; Mikkola 1999	
Piintilä, Ratsumiehen hauta	671203	327696	670921	27688	Undefined	Undated			Koskimies 1955	Hirviluoto 1992: 142
Pitkäoja, Keskitalo					Stray find	Stone Age		TYA 204		
Pitkäoja, Koivusilta					Stray find	Stone Age	MES	KM 17608	Sarvas 1968	
Pitkäoja, Perttala					Stray find	Stone Age	MES	KM 7395		
Puotila, Kannikon makasiini	670592	328253	670311	28245	Stray find	Iron Age	VA	KM 31032:1	Mikkola 1998; Mikkola 1999; Strandberg 2000	

Puotila, Kannikon makasiini	670592	328253	670311	28245	Settlement site?	Iron Age?		KM 31032:2; KM 31612:1-3	Mikkola 1998; Mikkola 1999; Strandberg 2001	
Puotila, Kihinen (Kihisten-mäki S)	670480	328298	670198	28290	Settlement site	Iron Age		KM 25042:1-50; KM 25351:1-6; KM 25923:1-717	Saloranta 1989; Poutiainen 1990; Saloranta 1991; Mikkola 1999	
Puotila, Kihinen (Kihisten-mäki SW)	670480	328298	670198	28290	Settlement site	Iron Age		KM 31030:1-2; KM 31610:1-40	Mikkola 1998; Mikkola 1999; Strandberg 2000	
Puotila, Kihinen (Mäkelä)	670488	328283	670206	28275	Cup-marked stone	Iron Age?			Mikkola 1999	
Puotila, Kihistenmäki **	670504	328294	670223	28286	Stray find	Iron Age	VA	KM 12692:1-2		
Puotila, Kihistenmäki					Stray find	Iron Age	VA	KM 26591	Mikkola 1999	
Puotila, Mörlingin pelto *	670510	328266	670228	28258	Settlement site?	Iron Age		KM 31031:1-14; KM 31611:1-19	Mikkola 1998; Mikkola 1999; Strandberg 2000	
Puotila, Puotila (Sydänpelto)	670522	328310	670240	28302	Settlement site	Iron Age		KM 30874:1-7; KM 31288; KM 31814:1-19; KM 31842:1-7; KM 33463:1-6; KM 33568:1-3	Mikkola 1999; Brusila 2002	
Puotila, Puotila (Tavasti 1)	670517	328312	670236	28304	Cup-marked stone	Iron Age?			Mikkola 1999	
Puotila, Puotila (Tavasti 2)	670522	328306	670240	28298	Cup-marked stone	Iron Age?			Mikkola 1999	
Puotila, Puotila (Tavasti 3)	670515	328310	670233	28301	Cup-marked stone	Iron Age?			Mikkola 1999	
Puotila, Puotila (Tavasti 3)	670512	328314	670231	28305	Cup-marked stone	Iron Age?			Mikkola 1999	
Puotila, Virtalahti	670557	328186	670276	28178	Stray find	Stone Age?		KM 13335:1-2	Mikkola 1999	
Puotila, Virtalahti	670557	328186	670276	28178	Stray find	Historical Period?		KM 14365:1-2	Mikkola 1999	
Puotila, Wuorenrinta *	670496	328278	670215	28270	Cemetery?	Iron Age	VA, CP	KM 30985:1-18; KM 31815:1-89; KM 34268:1-25	Mikkola 1999; Mikkola 2000; Vanhatalo 2006	Mikkola 1999
Putolankylä, Rautio					Stray find	Stone Age		KM 20867:1-4		
Pyhäloukas, Kinnarpyöli	670438	327295	670156	27287	Cairn	Bronze and/or Iron Age			Mikkola 1999	Tuovinen & Vuorinen 1992
Pyhäloukas, Kinnarpyöli	670438	327295	670156	27287	Cairn	Bronze and/or Iron Age			Mikkola 1999	Tuovinen & Vuorinen 1992
Pyhäloukas, Seppälä					Stray find	Undated		Halikon kotis.museo 909		
Pöylä, Pöylän Linnanmäki	670273	327162	669992	27154	Hillfort	Iron Age and/or Medieval			Koskimies 1955; Mikkola 1999	
Ruotsala, Mäkilä					Stray find	Stone Age		KM 13745		
Ruska, Prookeli	670484	327472	670202	27464	Cairn	Bronze and/or Iron Age			Koskimies 1955; Mikkola 1999	Tuovinen & Vuorinen 1992
Ruuhikoski, Sepänahde					Stray find	Stone Age		KM 2436:4		
Ruuhikoski, Seppä					Stray find	Stone Age		KM 3684:7		
Saarimäki					Stray find	Iron Age	VA	KM 12492		
Saha, Mäkipää **	671565	327390	671283	27382	Stray find	Iron Age?		KM 12807		

Salainen, Aaltonen	670812	328586	670531	28577	Stray find	Stone Age		KM 21303		
Sauvo					Stray find	Stone Age		KM 3684:5		
Sauvo, Pyykankare					Undefined	Undated		KM 13749		
Sauvonkylä, Koskenpää					Stray find	Stone Age		KM 3684:8		
Sauvonkylä, Kupparinmäki	671581	327727	671299	27719	Settlement site?	Stone Age?		KM 31407:1	Mikkola 1999	
Sauvonkylä, Martinoja Kivilä	671549	327571	671267	27563	Settlement site?	Stone Age	MES	KM 31406; Halikon kotis. museo 3985	Mikkola 1999	
Sauvonkylä, Pyykankare	671658	327665	671376	27657	Stray find	Stone Age		KM 3684:2-4	Koskimies 1955; Mikkola 1999	
Seppälä					Stray find	Stone Age		KM 2803:2		
Suomela					Stray find	Undated		Halikon kotis.museo 3988		
Talola, Kaikumäki	670589	327592	670308	27584	Stray find	Iron Age	VA	KM 9389:1-28; KM 9510:1-8; KM 10329:1-2; Halikon kotis.museo 740; Perttelin museo	Mikkola 1999	
Tavola					Stray find	Stone Age		Halikon kotis.museo 6592		
Tavola, Ketola					Stray find	Stone Age	MES	KM 17612		
Tavola, Toivonen					Stray find	Stone Age		KM 9207:1-2		
Toijala, Paijola					Stray find	Undated		KM 6014A		
Toijala, Santa					Stray find	Stone Age		KM 10785; KM 11525		
Toijala, Toijalanmäki **	670504	328464	670223	28456	Stray find	Iron Age	VA	KM 12691	Leppäaho 1952; Koskimies 1955	
Toppjoki					Stray find	Stone Age		KM 2722:1		
Torkkila, Isotalo					Stray find	Stone Age		Halikon kotis.museo 4671		
Torkkila, Isotalo					Stray find	Stone Age		Halikon kotis.museo 6591		
Valttila, Isomäki	669746	327675	669465	27667	Cairn	Bronze and/or Iron Age			Koskimies 1955	Tuovinen & Vuorinen 1992
Vartsala					Stray find	Undated		Halikon kotis.museo 6615		
Vartsala, Mäenala					Stray find	Iron Age?	MER, VA	Halikon kotis.museo 1080		
Vaskio					Stray find	Stone Age		Perniön museo 125		
Vaskio					Stray find	Stone Age	MES	Perniön museo 129		
Vaskio, Kuntela					Stray find	Iron Age	CP	KM 26077		Hirviluoto 1992: 118
Vaskio, Latala					Stray find	Stone Age		KM 12826		
Vaskio, Onnenperä					Stray find	Undated		Halikon kotis.museo 6600		
Vaskio, Osuusmeijeri					Stray find	Stone Age		Perniön museo 122		
Vaskio, Syrjälä					Stray find	Stone Age	MES	KM 3684:1		
Vaskio, Vaskion Saha					Stray find	Stone Age		Halikon kotis.museo 736		
Vessilä, Pailinna	670534	327946	670253	27938	Hillfort?	Undated			Koskimies 1955; Mikkola 1999	
Viurila					Stray find	Iron Age	VA	Halikon kotis.museo 326		
Viurila					Stray find?	Stone Age		Halikon kotis.museo 327		

Viurila					Stray find?	Stone Age		Halikon kotis.museo 328		
Viurila					Stray find?	Stone Age		Halikon kotis.museo 329		
Viurila					Stray find?	Stone Age		Halikon kotis.museo 330		
Viurila					Stray find?	Stone Age		Halikon kotis.museo 331		
Viurila					Stray find?	Stone Age		Halikon kotis.museo 332		
Viurila					Stray find?	Stone Age		Halikon kotis.museo 333		
Viurila					Stray find	Stone Age		KM 8789:3		
Viurila, Iilike **	670305	328348	670024	28340	Stray find	Iron Age		KM 10556	Koskimies 1955	
Viurila, Kaunelan palsta	670292	328344	670010	28335	Cup-marked stone	Iron Age?			Mikkola 1999	
Viurila, Kaunelan palsta	670290	328338	670008	28329	Cemetery	Iron Age	MER, VA	KM 11821:1-3	Koskimies 1955; Mikkola 1999	
Viurila, Sikomäki	670245	328240	669964	28232	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Viurila, Sikomäki	670244	328240	669963	28232	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vuorentaka, Vankkurimäki	670085	328224	669803	28216	Cairn	Bronze and/or Iron Age			Koskimies 1955; Mikkola 1999	Tuovinen & Vuorinen 1992
Vähätalo					Stray find	Stone Age		KM 6561:1-2		
Ylihäävälä					Stray find	Stone Age		Halikon kotis.museo 6588		
Yttelä, Haavisto-Heikki	670726	328273	670444	28265	Settlement site	Historical Period			Mikkola 1999	
Yttelä, Lampola 2	670720	328211	670439	28203	Cup-marked stone	Iron Age?			Mikkola 1999	
Yttelä, Lampola 2	670711	328221	670429	28213	Settlement site	Iron Age		KM 3316:17; KM 31401	Mikkola 1999	
Yttelä, Lampola 3	670711	328237	670430	28228	Cup-marked stone	Iron Age?			Mikkola 1999	
Yttelä, Lampola 3	670713	328235	670432	28226	Settlement site?	Undated		KM 25383:1-2; KM 31402:1	Mikkola 1999	
Yttelä, Lampola 4	670687	328239	670405	28231	Cup-marked stone	Iron Age?			Mikkola 1999	
Yttelä, Lampola Pajapelto	670723	328205	670441	28197	Cemetery?	Iron Age	VA, CP	KM 2811:1-2; KM 3316:13-14; KM 29606; KM 31400	Appelgren 1896; Koskimies 1955; Mikkola 1999	
Yttelä, Mattila (Ketun-pesänahde) *	670659	328289	670377	28281	Undefined	Undated		KM 31033:1-9; KM 31613:1-9	Mikkola 1998; Mikkola 1999; Strandberg 2000	

Kemiö

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
					Stray find	Stone Age		KM 1754:3		
					Stray find	Stone Age		KM 19232:8		
					Stray find	Stone Age		KM 2503:A12		
					Stray find	Stone Age		KM 5512:16		
					Stray find	Bronze Age	LBA	KM 800		
					Stray find	Stone Age		KM 9281		
					Stray find	Bronze Age	LBA	Sagalundin museo 1001. KM 10816 (copy)		Tallgren 1906
Berga	668614	326991	668334	26983	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Berga, Vestergård					Cup-marked stone?	Iron Age				
Bogsböle	668220	325839	667939	25832	Settlement site	Stone Age	CC	TYA 610:1-6	Asplund 1994	
Bogsböle, Granmossakulla **	668215	325961	667934	25954	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Branten	667121	326633	666841	26625	Settlement site	Stone Age	LNE/EBA	TYA 520:1-4, TYA 589:1-37	Asplund 1992	
Båtkulla	668019	326644	667739	26636	Stray find	Undated		KM 23041:1-3		
Båtkulla, Båtkullaberget	667964	326700	667683	26693	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Dalkarby, Nyhem					Stray find	Undated		KM 25793		
Elmdal, Kummelberget	667845	327012	667565	27005	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Elmdal, Kummelberget	667843	327012	667563	27004	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Elmdal, Kummelberget	667864	327013	667584	27005	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Elmdal, Kummelberget	667861	327014	667581	27006	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Elmdal, Kummelberget	667863	327014	667583	27006	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Elmdal, Långholmen	667896	327060	667616	27052	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Elmdal, Östergård					Stray find	Stone Age		KM 14899		
Engelsby	668121	326204	667841	26197	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Engelsby					Stray find	Stone Age		KM 7098		
Engelsby, Brudbergen	667912	326240	667632	26233	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Engelsby, Brudbergen	667918	326270	667638	26263	Stray find	Stone Age		TYA 579:1	Asplund 1990	
Fröjböle	667798	325705	667518	25698	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Fröjböle, Storhagan	667797	325704	667516	25697	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Gesterby, Johannelund					Stray find	Bronze Age		KM 14652		
Gästerby	668474	326299	668193	26291	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Gästerby	668440	326254	668159	26247	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Gästerby					Stray find	Stone Age	BAT	KM 5512:11-12		

Gästerby, Berghäll	668496	326265	668216	26257	Cairn	Bronze and/or Iron Age			Asplund 1996	
Gästerby, Skrinnanberget	668474	326300	668193	26292	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Gästerby, Smisskullen	668568	326346	668287	26339	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Gästerby, Smisskullen **	668568	326346	668287	26339	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Helgeboda	668485	325338	668205	25331	Stray find	Iron Age		KM 30444		Asplund 1997b: 262
Hulta, Hulta A	668508	326005	668227	25997	Stray find	Stone Age		TYA 609:1-2	Asplund 1994	
Hulta, Hulta B	668499	325979	668218	25972	Settlement site	Stone Age		TYA 609:3-4	Asplund 1994	
Högmo, Mellangård	667555	325626	667274	25619	Settlement site	Stone Age		TYA 479:1-4	Asplund 1989	
Kalkila					Stray find	Stone Age		KM 8837		
Kalkila	668488	326740	668207	26732	Village	Medieval or Post-Medieval		TYA 524:1-14	Asplund 1994	
Kalkila, Smisskullen	668514	326727	668234	26720	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kalkila, Smisskullen	668514	326722	668234	26715	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kila					Stray find	Stone Age		KM 26076		
Kila **	668810	327190	668529	27183	Stray find?	Iron Age	VA	KM 7011		Asplund & Vuorela 1989; Asplund 1997b
Kila, Tegelgård					Stray find	Stone Age	BAT	KM 25340		
Kyrkbyn, Länsmansbergen	667969	326456	667688	26449	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kyrkbyn, Länsmansbergen	667970	326455	667689	26448	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kåddböle **	667519	325739	667239	25732	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kåddböle	667515	325647	667234	25640	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kåddböle	667515	325646	667234	25639	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kåddböle	667457	325746	667177	25738	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kåddböle, Kilskullan **	667428	325625	667148	25618	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kåddböle, Kilskullan **	667428	325625	667148	25618	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Labböle, Labböleträsket	667146	326227	666865	26220	Pollen sample site					
Lappdal, Telegrafberget	668798	326413	668517	26405	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Linnarnäs	667651	326987	667371	26980	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Linnarnäs, Rågholm	667627	327174	667346	27166	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Långvik, Norrlångvik	668008	325887	667727	25880	Stray find	Stone Age		KM 23040		
Löfböle, Vestergård	667835	325306	667554	25299	Stray find	Stone Age		TYA 519:1-3	Asplund 1991	
Lövböle					Stray find	Stone Age?		KM 27021		
Makila	668138	326080	667857	26073	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Makila	668187	326071	667907	26064	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Makila *	668234	326227	667953	26219	Village	Medieval or Post-Medieval		TYA 645:1-10	Asplund 1998	
Makila, Gärdorna	668152	326064	667871	26056	Pollen sample site					

Makila, Majberget	668224	326155	667943	26148	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Makila, Majberget	668222	326164	667941	26156	Tomtning	Undated			Asplund & Saarinen 1998; Asplund 2002	
Makila, Majberget 1	668225	326201	667944	26194	Cairn	Iron Age	VA	TYA 645:11-12	Asplund & Saarinen 1998	Tuovinen & Vuorinen 1992
Makila, Majberget 2	668224	326197	667943	26190	Cairn	Iron Age		TYA 787:1-8	Asplund 2002	Tuovinen & Vuorinen 1992
Makila, Majberget 3	668227	326196	667946	26189	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Makila, Östergård	668148	326208	667868	26200	Cairn	Bronze and/or Iron Age			Asplund 1992	Tuovinen & Vuorinen 1992
Makila, Östergård *	668151	326208	667870	26201	Settlement site	Early Metal Period	PRIA	TYA 522:1-6, TYA 578:1-16	Asplund 1992	
Makila, Östergård	668135	326196	667854	26189	Settlement site	Early Metal Period		TYA 545, TYA 550, TYA 794:1	Asplund 1992; Tuovinen 1992	
Mattkärr	667678	325829	667397	25822	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mattkärr	667678	325828	667397	25821	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mattkärr	667678	325826	667397	25819	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mattkärr, Landäng					Stray find	Stone Age	BAT	KM 10925		
Mattkärr, Mattkärrmalm	667684	325844	667404	25837	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Nordvik, Verkholm	668080	325171	667800	25164	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Nordvik, Verkholm	668079	325169	667799	25162	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Pajböle, Österkulla **	667818	326424	667537	26417	Stray find	Stone Age		KM 27020		
Pederså					Stray find	Stone Age		KM 13935		
Pederså					Stray find	Stone Age		KM 17625		
Pederså, Falla					Stray find	Stone Age		KM 10504		
Pedersjö, Lillgård	667514	326524	667234	26517	Stray find	Stone Age		TYA 521:1	Asplund 1991	
Påvalsby	667885	326015	667604	26008	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Påvalsby	667886	326015	667605	26008	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Påvalsby	667881	326018	667601	26011	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Påvalsby	667850	325981	667570	25974	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Påvalsby	667843	325955	667563	25948	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Påvalsby, Ackokullan	667782	326014	667502	26006	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Rugnola	668576	326827	668295	26820	Village	Medieval or Post-Medieval		TYA 523:1-3	Asplund 1994	
Rugnola, Ilsokärret	668575	326745	668295	26737	Pollen sample site					Asplund & Vuorela 1989
Sjölax	667822	327025	667541	27018	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sjölax, Björnholm	667800	327092	667520	27085	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sjölax, Kummelberget	667810	327036	667530	27028	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sjölax, Kummelberget	667810	327035	667530	27027	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sjölax, Kummelberget	667811	327033	667531	27025	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992

Skålböle **	668154	325528	667874	25521	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Smedsböle, Smedsböle 1	667500	325808	667220	25800	Settlement site	Stone and/or Bronze Age		TYA 650:1-6		
Smedsböle, Smedsböle 2	667454	325759	667174	25752	Charcoal burning or tar extraction site	Historical Period				
Smedsböle, Smedsböle 2	667452	325761	667172	25754	Settlement site	Stone and/or Bronze Age		TYA 651:1-3		
Stenmo, Västerbacka					Stray find	Stone Age	BAT	KM 14538		
Stenmo, Vesterbacka	667678	326271	667397	26264	Stray find	Stone Age	BAT	KM 19232:7		
Söderlångvik					Stray find	Stone Age		KM 1228		
Tavastrona	668721	326952	668441	26944	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tavastrona, Östergård	668785	327029	668504	27021	Stray find	Stone Age	CC	KM 21159		
Tjuda	668449	326267	668168	26260	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tjuda	668374	326170	668094	26163	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tjuda	668373	326170	668093	26163	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tjuda					Stray find	Stone Age				
Tjuda					Stray find	Undated				
Tjuda					Stray find	Undated				
Tjuda	668455	326260	668175	26252	Cairn	Bronze and/or Iron Age		KM 2503A:19 or 20		Tuovinen & Vuorinen 1992
Tjuda	668456	326262	668176	26254	Cairn	Bronze and/or Iron Age		KM 2503A:19 or 20		Tuovinen & Vuorinen 1992
Tjuda, Tjuda Klobben	668345	326275	668064	26267	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tjuda, Tjuda Klobben **	668345	326275	668064	26267	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tolvsnäs, Iso-Humu	668154	325019	667873	25012	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Torsböle					Stray find	Stone Age		KM 5448:1		
Trotby	668457	326499	668176	26492	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Träskböle, Svartträsket **	668643	326452	668362	26444	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Träskböle, Svartträsket	668663	326481	668382	26473	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Träskböle, Svartträsket	668659	326481	668378	26474	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Träskböle, Svartträsket	668655	326483	668374	26476	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Träskböle, Österängsberget	668535	326453	668254	26445	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Träskböle, Österängsberget	668538	326453	668257	26445	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vestlax	666993	326284	666713	26277	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vestlax, Vestergård					Stray find	Stone Age		KM 25338		
Viksgård **	668722	326480	668441	26473	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Viksgård **	668722	326480	668441	26473	Cairn	Bronze and/or Iron Age				
Viksgård **	668742	326476	668461	26469	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Viksgård	668810	326456	668529	26449	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992

Viksgård	668813	326450	668533	26443	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Viksgård	668696	326499	668415	26492	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Viksvidja					Stray find	Undated		KM 20574		
Viksvidja, Mossdalen	668204	326721	667924	26714	Pollen sample site					Asplund & Vuorela 1989
Villkärr					Stray find	Stone Age		KM 2503A:12		
Vreta **	667961	326145	667680	26138	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vreta	667924	326052	667643	26045	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vreta	667925	326056	667644	26049	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vreta	667930	326101	667649	26093	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vreta, Jättekastberget	667903	326132	667623	26125	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vreta, Jättekastberget	667898	326134	667618	26127	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vreta, Jättekastberget	667900	326133	667620	26126	Cairn	Bronze and/or Iron Age		KM 2503A:18		Tuovinen & Vuorinen 1992
Vreta, Mörkdalsberget	667894	326029	667613	26022	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vreta, Mörkdalsberget	667903	326039	667623	26032	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vreta, Mörkdalsberget	667903	326040	667623	26033	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vreta, Teglars					Stray find	Stone Age		KM 14653		
Västermark	667281	326203	667001	26196	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Västermark **	667282	326201	667002	26194	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Västermark **	667327	326196	667047	26189	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Östermark	667464	326286	667183	26278	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Östermark **	667453	326265	667173	26258	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Östermark	667442	326257	667162	26249	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Östermark	667430	326238	667149	26231	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Östermark	667452	326293	667172	26286	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Östermark					Stray find	Stone Age		KM 15100		
Östermark	667450	326307	667169	26300	Stray find	Stone Age		KM 19232:1-4		
Östermark	667456	326332	667176	26324	Stray find	Stone Age		KM 19232:5		
Östermark	667431	326270	667151	26263	Stray find	Stone Age		KM 19232:6		
Östermark					Stray find	Stone Age		KM 20573		
Östermark, Nedergård					Stray find	Stone Age		KM 19747:1-3		
Östermark, Nedergård	667448	326300	667168	26293	Settlement site	Stone Age	LNE/ EBA	TYA 261:1-4, TYA 274:1-17, TYA 326:1-4, TYA 368:1-2, TYA 415	Asplund 1985; Asplund 1985; Asplund 1987	
Östermark, Österbacka					Stray find	Stone Age		KM 12702		
Östermark, Österbacka	667390	326373	667110	26365	Settlement site	Stone Age		TYA 480:1-2	Asplund 1989	

Kuusjoki

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
					Stray find	Historical Period		KM 3187:56		
					Stray find	Stone Age		KM 6378:1		
Hämäläinen, Ali-Härri	671971	329423	671689	29414	Holy well	Historical Period			Laakso 1997	
Impola					Stray find	Historical Period		KM 3187:33		
Impola, Katinhännänoja	671789	328910	671507	28901	Settlement site?	Stone Age		KM 30673	Laakso 1997	
Impola, Nummila	671701	328800	671419	28792	Stray find	Stone Age		KM 19099	Sarvas 1974; Laakso 1997	
Kanunki, Matasvuori	671908	330014	671626	30005	Cairn	Undated			Sarvas 1974; Laakso 1997	
Kurkela, Kirkonmäki	671831	329255	671548	29246	Cairn	Undated			Sarvas 1974; Laakso 1997	
Kurkela, Kivimäki	671712	329312	671430	29303	Cairn?	Post-Medieval			Sarvas 1974; Laakso 1997	
Kurkela, Murronaukea *	671661	329215	671379	29207	Stray find	Stone Age		KM 30672	Laakso 1997	
Kuttila, Korvenoja	672048	329683	671766	29674	Holy well	Historical Period			Laakso 1997	
Kuusjoenperä					Stray find	Historical Period		KM 3087		
Kuusjoenperä, Mäenalusta					Stray find	Stone Age		HM 1238:44-45	Sarvas 1974; Laakso 1997	
Nummenjärvi					Boat find	Undated			Laakso 1997	Oja 1961
Pappila, Kylänpää	671868	329209	671586	29200	Pit-trap	Post-Medieval			Laakso 1997	
Pappila, Lautkoski	672231	329205	671949	29197	Stray find	Stone and/or Bronze Age		Kuusjoen Ylikulman koulun kokoelmat	Sarvas 1974; Laakso 1997	
Pappila, Puromäki	672078	329239	671795	29231	Charcoal burning or tar extraction site	Historical Period			Laakso 1997	
Raatala					Stray find	Stone Age			Sarvas 1974; Laakso 1997	
Raatala, Jaakkola					Stray find	Undated		TYA 110		
Raatala, Kaupinlinna	672298	328777	672016	28768	Settlement site	Medieval?			Sarvas 1974; Laakso 1997	
Raatala, Kulmala	671974	329087	671692	29079	Cairn	Undated			Sarvas 1974; Laakso 1997	
Raatala, Linnamäki	671873	328867	671591	28859	Hillfort?	Undated			Sarvas 1974; Laakso 1997	
Raatala, Rajakankare	672428	328627	672146	28619	Charcoal burning or tar extraction site	Historical Period			Laakso 1997	
Skraatarla, Yli-Jama					Stray find	Stone Age		KM 2823:3		
Tiskarla, Kauriala	671936	329612	671654	29604	Cairn	Undated			Sarvas 1974; Laakso 1997	
Tiskarla, Korpivaara	672279	329302	671997	29293	Pit-trap	Historical Period			Sarvas 1974; Laakso 1997	
Tiskarla, Ojaranta	672287	329284	672005	29275	Pit-trap	Undated			Laakso 1997	
Tiskarla, Rauharanta	672055	329426	671773	29417	Pit-trap	Historical Period			Sarvas 1974; Laakso 1997	
Vähäjärvi					Boat find	Undated			Laakso 1997	Oja 1961

Muurla

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
	670285	329241	670003	29232	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669604	329772	669323	29763	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669608	329771	669327	29762	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669599	329774	669318	29766	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669600	329776	669319	29768	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669603	329777	669322	29768	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669599	329777	669318	29769	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669600	329777	669319	29769	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669599	329782	669318	29774	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669599	329783	669318	29775	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669691	329775	669409	29767	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669673	329809	669392	29800	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669523	329831	669242	29822	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669533	329813	669251	29805	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	

	669557	329740	669276	29732	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669548	329746	669267	29737	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
	669536	329721	669255	29713	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
					Stray find	Stone Age		Kirkonkylän kansakoulu	Huurre 1965	
					Stray find	Stone Age	MES	Kirkonkylän kansakoulu	Huurre 1965	
					Stray find	Stone Age	BAT	Kirkonkylän kansakoulu	Huurre 1965	
					Stray find	Undated		Kirkonkylän kansakoulu	Huurre 1965	
					Stray find	Stone Age	MES	Pirkkalan kirkonpiirin kansakoulu	Huurre 1965	
					Stray find	Stone Age		Pirkkalan kirkonpiirin kansakoulu	Huurre 1965	
					Stray find	Stone Age		Pirkkalan kirkonpiirin kansakoulu	Huurre 1965	
					Stray find	Stone Age		Pirkkalan kirkonpiirin kansakoulu	Huurre 1965	
					Stray find?	Stone Age		Salon yhteiskoulu	Huurre 1965	
Harjula, Kirjola					Stray find	Stone Age	BAT	KM 2436:11-13	Huurre 1965	
Iso-Pukkila					Stray find	Stone Age		KM 3187:9	Huurre 1965	
Järvi, Hankkaannummi	670429	329550	670147	29541	Settlement site	Stone Age		KM 16330:1-3; KM 16502:1-3; KM 33343	Huurre 1965; Laukkanen 2003	
Järvi, Hankkaannummi 2	670477	329545	670196	29536	Undefined pit site	Undated			Huurre 1965; Laukkanen 2003	
Järvi, Hankkaannummi 3	670455	329545	670174	29536	Charcoal burning or tar extraction site	Historical Period			Laukkanen 2003	
Järvi, Hossanummi	670367	329472	670086	29463	Settlement site	Stone Age		KM 14752; KM 15905:1-10; KM 17095:1-3; KM 17506:1-3; KM 17851; KM 28834:1-147; KM 29575:1-138	Huurre 1965; Laukkanen 2003	
Järvi, Ilola II	670311	329447	670030	29439	Stray find	Stone Age		KM 15911:1-2	Huurre 1965; Laukkanen 2003	
Järvi, Ilola III	670317	329445	670035	29437	Settlement site?	Stone Age		KM 16113:1-7	Huurre 1965; Laukkanen 2003	
Järvi, Kelola *	670305	329460	670024	29451	Settlement site	Stone Age		KM 15912:1-7	Huurre 1965; Laukkanen 2003	
Järvi, Klipparinahde	670385	329434	670104	29425	Settlement site?	Stone Age		KM 15903:1-4; KM 33346:1-3	Huurre 1965; Laukkanen 2003	
Järvi, Klipparinnummi	670359	329452	670078	29444	Settlement site?	Stone Age		KM 15904:1-7	Huurre 1965; Laukkanen 2003	

Järvi, Koivisto	670367	329499	670086	29490	Settlement site	Stone Age		KM 15906:1-3; KM 28675:1-4; KM 28834:1-147	Huurre 1965; Laukkanen 2003	
Järvi, Koivisto	670354	329498	670073	29490	Stray find	Stone Age		KM 15906:4	Huurre 1965	
Järvi, Kotopelto	670359	329463	670077	29455	Settlement site?	Stone Age		KM 16114:1-5	Huurre 1965; Laukkanen 2003	
Järvi, Lepikkö					Stray find	Undated		KM 16507	Huurre 1965	
Järvi, Linnamäki	670299	329336	670018	29328	Hillfort	Undated			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Appelgren 1891: 71-72
Järvi, Lähdeahde	670381	329459	670099	29451	Stray find	Stone Age		KM 16503:1-2	Huurre 1965; Laukkanen 2003	
Järvi, Lähdeniemi	670351	329521	670070	29512	Stray find	Stone Age		KM 16334	Huurre 1965; Laukkanen 2003	
Järvi, Metsola	670299	329420	670017	29411	Settlement site?	Stone Age		KM 15913; KM 16329; KM 16754	Huurre 1965; Laukkanen 2003	
Järvi, Metsolanpelto	670324	329457	670043	29448	Settlement site	Stone Age	BAT	KM 15910:1-4; KM 19512:1-3; KM 19640:1-4; KM 19860:1-14; KM 19955:1-6	Huurre 1965; Söyrinki-Harmo 1977; Laukkanen 2003	
Järvi, Mummunketo					Stray find	Stone Age		KM 2502:1	Huurre 1965; Laukkanen 2003	
Järvi, Myllypelto	670290	329522	670009	29514	Settlement site?	Stone Age		KM 16117:1-3	Huurre 1965; Laukkanen 2003	
Järvi, Mäkilä					Stray find?	Stone Age			Huurre 1965	
Järvi, Mölkkäri					Stray find	Stone Age		KM 15915	Huurre 1965	
Järvi, Ojakko					Stray find	Stone Age	BAT	KM 5984	Huurre 1965	
Järvi, Ojakko					Stray find	Stone Age		KM 6067:1	Huurre 1965	
Järvi, Ojakko					Stray find	Stone Age		KM 6173	Huurre 1965	
Järvi, Ojakontaustan pelto	670353	329479	670072	29470	Settlement site?	Stone Age		KM 16335; KM 16504:1-3	Huurre 1965; Laukkanen 2003	
Järvi, Pajari					Stray find?	Stone Age			Huurre 1965	
Järvi, Terholanpelto **	670342	329460	670061	29451	Settlement site	Stone Age	BAT	KM 15909:1-4; KM 16755; KM 19639:1-2	Huurre 1965; Laukkanen 2003	
Järvi, Turvaoja					Stray find?	Stone Age			Huurre 1965	
Järvi, Töyrylä	670277	329434	669996	29425	Settlement site	Stone Age		KM 16115:1-5; KM 16506:1-2; KM 33327:1-2	Huurre 1965; Laukkanen 2003	
Järvi, Uusipelto	670320	329506	670038	29497	Settlement site?	Stone Age		KM 16116:1-5; KM 33347	Huurre 1965; Laukkanen 2003	
Järvi, Vartjomäki	670333	329503	670052	29495	Settlement site	Stone Age		KM 15907:1-9; KM 16505:1-4; KM 17097:1-4	Huurre 1965; Laukkanen 2003	
Järvi, Vehkaoja					Stray find	Undated		KM 17098		
Järvi, Vironkoukku					Stray find	Stone Age		KM 15908	Huurre 1965	
Järvi, Vähämetsä	670254	329416	669972	29407	Stray find	Stone Age		KM 15914	Huurre 1965; Laukkanen 2003	
Kaivonpyöli					Stray find	Stone Age		KM 7300:1; Perniön museo 42:1	Huurre 1965	
Kaivonpyöli, Lehti	669608	329342	669327	29333	Settlement site?	Stone Age		KM 15959:1-3	Huurre 1965; Laukkanen 2003	
Kaivonpyöli, Lehti					Stray find	Stone Age		Muurlan museo	Huurre 1965	

Kaukelmaa, Hakola					Stray find	Stone Age		KM 15928; KM 16124	Huurre 1965; Laukkanen 2003	
Kaukelmaa, Mansikkaniemi					Stray find?	Stone Age			Huurre 1965	
Kaukelmaa, Mäntylä					Stray find	Stone Age	MES	KM 16232	Huurre 1965; Laukkanen 2003	
Kaukelmaa, Paltta	670084	329655	669802	29646	Stray find	Stone Age		KM 16123	Huurre 1965; Laukkanen 2003	
Kaukelmaa, Reimala *	670096	329782	669815	29774	Settlement site	Stone Age		KM 15929; KM 16425; KM 16522; KM 16987; KM 33331	Huurre 1965; Laukkanen 2003	
Kaukelmaa, Siankuopanmäki	669851	329896	669570	29887	Cairn?	Bronze and/or Iron Age			Laukkanen 2003	
Kaukelmaa, Siankuopanmäki	669847	329890	669565	29881	Undefined	Undated			Laukkanen 2003	
Kaukelmaa, Siankuopanmäki	669848	329893	669567	29884	Undefined	Undated			Laukkanen 2003	
Kaukola					Stray find	Stone Age	BAT	Kaukolan kansakoulu	Huurre 1965	
Kaukola					Stray find	Stone Age		Kaukolan kansakoulu	Huurre 1965	
Kaukola					Stray find	Stone Age		Kaukolan kansakoulu	Huurre 1965	
Kaukola					Stray find	Stone Age		Kaukolan kansakoulu	Huurre 1965	
Kaukola					Stray find	Stone Age		Kaukolan kansakoulu	Huurre 1965	
Kaukola, Eskola	669637	329481	669356	29472	Stray find	Stone Age		KM 15964:1-3; KM 33341	Huurre 1965; Laukkanen 2003	
Kaukola, Hakaveräjänpelto					Stray find?	Stone Age			Huurre 1965; Laukkanen 2003	
Kaukola, Kylä-Havula	669633	329463	669351	29455	Settlement site	Stone Age		KM 15965:1-5; KM 16143; KM 17508:1-2	Huurre 1965; Laukkanen 2003	
Kaukola, Leppäkoski					Stray find	Stone Age		KM 3163:1	Huurre 1965	
Kaukola, Pompari					Stray find	Stone Age		Muurlan Kirkonkylän kansakoulu	Huurre 1965	
Kaukola, Santasaari	669516	329554	669235	29546	Stray find	Stone Age		KM 15966	Huurre 1965; Laukkanen 2003	
Kaukola, Töyrälä					Stray find	Stone Age		KM 3684:12	Huurre 1965	
Kirkonkylä					Stray find	Stone Age		KM 12104	Huurre 1965	
Kirkonkylä, Fiulmaakarin-ahde *	669783	329586	669502	29578	Settlement site?	Stone Age		KM 15941:1-3; KM 33334:1-2	Huurre 1965; Laukkanen 2003	
Kirkonkylä, Isotalo					Stray find	Stone Age		KM 2398	Huurre 1965	
Kirkonkylä, Jokiranta	669896	329513	669614	29505	Settlement site	Stone and/or Bronze Age	LNE/ EBA	KM 6548:1; KM 15937:1-23; KM 16510:1-8; KM 16762:1-7	Huurre 1965; Laukkanen 2003	
Kirkonkylä, Kaunela	669867	329434	669586	29425	Stray find	Stone Age		KM 15938	Huurre 1965; Laukkanen 2003	
Kirkonkylä, Koskela	669795	329578	669513	29569	Settlement site?	Stone Age	MES	KM 11574; KM 15940:1-3	Huurre 1965; Laukkanen 2003	
Kirkonkylä, Kotimäki	669885	329442	669604	29433	Stray find	Stone Age		Muurlan kotiseutumuseo	Huurre 1965; Laukkanen 2003	
Kirkonkylä, Lehtimäki *	669925	329449	669644	29440	Settlement site?	Stone Age		KM 33352:1-6	Laukkanen 2003	
Kirkonkylä, Muurlanjoki					Boat find	Undated			Huurre 1965	
Kirkonkylä, Nikula	669787	329428	669506	29420	Settlement site	Stone Age		KM 15942:1-5	Huurre 1965; Laukkanen 2003	
Kirkonkylä, Puistokankare	669805	329487	669524	29479	Settlement site?	Stone Age		KM 15939:1-2; KM 33333:1-5	Huurre 1965; Laukkanen 2003	

Kirkonkylä, Pyymäki	669912	329426	669630	29417	Cairn	Bronze and/or Iron Age			Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Kirkonkylä, Pyymäki	669912	329426	669630	29417	Cairn	Bronze and/or Iron Age			Laukkanen 2003	Tallgren 1931: 150
Kirkonkylä, Saarenpää *	669793	329479	669512	29470	Settlement site	Stone Age		KM 33348:1-4; Muurlan kotis. museo 13, 14, 123, 151, 152	Huurre 1965; Laukkanen 2003	
Kirkonkylä, Seurala II	669883	329446	669602	29437	Stray find	Stone Age	BAT	KM 14959	Huurre 1965	
Kirkonkylä, Varemäki	669876	329394	669595	29386	Cairn	Bronze and/or Iron Age			Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Kirkonkylä, Varemäki 2 *	669869	329378	669588	29370	Undefined	Undated		KM 33353:1-7	Laukkanen 2003	
Kirkonkylä, Varemäki 3 *	669862	329378	669581	29369	Settlement site?	Stone Age		KM 33354:1-6	Laukkanen 2003	
Kistola					Stray find	Stone Age		KM 12103	Huurre 1965	
Kistola					Stray find	Historical Period		KM 6775:1		
Kistola, Alho	669795	329254	669514	29246	Settlement site	Stone Age	BAT	KM 15943:1-4	Huurre 1965; Laukkanen 2003	
Kistola, Hankelinin pelto	669696	329307	669415	29298	Settlement site?	Stone Age		KM 15944:1-10	Huurre 1965; Laukkanen 2003	
Kistola, Harimäki	669250	338362	668969	38350	Stray find	Stone Age		KM 3187:10; KM 15945	Huurre 1965; Laukkanen 2003	
Kistola, Kiiliä	669716	329494	669435	29486	Settlement site?	Stone Age		KM 3187:7; KM 15948:1-4; KM 33336	Huurre 1965; Laukkanen 2003	
Kistola, Knaapi					Undefined	Historical Period		KM 6239		
Kistola, Koivuniemi	669422	329792	669141	29783	Stray find	Stone Age		KM 6905:4; KM 15950	Huurre 1965	
Kistola, Lamminjärvi					Boat find	Undated			Huurre 1965	
Kistola, Lehtikankare					Stray find	Stone Age		KM 33326:1	Laukkanen 2003	
Kistola, Lehtikankare					Stray find	Historical Period?		KM 33326:2	Laukkanen 2003	
Kistola, Lehtokari					Stray find	Undated		Muurlan kirkonkylän kansakoulu	Huurre 1965	
Kistola, Myllymäki	669744	329376	669463	29368	Stray find	Stone Age?		KM 15946:1-2	Huurre 1965; Laukkanen 2003	
Kistola, Männyntöyräs	669761	329487	669480	29479	Settlement site	Stone Age		KM 15947:1-15; KM 33335	Huurre 1965; Laukkanen 2003	
Kistola, Pang					Stray find	Historical Period		KM 6047		
Kistola, Pangi					Stray find	Stone Age		KM 3187:6	Huurre 1965	
Kistola, Pangi	669780	329378	669499	29369	Stray find?	Undated		KM 33350	Laukkanen 2003	
Kistola, Pangi					Stray find	Stone Age		KM 6867	Huurre 1965	
Kistola, Pankki					Stray find	Historical Period		KM 6775:2		
Kistola, Peltoniemi	669606	329320	669325	29311	Settlement site	Stone Age		KM 6766:3; KM 15949:1-3	Huurre 1965; Laukkanen 2003	
Kistola, Saariluoma					Stray find	Stone Age		KM 6548:2	Huurre 1965; Laukkanen 2003	
Kistola, Tieva					Stray find	Stone Age		KM 6762:2	Huurre 1965	
Kistola, Toramäki	669945	329260	669664	29252	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Kistola, Toramäki	669941	329262	669660	29253	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992

Kistola, Toramäki	669941	329262	669660	29254	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Kistola, Toramäki	669940	329263	669659	29254	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Kistola, Toramäki	669935	329264	669654	29255	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Kistola, Toramäki	669935	329263	669654	29254	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Kistola, Toramäki	669925	329294	669643	29286	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Laukkanen 2003	Tuovinen & Vuorinen 1992
Kistola, Toramäki	669935	329262	669653	29254	Cairn?	Bronze and/or Iron Age			Huurre 1965; Laukkanen 2003	
Kistola, Tuomola					Stray find	Stone Age		KM 3187:8	Huurre 1965	
Koski, Granbacka	670189	329581	669908	29572	Stray find	Stone Age		KM 16324:1-2	Huurre 1965; Laukkanen 2003	
Koski, Kansakoulu					Stray find	Stone Age		KM 19624		
Koski, Ketomäki *	670171	329607	669890	29598	Settlement site	Stone Age	CC	KM 15930:1-10; KM 16509:1-4; KM 16625; KM 16761:1-28; KM 17507:1-3; KM 33332:1-3	Huurre 1965; Laukkanen 2003	
Koski, Kosken kansakoulu					Stray find	Stone Age		KM 6105:3; Kosken kansakoulu	Huurre 1965; Laukkanen 2003	
Koski, Koski 1	670211	329596	669929	29587	Settlement site?	Stone Age		KM 16326:1-4	Huurre 1965; Laukkanen 2003	
Koski, Koski 2 *	670213	329557	669932	29549	Settlement site	Stone Age		KM 16759:1-18	Huurre 1965; Laukkanen 2003	
Koski, Mänskankare					Stray find	Undated		KM 16125	Huurre 1965	
Koski, Nummila	670122	329593	669840	29584	Stray find	Stone Age		KM 16126	Huurre 1965; Laukkanen 2003	
Koski, Ojantöörä					Stray find	Undated		KM 16758		
Koski, Päivölä	670130	329577	669849	29568	Stray find?	Stone Age	BAT		Huurre 1965; Laukkanen 2003	
Koski, Pöytäluhto	670441	329707	670159	29699	Stray find	Stone Age		KM 33349:1	Laukkanen 2003	
Koski, Pöytäluhto	670429	329698	670148	29689	Stray find?	Undated		KM 33349:2	Laukkanen 2003	
Koski, Riihenpelto *	670243	329537	669961	29528	Settlement site?	Stone Age		KM 16760:1-5	Huurre 1965; Laukkanen 2003	
Koski, Sahanummi	670094	329619	669813	29610	Settlement site	Stone Age		KM 15931:1-5; KM 16325:1-2	Huurre 1965; Laukkanen 2003	
Koski, Urheilukenttä	670075	329605	669794	29596	Settlement site?	Stone Age		KM 33351:1-3	Laukkanen 2003	
Pullola					Stray find	Undated		KM 16899:1-3		
Pullola					Stray find	Stone Age		TMM / Linderin kokoelma 184		
Pullola					Stray find	Stone Age		TMM / Linderin kokoelma 185		
Pullola					Stray find	Stone Age		TMM / Linderin kokoelma 186		
Pullola, Isotupa	669684	329216	669403	29208	Settlement site?	Stone Age		KM 15956; KM 33337:1-3	Huurre 1965; Laukkanen 2003	

Pullola, Kankarpyöli	669586	329310	669304	29301	Settlement site	Stone Age	BAT	KM 15958:1-2,4-6	Huurre 1965; Laukkanen 2003	
Pullola, Kankarpyöli	669586	329310	669304	29301	Stray find	Iron Age?		KM 15958:3	Huurre 1965; Laukkanen 2003	
Pullola, Riihenmäki	669669	329259	669388	29250	Cairn	Iron Age	PRIA	KM 15957:1-6	Huurre 1965; Laukkanen 2003	Meinander 1969: 44
Pullola, Ruohola	669683	329190	669402	29182	Stray find	Stone Age		KM 15955	Huurre 1965; Laukkanen 2003	
Pullola, Vähätalo					Stray find?	Bronze Age?			Huurre 1965	
Pullola, Ylöstupa					Stray find	Stone Age		KM 4171:6-7	Huurre 1965	
Pyöli, Hakala					Stray find	Stone Age		KM 6992:1-2	Huurre 1965; Laukkanen 2003	
Pyöli, Kausto *	669905	329606	669624	29597	Settlement site?	Stone Age		KM 15933:1-3	Huurre 1965; Laukkanen 2003	
Pyöli, Koivumäki	669921	329526	669640	29517	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Pyöli, Koivumäki	669914	329527	669633	29519	Cairn	Bronze and/or Iron Age			Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Pyöli, Kotilampi *	669790	329606	669509	29597	Settlement site	Stone Age		KM 17096:1-3; KM 33345:1-4	Laukkanen 2003	
Pyöli, Kuturmäki	669886	329548	669605	29539	Cairn?	Bronze and/or Iron Age			Huurre 1965	Tuovinen & Vuorinen 1992
Pyöli, Kuturmäki	669903	329542	669621	29533	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Pyöli, Kuturmäki	669903	329540	669621	29531	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Pyöli, Kuturmäki	669893	329544	669612	29536	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Pyöli, Kuturmäki	669892	329546	669611	29538	Cairn	Bronze and/or Iron Age			Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tuovinen & Vuorinen 1992
Pyöli, Kuturmäki	669905	329536	669623	29527	Cairn	Bronze and/or Iron Age		KM 2500:11	Hirviluoto 1962; Huurre 1965; Laukkanen 2003	Tallgren 1931: 150-151; Tuovinen & Vuorinen 1992
Pyöli, Kuturmäki 2 **	669882	329541	669601	29532	Settlement site	Stone and/or Bronze Age		KM 15936:1-10	Huurre 1965; Laukkanen 2003	
Pyöli, Metssiantöyräs	669761	329696	669480	29687	Settlement site?	Stone Age		KM 12102; KM 15935	Huurre 1965; Laukkanen 2003	
Pyöli, Takapelto					Stray find?	Undated			Huurre 1965	
Pyöli, Uudensuontöyräs	669791	329689	669509	29680	Settlement site?	Stone Age		KM 15934:1-2	Huurre 1965; Laukkanen 2003	
Pyöli, Ylhäinen					Stray find?	Undated		Kosken koulu	Huurre 1965; Laukkanen 2003	
Pyöli, Yrjälä					Stray find?	Stone Age			Huurre 1965	
Ranta, Knuutinpelto *	670103	329519	669822	29510	Settlement site	Stone Age		KM 16757:1-4; KM 33344	Huurre 1965; Laukkanen 2003	
Ranta, Koskimäenpelto	670164	329526	669882	29517	Settlement site	Stone Age		KM 16128:1-17; KM 16331; KM 16332; KM 17099	Huurre 1965; Laukkanen 2003	
Ranta, Saarelma					Stray find	Stone Age	BAT	KM 15932	Huurre 1965	
Ranta, Taponpelto	670111	329540	669829	29532	Settlement site?	Stone Age		KM 4596:2; KM 16127:1-7	Huurre 1965; Laukkanen 2003	
Ruotsala, Hentu **	670286	329652	670005	29643	Stray find	Stone Age?		KM 28678:1-3; KM 28679:1-5	Laukkanen 2003	
Ruotsala, Hietamäki *	670220	329723	669938	29714	Settlement site	Stone Age		KM 27672:1-13; KM 28683:1-4; KM 29574:1-98	Laukkanen 2003	

Ruotsala, Juva					Stray find	Undated		KM 15923:1-2	Huurre 1965	
Ruotsala, Juva					Stray find	Stone Age		KM 16752	Huurre 1965	
Ruotsala, Kivioja					Stray find?	Stone Age			Huurre 1965	
Ruotsala, Knaapi					Stray find	Undated		KM 15924	Huurre 1965	
Ruotsala, Knaapi *	670263	329677	669981	29669	Stray find	Stone Age?		KM 28680:1-4	Laukkanen 2003	
Ruotsala, Knaapi					Stray find	Stone Age		KM 3087:19		
Ruotsala, Kuturamäki	670201	329718	669920	29709	Settlement site	Stone Age		KM 28681:1-7; KM 28684:1-2; KM 29925:1-2	Laukkanen 2003	
Ruotsala, Laurila	670299	329629	670018	29620	Stray find	Stone Age?		KM 16121:1-2; KM 28677:1-4	Huurre 1965; Laukkanen 2003	
Ruotsala, Luntlan makasiini					Stray find	Undated		Kosken kansakoulu	Huurre 1965; Laukkanen 2003	
Ruotsala, Pajuoja					Stray find	Stone Age	MES	KM 15926	Huurre 1965	
Ruotsala, Piiljärvi					Boat find	Undated			Huurre 1965	
Ruotsala, Päivärinta					Stray find	Stone Age		KM 15919	Huurre 1965	
Ruotsala, Ruotsalanjoki					Boat find	Undated			Huurre 1965	
Ruotsala, Ruotsalanjoki	670271	329689	669990	29680	Stray find	Undated		KM 14962	Huurre 1965; Laukkanen 2003	
Ruotsala, Ruotsalanjoki	670271	329689	669990	29680	Stray find	Stone Age		KM 9004:1-2	Huurre 1965; Laukkanen 2003	
Ruotsala, Rytkönpää					Stray find	Stone Age		KM 14751	Huurre 1965	
Ruotsala, Rytkönpää	670129	329776	669848	29768	Stray find	Stone Age		KM 15925	Huurre 1965; Laukkanen 2003	
Ruotsala, Santaoja	670213	329848	669932	29840	Settlement site	Undated	MES	KM 16122:1-2; KM 16333:1-4; KM 16336:1-2; KM 16337; KM 16508:1; KM 16753; KM 33330:1-6.	Huurre 1965; Laukkanen 2003	
Ruotsala, Sillanpäänpelto	670268	329701	669986	29692	Stray find	Stone Age		KM 15922	Huurre 1965; Laukkanen 2003	
Ruotsala, Torkkelinpelto	670184	329871	669903	29862	Stray find	Stone Age		KM 16508:2		
Ruotsala, Viisas	670302	329685	670020	29676	Stray find	Stone Age		KM 15921	Huurre 1965; Laukkanen 2003	
Ruotsala, Viisas *	670289	329676	670008	29667	Settlement site	Stone Age		KM 28682:1-5; KM 33329	Laukkanen 2003	
Ruotsala, Virstantolpan ahde					Stray find	Stone Age		KM 15927	Huurre 1965	
Ruotsala, Vähä-Rytkö					Stray find?	Stone Age		KM 14751	Huurre 1965	
Ruotsala, Ylijoki	670304	329706	670022	29697	Settlement site?	Stone Age		KM 15920:1-4	Huurre 1965; Laukkanen 2003	
Suoloppi, Kotikoivunnummi	670110	329437	669828	29428	Settlement site	Early Metal Period	PRIA	KM 15916:1-4	Huurre 1965; Laukkanen 2003	Meinander 1969: 45
Suoloppi, Kotopelto	670113	329448	669832	29439	Settlement site?	Stone and/or Bronze Age		KM 15917:1-8	Huurre 1965; Laukkanen 2003	
Suoloppi, Kuopanpelto	670120	329435	669838	29427	Settlement site?	Stone Age		KM 16118:1-4	Huurre 1965; Laukkanen 2003	
Suoloppi, Lamminketo					Stray find?	Stone Age			Huurre 1965	
Suoloppi, Leevintöörä	670098	329443	669817	29434	Settlement site?	Stone Age		KM 16119	Huurre 1965; Laukkanen 2003	
Suoloppi, Mäntylä	670132	329439	669850	29430	Stray find	Iron Age			Huurre 1965	
Suoloppi, Mäntylä	670140	329424	669859	29416	Stray find	Stone Age?		KM 16328	Huurre 1965; Laukkanen 2003	

Suoloppi, Tuuliranta	670134	329456	669852	29447	Stray find	Undated		KM 14889	Huurre 1965	
Suoloppi, Tuulmoottorin-pelto	670062	329434	669780	29425	Settlement site?	Stone Age		KM 16120; KM 16327:1-3; KM 16756:1-2; KM 33328	Huurre 1965; Laukkanen 2003	
Suoloppi, Vanhatalo	670028	329381	669747	29373	Settlement site?	Stone Age		KM 15918:1-4	Huurre 1965; Laukkanen 2003	
Vähä-Pullola	669650	329189	669369	29180	Stray find	Stone Age		KM 14960; KM 15952	Huurre 1965; Laukkanen 2003	
Vähä-Pullola, Prännäri	669666	329093	669384	29085	Settlement site	Stone Age	BAT	KM 10642:1-2; KM 15951:1-4; KM 20595:1-25; KM 20600:1-2; KM 33338:1-2	Huurre 1965; Laukkanen 2003	
Vähä-Pullola, Supparanta	669610	329256	669329	29247	Stray find	Iron Age?		KM 15953	Huurre 1965; Laukkanen 2003	
Vähä-Pullola, Takala					Stray find	Stone Age		KM 15954	Huurre 1965; Laukkanen 2003	
Äijälä					Stray find	Stone Age		KM 21714		
Äijälä, Alajärvi					Stray find?	Undated			Huurre 1965	
Äijälä, Alajärvi					Stray find	Undated		KM 14961	Huurre 1965	
Äijälä, Alasjärvi					Stray find	Iron Age?		KM 6766:5	Huurre 1965	
Äijälä, Alasjärvi					Stray find	Iron Age?		KM 6988	Huurre 1965	
Äijälä, Heinäkari *	669590	329135	669308	29127	Cemetery	Iron Age	MIG	KM 2589:1-4; KM 6762:3-4; KM 7014; KM 7096:1-4	Schvindt 1888; Hackman 1916; Huurre 1965; Laukkanen 2003	
Äijälä, Heinäkari	669576	329140	669295	29132	Stray find	Undated		KM 33342	Laukkanen 2003	
Äijälä, Jussila					Stray find	Stone Age	BAT	KM 2436:9	Huurre 1965	
Äijälä, Jäppi **	669559	329122	669278	29113	Settlement site	Stone Age		KM 4409:1; KM 15961:1-3; KM 15962:1-6; KM 33339:1-2	Huurre 1965; Laukkanen 2003	
Äijälä, Kanturi	669511	329337	669230	29328	Settlement site	Stone Age		KM 15963:1-7; KM 33340:1-2	Huurre 1965; Laukkanen 2003	
Äijälä, Keskitalo					Stray find	Stone Age		KM 6766:4	Huurre 1965	
Äijälä, Kotopelto	669572	329142	669291	29134	Stray find	Iron Age	VA	KM 4409:2	Huurre 1965	
Äijälä, Kotopelto	669572	329142	669291	29134	Stray find	Iron Age		KM 4593:11	Huurre 1965	
Äijälä, Saari					Stray find	Stone Age	BAT	KM 15960	Huurre 1965	

Nauvo

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
					Stray find?	Stone Age	BAT	KM 6801:1		
					Stray find?	Undated		KM 6801:2		
					Stray find?	Undated		KM 6801:3		
					Boat find	Undated		KM kt 8703		
Dalkarby	668264	322376	667983	22371	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Dalkarby, Björkholm **	668006	322454	667725	22449	Stray find	Iron Age	CP	KM 5215		Meinander 1983: 237; Fagerlund 1992; Tuovinen 1994: 40
Ernholm, Ernholmsberget	668583	321837	668303	21831	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Finby					Boat find	Undated				Fagerlund 1992: 13
Finby, Hvits	668759	321639	668479	21633	Labyrinth	Historical Period			Mickelson 1955; Asplund 1991	
Finby, Kaiplot	668931	321914	668650	21908	Stone oven	Post-Medieval			Mickelson 1955	
Finby, Kaiplot	668931	321915	668650	21909	Stone oven	Post-Medieval			Mickelson 1955	
Finby, Kaiplot	668932	321917	668651	21911	Stone oven	Post-Medieval			Mickelson 1955	
Finby, Kaiplot	668933	321915	668652	21909	Stone oven	Post-Medieval			Mickelson 1955	
Finby, Kaiplot	668934	321916	668653	21910	Stone oven	Post-Medieval			Mickelson 1955	
Finby, Taslot	668951	321566	668670	21560	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Finby, Taslot	668957	321569	668676	21564	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Grännäs, Lätlax					Stray find	Undated		KM 19857		
Hangslax	668515	322504	668234	22498	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hangslax	668517	322505	668236	22499	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hangslax	668517	322502	668236	22496	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hangslax	668515	322501	668234	22495	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hangslax	668514	322504	668233	22498	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hangslax	668496	322545	668215	22539	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Hangslax	668502	322479	668221	22474	Cairn	Bronze and/or Iron Age			Rajala 1992	
Hangslax	668504	322480	668223	22474	Undefined	Undated			Rajala 1992	
Hangslax	668506	322474	668226	22468	Undefined	Undated			Rajala 1992	
Hangslax, Bårnholm	668761	322369	668480	22364	Hillfort	Historical Period?			Tuovinen 1992	Nordman 1937; Dahlström 1995: 96-101
Haverö	669223	322813	668942	22807	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Haverö	669224	322805	668943	22799	Undefined	Undated			Rajala 1992	
Haverö	669191	322798	668910	22792	Undefined	Undated			Rajala 1992	
Haverö, Norrbacka	669223	322809	668942	22803	Undefined	Undated			Rajala 1992	
Haverö, Ådholm	668970	322517	668689	22511	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992

Hummelholm, Pokmo	667739	321163	667459	21157	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Högsar, Lalaxkärret	668200	321522	667919	21516	Pollen sample site					Vuorela 1990
Högsar, Redamo	667869	321523	667589	21518	Labyrinth	Historical Period			Mickelson 1955	
Innamo	669384	321019	669103	21014	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Innamo	669423	320995	669142	20989	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Innamo	669429	321040	669148	21035	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Innamo	669430	321039	669149	21034	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Innamo	669373	321078	669092	21073	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Innamo, Gaudis	669361	321012	669080	21007	Settlement site?	Medieval or Post-Medieval			Tuovinen 1983	
Innamo, Lilla Kuusis	669807	321425	669526	21419	Inscription	Post-Medieval			Tuovinen 1988	
Innamo, Lilla Kuusis	669828	321401	669547	21396	Inscription	Post-Medieval			Tuovinen 1988	
Innamo, Suranpäudden	669464	320985	669183	20980	Inscription	Post-Medieval			Tuovinen 1985	
Innamo, Tammort	669459	321017	669178	21012	Inscription	Post-Medieval			Tuovinen 1985	
Innamo, Vähä-Kuusinen	669836	321447	669555	21442	Cairn	Bronze and/or Iron Age			Tuovinen 1989	Tuovinen & Vuorinen 1992
Jälist					Boat find	Undated				Fagerlund 1992: 13, 19
Kvivlax, Halsholm	667927	320987	667647	20982	Labyrinth	Historical Period			Tuovinen 1989	
Kvivlax, Halsholm	667922	320982	667641	20977	Labyrinth?	Historical Period			Mickelson 1955; Tuovinen 1989	
Kvivlax, Österstu	668024	320888	667743	20883	Stone oven	Post-Medieval				
Käldinge	668434	322611	668154	22605	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Käldinge	668355	322631	668075	22625	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Käldinge	668479	322565	668198	22559	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Käldinge	668415	322539	668134	22533	Cairn	Bronze and/or Iron Age			Rajala 1992	
Käldinge	668462	322568	668182	22562	Undefined	Undated			Rajala 1992	
Käldinge	668423	322547	668143	22541	Undefined	Undated			Rajala 1992	
Mielis, Västra Petisholmen	669203	321233	668922	21227	Stone oven	Post-Medieval			Tuovinen 1988	
Mielis, Västra Petisholmen	669204	321227	668923	21222	Stone oven	Post-Medieval			Tuovinen 1988	
Mielis, Västra Petisholmen	669203	321235	668922	21229	Stone oven	Post-Medieval			Tuovinen 1988	
Nattviken					Boat find	Undated				Fagerlund 1992: 13
Nattviken					Boat find	Undated				Fagerlund 1992: 13
Nötö	666228	320847	665948	20842	Cairn	Bronze and/or Iron Age			Tuovinen 1989	Tuovinen & Vuorinen 1992
Nötö	666244	320854	665964	20849	Cairn	Bronze and/or Iron Age			Tuovinen 1989	Tuovinen & Vuorinen 1992
Nötö	666226	320859	665946	20854	Cairn	Bronze and/or Iron Age			Tuovinen 1989	Tuovinen & Vuorinen 1992
Nötö, Klockarstenen	666195	320836	665915	20831	Undefined	Undated			Tuovinen 1988	Tuovinen 1988: 111-114; Tuovinen 1990a: 93-96
Nötö, Mjoö	666268	320900	665988	20895	Cairn	Bronze and/or Iron Age			Tuovinen 1989	Tuovinen & Vuorinen 1992

Nötö, Mjoö	666290	320905	666010	20900	Cairn	Bronze and/or Iron Age			Tuovinen 1989	Tuovinen & Vuorinen 1992
Nötö, Sundbergen	666241	320852	665961	20847	Cairn	Iron Age and/or Medieval		TYA 486:1-22	Tuovinen 1989	Tuovinen 1990a: 55-56; Tuovinen & Vuorinen 1992
Nötö, Sundbergen	666237	320854	665957	20849	Cairn	Iron Age	VA	TYA 486:23-30	Tuovinen 1989	Tuovinen 1990a: 54-55; Tuovinen & Vuorinen 1992
Piparby	668365	322154	668084	22149	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Piparby, Brännskär	668129	321841	667848	21836	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Piparby, Brännskär	668129	321841	667848	21836	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Prostvik	668609	322625	668328	22619	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Prostvik	668556	322684	668276	22679	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Prostvik	668564	322680	668283	22674	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Prostvik	668694	322768	668414	22762	Cairn?	Bronze and/or Iron Age			Rajala 1992	
Prostvik	668636	322662	668355	22656	Cairn?	Bronze and/or Iron Age			Rajala 1992	
Prostvik	668794	322639	668513	22633	Undefined	Undated			Rajala 1992	
Prostvik	668680	322791	668400	22785	Undefined	Undated			Rajala 1992	
Prostvik	668656	322733	668375	22727	Undefined	Undated			Rajala 1992	
Prostvik, Kalvinkallio	668886	322758	668606	22752	Cairn	Bronze and/or Iron Age			Rajala 1992	Tuovinen & Vuorinen 1992
Prostvik, Lillmotti	668632	322678	668352	22672	Non-site	Undated		TYA 548:1	Rajala 1992	
Prostvik, Lillskogsberget	668630	322637	668349	22631	Undefined	Undated			Rajala 1992	
Prostvik, Prostvik 1	668817	322641	668536	22635	Settlement site	Stone and/or Bronze Age				
Prostvik, Prostvik 2	668782	322577	668501	22571	Settlement site	Stone and/or Bronze Age				
Prostvik, Prostvik 3	668663	322788	668382	22782	Settlement site	Stone and/or Bronze Age				
Prostvik, Storängen	668614	322640	668333	22635	Settlement site	Stone and/or Bronze Age		KM 32005		
Puotuis, Vessor	669160	321265	668879	21260	Labyrinth?	Historical Period			Mickelson 1955; Tuovinen 1988	
Puotuis, Vessor	669165	321282	668884	21276	Undefined	Undated			Tuovinen 1988	
Puotuis, Vessor	669164	321281	668883	21276	Undefined	Undated			Tuovinen 1988	
Puotuis, Vessor	669165	321280	668884	21274	Undefined	Undated			Tuovinen 1988	
Puotuis, Vessor	669164	321275	668883	21270	Undefined	Undated			Tuovinen 1988	
Puotuis, Vessor	669165	321273	668884	21268	Undefined	Undated			Tuovinen 1988	
Puotuis, Vessor	669160	321275	668879	21270	Undefined	Undated			Tuovinen 1988	
Puotuis, Vessor	669157	321261	668876	21255	Undefined	Undated			Tuovinen 1988	
Romsdalskärret					Boat find	Undated				Fagerlund 1992: 13
Sandö	668415	322882	668134	22876	Cairn	Bronze and/or Iron Age			Rajala 1992	Tuovinen & Vuorinen 1992
Sandö	668413	322880	668132	22874	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sandö, Askrundet	668641	323177	668360	23170	Undefined	Undated			Rajala 1992	
Sandö, Öbergen	668421	322790	668140	22784	Cairn	Bronze and/or Iron Age			Rajala 1992	

Sandö, Öbergen	668418	322789	668138	22784	Cairn?	Bronze and/or Iron Age			Rajala 1992	
Sandö, Öijen	668455	322871	668174	22865	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sandö, Öijen	668436	322848	668155	22842	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sandö, Öijen	668433	322848	668152	22842	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sandö, Öijen	668441	322713	668161	22707	Undefined	Undated			Rajala 1992	
Sandö, Öijen	668435	322703	668154	22697	Tomtning	Undated			Rajala 1992	
Sandö, Österudden	668569	323115	668289	23109	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sandö, Österudden	668569	323115	668289	23109	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sandö, Österudden	668571	323092	668290	23086	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sellmo	668734	321395	668453	21390	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Simonby	668594	322599	668314	22594	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Simonby	668567	322543	668287	22537	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Simonby	668572	322582	668291	22576	Cairn	Bronze and/or Iron Age			Rajala 1992	
Simonby	668571	322582	668290	22576	Cairn	Bronze and/or Iron Age			Rajala 1992	
Simonby	668567	322596	668287	22590	Cairn	Bronze and/or Iron Age			Rajala 1992	
Simonby	668617	322574	668336	22568	Undefined	Undated			Rajala 1992	
Simonby *	668722	322519	668441	22513	Settlement site	Stone and/or Bronze Age	LNE/EBA	TYA 608:1-4, TYA 652:1-4	Asplund 1994	
Simonby, Kiuasvuori	668654	322541	668373	22535	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Själö, Korsgrund	669331	322019	669050	22014	Stone oven	Post-Medieval			Mickelson 1955	
Själö, Ängesnäs bergen	669121	322161	668840	22155	Cairn	Bronze and/or Iron Age		TYA 603	Tuovinen 1993	Tuovinen & Vuorinen 1992
Sommarö, Bryggars	668052	322362	667772	22356	Undefined	Undated			Tuovinen 1992	
Sommarö, Bryggars	668052	322359	667772	22353	Undefined	Undated			Tuovinen 1992	
Sydänperä, Norrskogsbergen	668595	320754	668314	20749	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sydänperä, Norrskogsbergen	668587	320753	668306	20748	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tackork, Näsberget	668519	320905	668238	20900	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tackork, Näsberget	668519	320914	668238	20909	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tackork, Näsberget	668517	320930	668237	20925	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vikom	668612	322199	668331	22193	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vikom	668589	322206	668308	22200	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vikom	668590	322204	668309	22198	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vikom	668587	322226	668306	22220	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Vikom	668608	322179	668327	22173	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Ytterholm	667825	321744	667544	21739	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992

Paimio

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Cataloque num.	Report references	Litterature
					Stray find?	Undated		KM 2012:3	Raike 2005	
					Stray find?	Historical Period		KM 2012:4	Raike 2005	
					Stray find	Stone Age		KM 2414:14		
					Stray find	Stone Age		KM 2414:15		
					Stray find	Stone Age		KM 2414:16		
					Stray find	Stone Age		KM 2414:17		
					Stray find	Stone Age		KM 2414:18		
					Stray find	Stone Age		KM 2414:19		
					Stray find	Stone Age		KM 2414:20		
					Stray find	Iron Age		KM 2414:21		
					Stray find	Stone Age?		KM 2414:5		
					Stray find	Stone Age		KM 2414:9		
					Stray find	Stone Age		KM 3187:1		
					Stray find	Stone Age		KM 3187:2		
					Stray find	Stone Age		KM 3187:4		
					Stray find	Stone Age		KM 4171:5		
					Stray find	Iron Age?		KM 4189:6		
					Stray find?	Undated		KM 4189:7-9	Raike 2005	
					Stray find	Stone Age		KM 5050:3		
					Stray find	Stone Age		KM 6221:1		
					Stray find	Stone Age		KM 6221:2		
					Stray find	Stone Age		KM 6221:3		
					Stray find	Stone Age	BAT	KM 784		
					Stray find	Undated		KM 798	Raike 2005	
					Stray find	Iron Age	CP	KM 9402		
					Stray find	Undated		SatM 1631		
					Stray find	Stone Age		SatM 8127		
					Stray find	Stone Age		SatM 8128		
					Stray find	Stone Age		SatM 8551		
					Stray find	Stone and/or Bronze Age	LNE/EBA	TMM 122		
					Stray find	Stone Age		TMM 125		
					Stray find	Stone Age		TMM 126		
					Stray find	Stone Age		TMM 134		

					Stray find	Stone Age		TMM 135		
					Stray find	Stone Age		TMM 136		
					Stray find	Stone Age		TMM 143		
					Stray find	Stone Age		TMM 150		
					Stray find	Iron Age		TMM 164		
					Stray find	Stone Age		TMM 195		
					Stray find	Stone Age		TMM 196		
					Stray find	Stone Age		TMM 197		
					Stray find	Stone Age		TMM 198		
					Stray find	Stone Age		TMM 199		
					Stray find	Stone Age		TMM 200		
					Stray find	Stone Age		TMM 201		
					Stray find	Stone Age		TMM 202		
					Stray find	Bronze Age		TMM 203		
					Stray find	Stone Age		TMM 204		
					Stray find	Stone Age		TMM 205		
					Stray find	Stone Age		TMM 206		
					Stray find	Stone Age		TMM 207		
					Stray find	Stone Age		TMM 208		
					Stray find	Stone Age		TMM 209		
					Stray find	Stone Age		TMM 210		
					Stray find	Stone Age		TMM 211		
					Stray find	Stone Age		TMM 212		
					Stray find	Stone Age		TMM 213		
					Stray find	Stone Age		TMM 214		
					Stray find	Stone Age		TMM 215		
					Stray find	Stone Age	CC	TMM 216		
					Stray find	Stone Age		TMM 217		
					Stray find	Stone Age		TMM 218		
					Stray find	Stone Age?		TMM 219		
					Stray find	Stone Age?		TMM 220		
					Stray find	Stone Age?		TMM 221		
					Stray find	Stone Age?		TMM 222		
					Stray find	Stone Age?		TMM 223		
					Stray find	Stone Age?		TMM 224		
					Stray find	Stone Age?		TMM 225		

					Stray find	Stone Age?		TMM 226		
					Stray find	Undated		TMM 227		
					Stray find	Stone Age		TMM 24		
					Stray find	Stone Age		TMM 25		
					Stray find	Stone Age		TMM 26		
					Stray find	Stone Age		TMM 27		
					Stray find	Stone Age		TMM 28		
					Stray find	Stone Age		TMM 29		
					Stray find	Iron Age?		TMM 320		
					Stray find	Undated		TMM 3367:1		
					Stray find	Undated		TMM 3379:1		
					Stray find	Stone Age		TMM 46		
					Stray find	Stone Age		TMM 58		
					Stray find	Stone Age		TMM 59		
					Stray find	Stone Age		TMM 60		
					Stray find	Stone Age		TMM 61		
					Stray find	Stone Age		TMM 6727		
					Stray find	Stone Age		TMM 72		
					Stray find	Stone Age		TMM 73		
					Stray find	Stone Age		TMM 74		
					Stray find	Stone Age		TMM 76		
					Stray find	Undated		TMM 85		
					Stray find	Stone and/or Bronze Age	LNE/EBA	TMM 95		
					Stray find	Historical Period?		TYA 739:1		
Aakoinen	670429	326154	670147	26146	Stray find	Stone Age		KM 5361:1-2	Raike 2005	
Anttila					Stray find	Stone Age		KM 2414:7		
Aro					Stray find	Stone Age		TMM 7174		
Aro, Eppisåker					Stray find	Stone Age		TMM 7016		
Aro, Eppisåker					Stray find	Stone Age		TMM 7017		
Aro, Rajalahti					Stray find	Stone Age		KM 10037		
Aro, Vakkavuori	670975	325797	670693	25789	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Aro, Ylitalo					Stray find	Stone Age		KM 9282:11-13		
Askala					Stray find?	Stone Age		KM 17005		
Askala					Stray find	Stone Age		KM 9865:3		
Askala					Stray find	Stone Age		TMM 15967		
Askala, Alitalo **	671623	326297	671341	26289	Cup-marked stone	Iron Age?			Europaeus 1928	Ikäheimo 1982

Askala, Alitalo					Stray find	Iron Age	VA	KM 9390:266		
Askala, Alitalo					Stray find	Iron Age	MER	KM 9712		
Askala, Alitalo					Stray find	Prehistoric?		KM 9867		
Askala, Alitalo	671629	326302	671347	26295	Cemetery	Iron Age	LRA, MIG	KM 9869:1-88,90-119	Leppäaho 1933; Kivikoski 1934; Raike 2005	Erkola 1973; Ikäheimo 1982
Askala, Alitalo					Settlement site?	Stone and/or Bronze Age	CC	KM 9971:1		
Askala, Alitalo					Stray find	Iron Age?		KM 9971:2		
Askala, Alitalon nummi					Settlement site?	Stone and/or Bronze Age		KM 9605:6-11	Pälsi 1933	
Askala, Hallinahde					Stray find	Stone Age		KM 9862:2		
Askala, Huhta					Stray find	Stone Age	CC	KM 9605:13	Leppäaho 1952	
Askala, Kankare					Stray find	Stone Age		KM 9282:5-10		
Askala, Keskitalo					Cup-marked stone	Iron Age?			Raike 2005	Erkola 1973: 53
Askala, Keskitalo					Stray find	Iron Age	VA	KM 15808		
Askala, Keskitalo					Stray find	Stone Age		KM 6566:2		
Askala, Keskitalo					Stray find	Stone Age		KM 6566:3-5		
Askala, Keskitalo					Stray find	Stone Age		KM 6583:1		
Askala, Keskitalo					Stray find	Stone Age		KM 9866		
Askala, Keskitalo **	671627	326307	671345	26300	Settlement site?	Stone Age	CC	KM 9869:89,120	Kivikoski 1934; Palo 1996; Raike 2005	
Askala, Keskitalo	671629	326302	671347	26295	Cemetery	Iron Age	VA	KM 9927:1-9; KM 9928:1-68	Kivikoski 1934; Raike 2005	
Askala, Nummenalho	671942	326492	671660	26484	Settlement site	Stone Age	MES	KM 30215:1-4	Bilund 1997; Raike 2005	
Askala, Nummentalo	671610	326294	671328	26287	Cemetery?	Iron Age?			Hirviluoto 1961	Ikäheimo 1982
Askala, Nummentalo					Stray find	Stone Age		KM 8956:5		
Askala, Nummentalo					Stray find	Stone Age		KM 8956:6		
Askala, Nummentalo *	671643	326330	671361	26322	Stray find	Stone and/or Bronze Age		TYA 624:1-4	Palo 1996; Raike 2005	
Askala, Nummentalo **	671633	326329	671351	26322	Stray find	Stone and/or Bronze Age		TYA 625:1-5	Palo 1996; Raike 2005	
Askala, Nummentalo **	671590	326298	671308	26291	Stray find	Iron Age	CP	TYA 626:11	Palo 1996; Raike 2005	
Askala, Nummentalo **	671590	326298	671308	26291	Settlement site	Stone Age		TYA 626:1-10,12-48	Palo 1996; Raike 2005	
Askala, Raatalhaka **	671647	326373	671365	26366	Stray find	Iron Age		KM 8956:8	Raike 2005	
Askala, Rakisaaren nummi					Stray find	Undated		KM 9605:2-5	Pälsi 1933	
Askala, Toispuolojannummi	671644	326353	671362	26346	Settlement site	Stone and/or Bronze Age	CC, BAT, LNE/ EBA, LBA	KM 2414:22; KM 8696:4-6; KM 8955:1-269; KM 9080; KM 9282:1-4; KM 9390:1-265; KM 9605:12; KM 9865:1-2; KM 18174:1-10; KM 18179:1-4; KM 19241:1-45; KM 24153; KM 25790:1-28; KM 26268; KM 27182; KM 28800; TYA 131:1-6; TYA 203:1-197; TYA 542:1-4; TYA 656:1; TYA 751:1-9	Tallgren 1926; Europaeus 1928; Ruonavaara 1974; Luoto 1981; Brusila 1990; Raike 2005	Vanhatalo 1994

Auvola, Pajula					Stray find	Stone Age		KM 20331		
Evainen, Kaitastenmäki	671820	327005	671538	26998	Settlement site?	Stone Age		KM 35306	Raike 2005	
Evainen, Välimäki	671825	327007	671543	27000	Stray find	Stone Age		TYA 31	Raike 2005	
Halkilahti, 2	671112	325926	670830	25919	Cairn	Bronze and/or Iron Age			Raike 2005	
Halkilahti, Matolan väljä					Stray find	Iron Age	VA	KM 3412:6		Ikäheimo 1982: 74
Halkilahti, Soukka	671152	325885	670870	25878	Settlement site	Stone and/or Bronze Age		KM 10113; KM 24134:1-19; KM 24557:1-2160; KM 25438:1-3722	Poutiainen 1988; Raike 2005	
Hanhijoki, Alastalo	671271	326416	670989	26408	Settlement site	Stone Age		KM 35301:1-3	Raike 2005	
Hanhijoki, Hanhiala 1	671198	326445	670916	26438	Settlement site?	Stone Age		KM 35307:1-2	Raike 2005	
Hanhijoki, Hanhiala 2	671151	326479	670869	26472	Settlement site?	Stone Age		KM 35308	Raike 2005	
Hanhijoki, Hanhiala 3	671116	326510	670834	26502	Settlement site?	Stone Age		KM 35309	Raike 2005	
Hanhijoki, Kuivamäki	671291	326408	671009	26400	Cemetery?	Iron Age		KM 35304	Raike 2005	
Hanhijoki, Sorron pelto	671151	326479	670869	26472	Stray find	Stone Age	BAT	KM 13312	Raike 2005	
Heikoinen, Ylitalo					Stray find	Stone Age		KM 9862:1		
Heikoinen, Ylitalo					Stray find	Stone Age		KM 9862:3		
Heikoinen, Ylitalo					Stray find	Stone Age		KM 9862:4		
Hellberginkylä, Kotiseutu-museo	671546	326305	671264	26298	Cairn	Bronze and/or Iron Age			Raike 2005	
Hellberginkylä, Kotiseutu-museo	671550	326304	671268	26297	Cairn	Bronze and/or Iron Age			Raike 2005	
Helsbergin kartano					Stray find	Bronze Age	LBA	KM 4014:2 (copy); TMM 6106:1		
Hevonpää, Alimmainen					Stray find	Iron Age	VA	KM 2436:19		Ikäheimo 1982: 74
Hevonpää, Herasniemi					Stray find	Undated		TYA 231:1		
Hevonpää, Lassinmäki	670931	325945	670649	25938	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Hevonpää, Nenämäki	670777	326089	670495	26082	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Hiidenala	670984	326000	670703	25993	Cairn	Bronze and/or Iron Age			Hirviluoto 1961; Raike 2005	Tuovinen & Vuorinen 1992
Hiidenala	670961	325995	670679	25988	Cairn?	Bronze and/or Iron Age			Raike 2005	
Huso					Stray find	Undated			Oksala 1990; Raike 2005	
Huso					Stray find	Stone Age	BAT	KM 2012:2		
Huso, Ilola					Stray find	Stone Age	BAT	KM 5251:3		
Huso, Kelhen pelto	670406	326779	670124	26772	Stray find	Undated			Oksala 1990; Raike 2005	
Huso, Tuomola	670494	326621	670213	26614	Cairn	Bronze and/or Iron Age			Oksala 1990; Raike 2005	Tuovinen & Vuorinen 1992
Huso, Vuorenmaa					Stray find	Stone Age		KM 8119:1-2		
Huso, Vuorenmaa					Stray find	Stone Age		KM 8119:3		
Ilttula	670881	326670	670599	26662	Settlement site?	Stone Age	BAT	KM 24138:1-3	Poutiainen 1988; Raike 2005	

Ilttula	670867	326669	670585	26662	Settlement site?	Prehistoric?		KM 24139:1-6	Poutiainen 1988; Raike 2005	
Ilttula					Stray find	Stone Age		Maanmittari F.W. Hellstenin kokoelma Turussa		
Ilttula, Alastupa					Stray find	Stone Age		KM 6547:2		
Iltula					Stray find	Undated		KM 24140:1-2	Poutiainen 1988	
Iso-Heikoinen, Keskitalo	671093	326692	670812	26685	Stray find	Stone Age		KM 35315:1-3	Raike 2005	
Iso-Heikoinen, Linnavuori	671074	326637	670792	26630	Hillfort?	Undated				Erkola 1973; Ikäheimo 1982
Iso-Heikoinen, Mäkitalo	671149	326631	670867	26623	Settlement site?	Stone Age		KM 35314	Raike 2005	
Iso-Heikoinen, Mäkitalo					Stray find	Stone Age		KM 6712:3-4		
Isokuusvuori	671292	326051	671010	26044	Cairn?	Undated			Raike 2005	
Isokuusvuori	671288	326049	671006	26041	Cairn?	Undated			Raike 2005	
Isokuusvuori	671290	326041	671008	26034	Cairn?	Undated			Raike 2005	
Isokuusvuori, Peltomäki	671291	326052	671010	26045	Cairn?	Iron Age?			Kivikoski 1936; Raike 2005	
Isokuusvuori, Peltomäki	671289	326054	671008	26047	Cemetery	Iron Age	LRA	KM 10111:1-14	Kivikoski 1936; Raike 2005	Ikäheimo 1982
Jalkala					Stray find	Iron Age	VA, CP	TMM 7758		Ikäheimo 1982: 74
Jundola					Stray find	Historical Period?		KM 1084	Raike 2005	
Kaimala					Stray find	Stone Age		KM 2414:12		
Kaimala					Stray find	Stone Age		KM 2414:13		
Kaimala, Tiensuu	671572	326410	671290	26403	Stray find	Stone Age			Raike 2005	
Kajanoja					Stray find	Stone and/or Bronze Age		TYA 742:1		
Kajanoja, Alitalo Nummila **	671664	326354	671382	26346	Stray find	Stone Age		KM 8956:7	Raike 2005	
Kajanoja, Alitalo Nummila **	671664	326354	671382	26346	Stray find	Iron Age	VA	KM 8956:9	Raike 2005	
Kajanoja, Kratarböle					Stray find	Stone Age		KM 4171:2		
Kajanoja, Kylämäki	671747	326356	671465	26348	Cemetery?	Iron Age		TYA 217:1-2		
Kajanoja, Mansikkamaa	671715	326333	671433	26326	Settlement site?	Stone and/or Bronze Age		KM 23407:1-5	Raike 2005	
Kajanoja, Ylitalo Perkkiö					Stray find	Stone Age		KM 4171:3		
Kaleva					Stray find	Stone Age		Hämeen museo / Lindellin kokoelma 95		
Kappalaisen puustelli					Stray find	Iron Age	VA	KM 2538		
Kauhainen					Stray find	Stone Age	BAT	KM 2436:1		
Kauhainen					Stray find	Stone Age	BAT	KM 2436:2		
Kauhainen, Koiviston torppa					Stray find	Stone Age	BAT	TMM 7779		
Kauhainen, Koiviston torppa					Stray find	Stone Age		TMM 7780		
Kauhainen, Mäntykankare	671373	325895	671091	25888	Settlement site?	Stone Age		KM 25386:1-2	Raike 2005	
Kauhainen, Ristiniittu *	671347	325909	671065	25901	Stray find?	Stone Age			Raike 2005	
Kauhainen, Ristiniittu *	671342	325913	671060	25906	Stray find?	Stone Age			Raike 2005	

Kerkola					Cemetery?	Undated			Tallgren 1926	
Kevola					Stray find	Stone Age	BAT	TMM 6282		
Kevola, Kunnari					Stray find	Iron Age	VA, CP	TYA 41		Ikäheimo 1982
Kevola, Laiterla					Stray find	Stone Age		KM 2414:8		
Kevola, Laiterla					Stray find	Iron Age	VA, CP	KM 3187:52		Ikäheimo 1982: 74
Kevola, Varemäki	670922	326669	670640	26661	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Kinkka, Kinkan kylätontti	670813	325914	670532	25906	Village	Historical Period			Raike 2005	
Kinkka, Kinkan kylätontti	670812	325913	670530	25906	Stray find	Iron Age?		TYA 218:1	Raike 2005	
Kovala	670870	326575	670588	26567	Settlement site	Stone Age		KM 35305	Raike 2005	
Kovala					Stray find	Stone Age	BAT	KM 6463		
Kovala, Alitalo					Stray find	Stone Age		KM 2079		
Kruusila **	670959	326081	670677	26074	Stray find	Iron Age	VA	TMM 13181; TYA 267:1	Asplund & Luoto 1985; Raike 2005	
Kruusila	671009	326096	670727	26088	Stray find	Stone and/or Bronze Age		TYA 267:2	Asplund & Luoto 1985; Raike 2005	
Kurjenkylä, Heikkilä					Stray find	Stone and/or Bronze Age	LNE/EBA	TMM 14941:1-2		
Kurki, Heikkilä					Stray find	Stone Age		KM 6750:4		
Kurki, Junni					Stray find	Stone Age		Halikon kotiseutumuseo 4673		
Kurki, Koivula	670504	326827	670222	26819	Settlement site	Stone Age		KM 18319:1-8	Raike 2005	
Kyllälä					Stray find	Stone Age		TMM 284		
Kyllälä, Kolvuori	670852	325861	670570	25854	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Kyysilä, Mänkärlä					Stray find	Stone Age	BAT	KM 2012:1		
Lehtihovi, Hentula					Stray find	Stone Age		KM 14720		
Linnasuo	671189	326937	670907	26930	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lopen pelto					Stray find	Stone Age		KM 2414:11		
Loppi					Stray find	Prehistoric?		KM 494	Raike 2005	
Lovi	671084	325996	670802	25989	Stray find	Undated		KM 24136:1-6	Poutiainen 1988; Raike 2005	
Lovi, Kakkarvuori	671134	326036	670852	26029	Settlement site?	Stone Age		KM 24135:1-3	Poutiainen 1988; Raike 2005	
Lovi, Lovenmäki	671094	326024	670813	26017	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Lovi, Potkelan linnavuori	671043	325890	670761	25883	Hillfort?	Undated				Erkola 1973; Ikäheimo 1982
Majankalma	671614	326183	671332	26176	Settlement site	Stone Age		KM 35302:1-4	Raike 2005	
Majankalma, Vuorela	671615	326208	671333	26201	Stray find	Iron Age	VA	KM 23603	Raike 2005	
Majankalma, Vuorela	671609	326210	671327	26203	Stray find	Stone Age?		KM 23604	Raike 2005	
Maljamäki, Kankareenmäki	670789	326679	670508	26671	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Maljamäki, Kankareenmäki	670789	326680	670508	26672	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992

Maljamäki, Kirkkoniitun-mäki	670740	326536	670458	26529	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Maljamäki, Kirkkoniitun-mäki	670741	326536	670459	26529	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Maljamäki, Leikola	670788	326678	670507	26670	Cairn	Bronze and/or Iron Age			Brusila 1993; Raike 2005	
Maljamäki, Leikola	670788	326678	670507	26670	Cairn?	Bronze and/or Iron Age			Brusila 1993; Raike 2005	
Maljamäki, Litto	670797	326661	670515	26653	Cairn	Bronze and/or Iron Age			Brusila 1992; Raike 2005	
Maljamäki, Litto					Stray find	Stone Age	BAT	KM 9231		
Maljamäki, Löyhäistenmäki	670554	326566	670272	26558	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Maljamäki, Löyhäistenmäki	670556	326566	670274	26558	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Maljamäki, Löyhäistenmäki	670554	326566	670272	26558	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Maljamäki, Mäntylä	670792	326570	670510	26562	Settlement site?	Stone Age		KM 35310	Raike 2005	
Maljamäki, Mäntylä	670787	326571	670505	26564	Stray find	Stone Age		TYA 543	Raike 2005	
Maljamäki, Nahkavuori	670703	326686	670421	26678	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Maljamäki, Saarikko	670757	326556	670475	26549	Stray find	Bronze Age	LNE/EBA	KM 9830	Kivikoski 1934; Raike 2005	Kivikoski 1937: 56-57
Maljamäki, Saarikko					Stray find	Stone Age		KM 9863		
Meltola, Fuila	670642	326015	670361	26007	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Meri-Anttila	670798	325805	670516	25798	Cairn?	Undated			Lindroos 1928; Raike 2005	
Metsä-Anttila					Stray find	Stone Age		KM 2414:6		
Moisio, Kivimäki	671936	325991	671654	25984	Settlement site?	Stone Age		KM 30919:1-5	Raike 2005	
Moisio, Räpälän vanha kirkonpaikka	671327	326235	671045	26227	Chapel site	Historical Period		KM hist. 3089:1-9	Raike 2005	
Munkkila, Katajamäki	671314	326095	671032	26087	Cemetery	Iron Age	VA	KM 24283:1-31; TYA 180:1-83; TYA 237:1-2	Luoto 1981; Raike 2005	Ikäheimo 1982
Munkkila, Laukonmäki	671390	325987	671108	25979	Settlement site	Stone Age		KM 30217:1-3	Bilund 1997; Raike 2005	
Nakolinna					Stray find	Undated		KM 14900:1		
Nakolinna					Stray find	Undated		TMM 16194:1		
Nummila	671563	326416	671281	26409	Stray find	Stone and/or Bronze Age			Raike 2005	
Nummila, Söderbacka					Stray find	Stone and/or Bronze Age		TMM 13689:1		
Oinila					Stray find	Stone Age		TYA 232:1-3		
Oinila					Stray find	Iron Age?		TYA 232:4		
Oinila, Alhainen					Stray find	Stone Age		KM 6583:2-3		
Oinila, Alhaisi	671424	326348	671142	26341	Stray find	Bronze Age	LBA	KM 10454	Raike 2005	Kivikoski 1937: 53-54
Oinila, Alhaisi					Stray find	Stone Age		KM 10455		
Oinila, Alhola **	671477	326292	671195	26285	Cup-marked stone	Iron Age?			Europaeus 1928	
Oinila, Alhola **	671477	326292	671195	26285	Cup-marked stone	Iron Age?			Europaeus 1928	

Oinila, Alhola *	671481	326298	671199	26291	Settlement site	Stone Age	CC, BAT	KM 8696:3 8720:1-4; KM 8781:1-4; KM 8956:1-4; KM 17707; KM 17708; KM 17709; KM 18180; KM 21921:1-2	Tallgren 1926; Europaeus 1928; Raike 2005	
Oinila, Alhola					Stray find	Stone Age		KM 9864:1-2		
Oinila, Alhola II	671485	326301	671203	26293	Settlement site	Stone Age				
Oinila, Kivekkään palsta	671413	326343	671131	26335	Stray find	Bronze Age	LBA	KM 13734	Raike 2005	
Oinila, Lautela	671545	326290	671263	26283	Cairn	Bronze and/or Iron Age			Palo 1996; Raike 2005	
Oinila, Lautela	671535	326293	671253	26285	Stray find	Stone and/or Bronze Age			Palo 1996; Raike 2005	
Oinila, Lautela	671447	326307	671165	26300	Stray find	Stone Age		KM 13313:1	Raike 2005	
Oinila, Lautela **	671444	326304	671162	26296	Settlement site	Iron Age?		KM 13313:2-3; KM 13461:1-76	Leppäaho 1957; Raike 2005	
Oinila, Lautela					Stray find	Stone Age	BAT	KM 14719:1-2		
Oinila, Lautela	671445	326307	671163	26299	Undefined	Iron Age?		KM 15134	Hirviluoto 1961; Raike 2005	
Oinila, Lautela **	671497	326289	671215	26282	Stray find	Stone and/or Bronze Age		TYA 628:1-5	Palo 1996; Raike 2005	
Oinila, Lautela	671533	326293	671251	26285	Stray find	Stone and/or Bronze Age		TYA 629:29-30	Palo 1996; Raike 2005	
Oinila, Lautela (2) *	671564	326285	671282	26278	Settlement site	Stone and/or Bronze Age		TYA 627:1-17	Palo 1996; Raike 2005	
Oinila, Lautela (3) *	671541	326292	671259	26285	Settlement site	Stone and/or Bronze Age	CC, BAT	TYA 629:1-28	Palo 1996; Raike 2005	
Oinila, Lautela Riihipelto					Stray find	Stone Age		KM 2414:2		
Oinila, Lautela, Tiensuu					Stray find	Stone Age		KM 2414:3		
Oinila, Lautela, Tiensuu					Stray find	Stone Age		KM 2414:4		
Oinila, Lautelantie	671420	326308	671138	26300	Cup-marked stone	Iron Age?			Luoto 1984; Raike 2005	
Oinila, Luonnonmaa *	671505	326282	671224	26274	Settlement site?	Stone and/or Bronze Age		KM 11662:1-3	Raike 2005	
Oinila, Luonnonmaa	671459	326314	671177	26307	Settlement site	Stone Age		KM 8696:1-2	Tallgren 1926; Raike 2005	
Oinila, Rantapelto 1	671450	326297	671168	26289	Settlement site?	Iron Age		KM 35316	Raike 2005	
Oinila, Rantapelto 2	671486	326287	671204	26279	Settlement site?	Stone and/or Bronze Age		KM 35317:1-2	Raike 2005	
Oinila, Upalinko	671509	326292	671227	26284	Settlement site?	Stone Age		KM 35311	Raike 2005	
Oinilanmäki	671207	326361	670925	26353	Pollen sample site					Tolonen 1985a; Tolonen 1987a
Palomäki	670830	326428	670548	26421	Pollen sample site					Tolonen 1985a
Pappila					Stray find	Stone Age	CC	KM 11828:1-2		
Pappila, Riihimäki **	671414	326221	671132	26214	Cemetery?	Iron Age		KM 35318; TYA 154:1-3	Luoto 1979; Raike 2005	Ikäheimo 1982
Penimäki	671026	325986	670744	25979	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Penimäki	671029	325986	670747	25979	Cairn	Bronze and/or Iron Age			Tallgren 1926; Raike 2005	Tuovinen & Vuorinen 1992
Penimäki	671036	326013	670754	26005	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Penimäki					Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992

Penimäki, Laukkamäki	671050	326044	670769	26037	Settlement site?	Prehistoric		KM 8799	Lindroos 1928; Raike 2005	
Pitkäporras, Aro					Stray find	Stone Age		KM 6750:2-3		
Preilä					Stray find	Historical Period		KM 6712:7		
Preitilä, Spurilan hiekkakuoppa	671381	326634	671099	26626	Settlement site	Stone Age		KM 35312:1-2	Raike 2005	
Preitilä, Spurilan hiekkakuoppa					Stray find	Stone Age		KM 4171:1		
Preitilänsuo	670998	326715	670716	26708	Pollen sample site					Tolonen 1985a; Tolonen 1987b; Tolonen & Kukkonen 1989
Pyhäloukas, Isotalo					Stray find	Stone and/or Bronze Age		KM 2436:3		
Ranta-alho, Isotalo					Stray find	Stone Age	BAT	TMM 14168:1		
Rautalho, Kivilänmäki	671067	325815	670785	25808	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Rekottila	671005	326579	670723	26572	Cairn	Bronze and/or Iron Age			Lindroos 1928; Raike 2005	Tuovinen & Vuorinen 1992
Rekottila, Isotalo					Stray find	Stone Age		KM 6712:1-2		
Rekottila, Katinhäntä	670934	326596	670652	26589	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Rekottila, Katinhäntä	670934	326594	670653	26587	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Rekottila, Katinhäntä	670934	326594	670653	26587	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Rekottila, Katinhäntä	670933	326595	670652	26587	Undefined	Undated			Raike 2005	
Rekottila, Katinhäntä	670933	326594	670652	26586	Undefined	Undated			Raike 2005	
Rekottila, Linnamäki	670950	326599	670668	26591	Hillfort	Undated			Lindroos 1928; Raike 2005	Appelgren 1891
Rukkijoki					Stray find	Undated				
Rukkijoki, Alifrosti					Stray find	Stone Age		KM 9702		
Rukkijoki, Frosti					Stray find	Stone Age		KM 4171:4		
Rukkijoki, Kehinojannummi	671921	326401	671639	26393	Settlement site	Stone Age	BAT	KM 9668:1-6; KM 9696:1-15	Kivikoski 1933; Raike 2005	
Rukkijoki, Kuotinen					Stray find	Stone Age	BAT	KM 12329		
Rukkijoki, Kuotinen	671817	326428	671535	26420	Settlement site?	Stone Age		KM 35319	Raike 2005	
Rukkijoki, Kuotinen					Stray find	Stone Age		KM 9282:14-15		
Sattela, Muurmäki	671342	326897	671060	26889	Hillfort	Undated			Lindroos 1928; Raike 2005	Appelgren 1891; Ikäheimo 1982
Sievola					Stray find	Stone Age		KM 12044		
Sievola					Stray find	Iron Age	CP	KM 4230:1-10		Tallgren 1931: 166; Talvio 2002: 140-142
Sievola	671353	326127	671071	26120	Settlement site?	Iron Age	VA	TYA 179:1-1226; TYA 186:1-1991 (part of)	Luoto 1982	Ikäheimo 1982
Sievola					Stray find	Iron Age?		TYA 241:1-3		
Sievola, Kumpumäki	671318	326104	671036	26097	Settlement site	Iron Age		KM 24284:1-59; TYA 240:1-4	Luoto 1981; Raike 2005	
Sievola, Meisala					Stray find	Undated		KM 6750:5		

Sievola, Sievola A	671353	326116	671071	26109	Settlement site	Iron Age	VA, CP	TYA 153:1-13; TYA 179:1-1226; TYA 186:1-1991 (part of)	Luoto 1979; Luoto 1982	Ikäheimo 1982
Sievola, Sievola B	671358	326120	671076	26112	Cemetery	Iron Age	MIG, MER, VA	TYA 179:1-1226 (part of)	Luoto 1982	Ikäheimo 1982
Sievola, Sievola C	671357	326126	671075	26119	Cemetery	Iron Age	MER, VA	TYA 186:1-1991 (part of)	Luoto 1982	Ikäheimo 1982
Sievola, Sievola C	671355	326127	671073	26120	Settlement site	Iron Age		TYA 209:1-462	Fischer & Luoto 1982	
Sievola, Sievola D	671347	326140	671065	26133	Settlement site?	Iron Age?			Luoto 1982	
Sievola, Sievola E	671366	326144	671085	26137	Settlement site?	Iron Age?			Luoto 1982	
Siililä					Stray find	Stone Age		TMM 6283		
Siililä					Stray find	Stone Age		TMM 6287		
Siililä, Krannas					Stray find	Stone Age		KM 9276:3-4		
Siililä, Lautkankare	671613	326216	671331	26209	Settlement site	Stone Age		KM 35303:1-4	Raike 2005	
Siililä, Uotilanvuori	671718	326248	671436	26241	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Silkkilä					Stray find	Stone Age	BAT	SatM 9060		
Spurila	671341	326374	671059	26367	Stray find	Iron Age	VA	TMM 16285:7		Ikäheimo 1982
Spurila	671357	326350	671075	26342	Stray find	Iron Age?		TYA 182:1,3-12	Luoto 1981	Ikäheimo 1982
Spurila	671366	326344	671084	26337	Stray find	Iron Age?		TYA 182:2		
Spurila	671342	326380	671060	26373	Stray find	Iron Age		TYA 223:1075		
Spurila	671368	326397	671086	26390	Stray find	Undated		TYA 223:1076		
Spurila	671357	326371	671075	26364	Stray find	Iron Age?		TYA 223:1078-1079		
Spurila	671360	326354	671078	26347	Stray find	Undated		TYA 223:1080		
Spurila	671351	326375	671069	26367	Stray find	Iron Age?		TYA 223:1081		
Spurila *	671359	326409	671078	26401	Stray find	Iron Age		TYA 223:1082		
Spurila *	671357	326410	671075	26403	Stray find	Undated		TYA 223:1094-1104		
Spurila	671374	326397	671092	26389	Stray find	Undated		TYA 223:1109		
Spurila	671370	326383	671088	26376	Stray find	Undated		TYA 223:1110-1111		
Spurila	671297	326376	671015	26369	Stray find	Historical Period?		TYA 223:1112		
Spurila	671320	326347	671038	26340	Stray find	Historical Period?		TYA 223:1113		
Spurila	671350	326346	671068	26338	Stray find	Post-Medieval		TYA 223:1114		
Spurila	671341	326415	671059	26408	Stray find	Prehistoric?		TYA 223:1115		
Spurila	671351	326396	671069	26388	Stray find	Iron Age		TYA 236:3,6	Asplund et al. 1983	
Spurila	671334	326370	671052	26362	Stray find	Iron Age		TYA 244:601	Asplund & Luoto 1985	
Spurila	671338	326380	671056	26373	Stray find	Iron Age		TYA 244:602	Asplund & Luoto 1985	
Spurila	671328	326368	671046	26360	Stray find	Iron Age?		TYA 244:603-604	Asplund & Luoto 1985	
Spurila	671340	326368	671058	26361	Stray find	Stone and/or Bronze Age		TYA 244:605	Asplund & Luoto 1985	

Spurila					Stray find	Historical Period		TYA 736:1		
Spurila					Stray find	Iron Age		TYA 736:2		
Spurila, A	671366	326366	671084	26359	Cup-marked stone	Iron Age?			Asplund & Luoto 1985	
Spurila, A	671366	326366	671084	26359	Settlement site	Stone Age	CC	TYA 223:1077; TYA 235:1-4; TYA 244:1-600,614-624; TYA 269:1-411, TYA 325:1-125 (part of)	Asplund et al. 1983; Asplund & Luoto 1985; Asplund & Luoto 1986	Asplund 1985
Spurila, A	671366	326366	671084	26359	Cemetery	Iron Age	PRIA, ERA, LRA, MIG, VA	TYA 235:1-4; TYA 244:1-600,614-624; TYA 269:1-411; TYA 325:1-125 (part of)	Asplund et al. 1983; Asplund & Luoto 1985; Asplund & Luoto 1986	Asplund 1985
Spurila, A	671366	326366	671084	26359	Stray find	Bronze Age		TYA 244:425	Asplund & Luoto 1985	
Spurila, B	671362	326368	671080	26361	Cemetery	Iron Age	CP	TYA 244:437,455-456,496,551,562-664,573-580	Asplund & Luoto 1985	
Spurila, C	671342	326382	671060	26375	Cemetery?	Iron Age	VA	TYA 236:4,7; TYA 271:1-89 (part of)	Asplund et al. 1983; Asplund & Luoto 1985	Asplund 1985
Spurila, C	671342	326382	671060	26375	Settlement site?	Stone and/or Bronze Age		TYA 271:1-89 (part of)	Asplund & Luoto 1985	
Spurila, D	671366	326407	671085	26400	Cemetery	Iron Age	MIG	TYA 236:1-2,5,8; TYA 273:1-47	Asplund et al. 1983	Asplund 1985
Spurila, E	671349	326411	671067	26403	Cemetery	Iron Age	ERA, LRA, MIG	TYA 211:1-373; TYA 223:1-965,1074,1116-1152	Fischer & Luoto 1983; Pärssinen 1984	Asplund 1985; Luoto 1985; Seppä-Heikka 1985
Spurila, F	671345	326413	671063	26406	Settlement site	Iron Age		TYA 223:966-1073,1083-1093; TYA 244:610-613	Asplund & Luoto 1984; Asplund & Luoto 1984; Pärssinen 1984	Asplund 1985; Luoto 1985
Spurila, G *	671337	326354	671055	26347	Settlement site	Iron Age	CP	TYA 244:606-609; TYA 268:1-6	Asplund & Luoto 1984; Asplund & Luoto 1985	
Spurila, h	671370	326396	671088	26388	Settlement site?	Iron Age?		TYA 223:1105-1108, TYA 272:1-53	Asplund & Luoto 1985	Asplund 1985
Spurila, H	671361	326374	671079	26367	Cemetery	Iron Age	ERA, MIG, VA	TYA 244:446,447,458,505,521,553,568; TYA 270:1-155 (part of)	Asplund & Luoto 1985; Asplund & Luoto 1986	
Spurila, H	671361	326374	671079	26367	Settlement site?	Stone and/or Bronze Age		TYA 270:1-155 (part of)	Asplund & Luoto 1986	
Spurila, Ketunnummi					Stray find	Stone Age	BAT	KM 6566:1		
Spurila, Lopen kartano					Stray find	Stone Age		KM 1144		
Spurila, Rajala					Stray find	Stone Age	BAT	KM 9276:1		
Spurila, Seppä					Stray find	Stone Age		KM 9276:2		
Spurila, Varasvuori	671331	326476	671049	26468	Cairn	Bronze and/or Iron Age		KM 2435:2	Raike 2005	Tuovinen & Vuorinen 1992
Suksela					Stray find	Stone Age		KM 2414:1		
Suksela					Stray find	Stone Age		TMM 6287		
Suksela, Heikkilänmäki	671788	326289	671505	26282	Settlement site?	Stone and/or Bronze Age		TYA 181:1-101 (part of)	Raike 2005	Ikäheimo 1982

Suksela, Heikkilänmäki	671788	326289	671505	26282	Cemetery?	Iron Age		TYA 181:1-101; TYA 216:1-16; TYA 510:1-2 (part of)	Raike 2005	
Suppa					Stray find	Stone Age		KM 5102:3		
Suppala	671275	326047	670993	26040	Settlement site?	Iron Age		KM 35313	Raike 2005	
Tanisi	671173	325900	670891	25893	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Tanisi	671171	325900	670889	25892	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Tanisi	671169	325914	670887	25906	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Tanninen	671164	325893	670882	25886	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Tikanlinna					Stray find	Undated		Perniön museo Am		
Tiskarla					Stray find	Stone Age		TMM 307		
Tomero					Stray find	Stone Age	BAT	KM 8748		
Tupila					Stray find	Stone Age		KM 6853:1		
Tupila					Stray find	Undated		KM 6853:2		
Tupila, Kujala					Stray find	Stone Age		KM 6712:5		
Tupila, Kujala					Stray find	Historical Period		KM 6712:6		
Vaahde, Riihelä					Stray find	Stone Age		KM 6986:4-6		
Valkoja					Stray find	Undated		KM 2414:10		
Vartsalo, Alhainen					Stray find	Stone Age		TMM 15761		
Vartsalo, Haltiahaan lähde	670822	326082	670540	26075	Holy well	Historical Period			Raike 2005	
Vartsalo, Herrankartano	671001	326138	670719	26131	Settlement site	Medieval		KM 8696:7	Leppäaho 1933; Kivikoski 1934; Raike 2005	
Vartsalo, Herrankartano	671001	326138	670719	26131	Cemetery?	Iron Age	ERA	KM 9711, KM 9861	Leppäaho 1933; Kivikoski 1934; Raike 2005	Leppäaho 1934; Salo 1968
Vartsalo, Kerossaari	670907	326174	670626	26167	Settlement site?	Iron Age		KM 24137:1-3; KM 35320	Poutiainen 1988; Raike 2005	
Vartsalo, Tipumäki	670802	326185	670520	26178	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Vartsalo, Truski	670771	326061	670490	26053	Undefined	Historical Period?		TYA 210:1-16		Ikäheimo 1982
Vartsalo, Viksberg	671014	325898	670732	25891	Cairn	Bronze and/or Iron Age			Raike 2005	Tuovinen & Vuorinen 1992
Veikkari, Nakolinna **	671467	326138	671185	26130	Hillfort	Iron Age	MIG	TYA 155:1-8	Lindroos 1928; Luoto 1979; Raike 2005	Appelgren 1891; Luoto 1990a
Viksberg, Perkkiö					Stray find	Stone Age		TMM 7783:1		
Villisi	671198	325799	670916	25792	Cairn	Bronze and/or Iron Age			Raike 2005	
Villisi, Miettula	671207	325820	670925	25813	Cairn	Bronze and/or Iron Age			Raike 2005	
Villisi, Ylitalo					Settlement site?	Stone Age		KM 25376:1-24		
Vista					Stray find	Stone Age		KM 2534:59		
Vista					Stray find	Undated		KM 6135		
Vista, Karhunpyölin krotit	671251	326380	670969	26373	Stray find	Iron Age	VA	KM 2347, KM 2435:1, KM 2552	Schvindt 1887; Raike 2005	Ikäheimo 1982
Vista, Pakurla	671202	326302	670920	26294	Stray find	Undated		KM 20275	Raike 2005	

Vista, Pakurla	671202	326302	670920	26294	Stray find	Iron Age		KM 20277	Raike 2005	
Vista, Pakurla					Stray find	Undated		KM 3640:24		
Vista, Pakurla	671214	326308	670932	26301	Stray find	Iron Age and/or Medieval	CP	KM hist. 65049:1	Raike 2005	Ikäheimo 1982
Vista, Pakurla					Stray find	Stone Age		TMM 6640:1		
Vista, Pakurla					Stray find	Historical Period		TYA 152:1		
Vista, Pakurla					Stray find	Undated		TYA 152:2		
Vista, Pakurla					Stray find	Undated		TYA 152:3		
Vista, Pakurla					Stray find	Undated		TYA 152:4		
Vista, Pakurla					Stray find	Undated		TYA 152:5		
Vista, Pakurla					Stray find	Undated		TYA 152:6		
Vista, Pakurla Rivonmäki					Stray find	Stone Age		KM 16733		
Vista, Pakurla Talkooniitty	671150	326265	670868	26258	Stray find	Iron Age		KM 20276	Raike 2005	
Vista, Paltan kappalaisen virkatalo					Stray find	Undated		KM 2435:1		
Vista, Pietilä					Stray find	Stone Age	BAT	KM 9306		
Vohteenkellarinsuo	670826	326277	670544	26269	Pollen sample site					Vuorela 1983
Vuohimäki	671410	326023	671128	26015	Settlement site	Stone and/or Bronze Age		KM 30216:1-5	Bilund 1997; Raike 2005	
Vuolte, Riihilä					Stray find	Stone Age		KM 3640:24		
Vähä-Heikoinen, Ylitalo	671607	326537	671325	26529	Stray find	Undated			Raike 2005	

Parainen

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
					Stray find	Iron Age	VA, CP			Talvio 1994: 53; Talvio 2002: 142
	668862	323951	668581	23945	Stray find?	Stone Age				
Attu, Kapelludden	668316	323912	668035	23905	Chapel site	Medieval		TYA 512:1, TYA 551, TYA 577:1-2, TYA 657:1	Asplund 1990; Asplund 1991; Asplund 1994	
Attu, Labbholm	668091	324276	667810	24270	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Attu, Labbholm	668092	324276	667811	24270	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Attu, Pargas port	668021	323850	667741	23843	Stone oven	Post-Medieval			Nyberg 1984	
Björkholm	668426	323675	668145	23669	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Björkholm	668427	323676	668146	23669	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Bläsnäs	669841	324021	669560	24014	Inscription	Post-Medieval			Nyberg 1984	
Bläsnäs	669848	324016	669567	24010	Inscription	Post-Medieval			Nyberg 1984	
Bläsnäs, Nedergård	669832	324032	669551	24026	Stray find	Stone Age	LNE/EBA	KM 7995:15		Lehto 1959: 2
Boda	668601	324305	668320	24299	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Boda	668601	324304	668320	24298	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Boda	668601	324303	668320	24297	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Boda	668607	324321	668326	24315	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Boda, Fanasund	668609	324442	668328	24435	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Degerby, Fagervik	669256	323051	668975	23045	Settlement site	Stone Age		TYA 641:1-158, TYA 666:1-94, TYA 711:1-47	Raike 1999; Kehusmaa 1999	
Degerby, Kalkuddsbergen	669279	323216	668998	23210	Undefined	Undated			Rajala 1992	
Degerby, Klofsan	669260	322950	668979	22944	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Garsböle, Övergård	669802	324886	669520	24879	Settlement site?	Stone and/or Bronze Age				
Garsböle, Övergård	669856	324914	669575	24908	Stray find?	Stone Age				
Gråberget	669615	324036	669334	24030	Inscription	Post-Medieval			Nyberg 1984	
Granvik	668572	323725	668291	23719	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Haradsholm, Fläskbergen	668717	323476	668437	23470	Undefined	Undated			Rajala 1992	
Haradsholm, Fläskbergen	668722	323482	668441	23476	Cairn?	Bronze and/or Iron Age			Rajala 1992	
Haradsholm, Fläskbergen	668722	323476	668442	23470	Undefined	Undated			Rajala 1992	
Haradsholm, Fläskbergen	668744	323456	668464	23450	Undefined	Undated			Rajala 1992	
Haradsholm, Fläskbergen	668759	323454	668478	23447	Stone oven?	Historical Period			Rajala 1992	
Haradsholm, Karingrund	668725	323205	668444	23199	Inscription	Post-Medieval			Nyberg 1984; Rajala 1992	
Haraldsholm, Långstrandsberg	668602	323482	668322	23475	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Haradsholm, Öijen	668713	323325	668432	23319	Undefined	Undated			Rajala 1992	
Haraldsholm, Ön	668708	323269	668427	23263	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992

Heisala, Kärrvik	668359	323693	668078	23686	Stone oven	Post-Medieval			Nyberg 1984	
Hembygdsvägen	669696	324025	669415	24018	Inscription	Post-Medieval			Nyberg 1984	
Jermo	667933	324119	667653	24112	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Jermo	668008	323848	667728	23842	Cairn?	Bronze and/or Iron Age				
Jermo	668040	323992	667760	23986	Cairn?	Bronze and/or Iron Age				
Jermo	667993	323989	667713	23982	Stray find	Iron Age	VA	Pargas hembygds-museum 2869	Asplund 1992	
Jermo, Portnäset	668029	323883	667749	23876	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Jermo, Roparudden	667991	323983	667710	23976	Undefined	Historical Period			Brusila 1993	
Kapellstrand, Nunnavuori	670001	324516	669720	24509	Cairn?	Bronze and/or Iron Age			Lehtonen 2003	
Kapellstrand, Nunnavuori	670007	324520	669726	24513	Cairn?	Bronze and/or Iron Age			Lehtonen 2003	
Kirjala, Bredviksbacken	670262	324357	669981	24350	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kirjala, Bredviksbacken **	670267	324366	669986	24359	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kopparböle	669650	323068	669369	23061	Undefined	Historical Period				
Kopparböle	669652	323066	669371	23060	Undefined	Undated				
Kopparböle	669655	323066	669374	23060	Undefined	Undated				
Kopparböle	669659	323072	669377	23066	Undefined	Historical Period				
Kopparböle	669661	323072	669380	23066	Undefined	Undated				
Koupo, Rösbacken	669650	323048	669369	23042	Settlement site	Stone and/or Bronze Age		TYA 843:1-48, 56	Asplund 2007	
Koupo, Rösbacken	669650	323048	669369	23042	Cairn	Iron Age		TYA 843:49-55	Asplund 2007	
Koupo, Uppgård	669648	323048	669367	23042	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Koupo, Uppgård	669652	323047	669371	23041	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kullasbacken	669699	324046	669417	24039	Inscription	Post-Medieval			Nyberg 1984	
Kyrksundet	669738	324086	669457	24079	Stray find	Post-Medieval			Brusila & Ikäheimo 1986	
Lillmälö, Sandholm	668936	323006	668655	23000	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lilltervo, Nygård	668888	323289	668607	23282	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lilltervo, Nygård	668902	323304	668621	23298	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lilltervo, Nygård	668903	323311	668622	23305	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lofsdal	669061	323597	668780	23590	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lofsdal	669077	323638	668796	23632	Inscription	Post-Medieval			Nyberg 1984	
Lofsdal	669085	323595	668804	23589	Inscription	Post-Medieval			Nyberg 1984	
Lofsdal	669134	323638	668853	23631	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lofsdal	669161	323691	668880	23685	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lofsdal, Bergholmen	669281	323776	669000	23769	Inscription	Post-Medieval			Nyberg 1984	
Lofsdal, Kummelberget	668973	323696	668692	23690	Cairn	Bronze and/or Iron Age				
Lofsdal, Kummelberget	668973	323713	668692	23707	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992

Lofsdal, Kummelberget	668973	323710	668693	23704	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lofsdal, Lenholm	669072	323552	668791	23545	Settlement site	Historical Period			Tuovinen 1995	
Lofsdal, Namnberget	669116	323611	668835	23605	Inscription	Post-Medieval			Nyberg 1984	
Lofsdal, Stortervo	669156	323659	668875	23652	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Loskarnäs	670046	323766	669764	23760	Inscription	Post-Medieval			Nyberg 1984	
Loskarnäs	670087	323768	669805	23761	Inscription	Post-Medieval			Nyberg 1984	
Loskarnäs, Östergård					Boat find	Medieval or Post-Medieval		TMM 16316:1-3		
Långholmen	668573	323988	668293	23982	Inscription	Post-Medieval			Nyberg 1984	
Långholmen	668575	324020	668295	24013	Inscription	Post-Medieval			Nyberg 1984	
Malmgatan	669688	324075	669407	24068	Stray find	Iron Age		KM 13619		Tuovinen 1994: 40
Mielisholm	668727	324074	668446	24067	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mielisholm	668728	324073	668448	24066	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mustfinnö	669825	322983	669544	22977	Non-site	Undated				
Mågby	668547	323595	668266	23589	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mågby	668549	323646	668269	23639	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mågby	668554	323636	668273	23630	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mågby	668710	323601	668429	23595	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mågby, Klobben	668502	323490	668221	23484	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mågby, Sandvik	668547	323615	668266	23609	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mågby, Sandvik	668548	323595	668267	23589	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mågby, Sandvik	668550	323622	668270	23615	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mågby, Sandvik	668565	323633	668285	23627	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mågby, Sandvik	668567	323587	668286	23581	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Ontala					Stray find	Undated				
Ontala					Stray find?	Stone Age	LNE/EBA			
Ontala	669679	323264	669398	23258	Undefined	Undated			Nyberg 1984	
Parsby, Östergård *	669745	324014	669463	24007	Stray find	Stone Age	BAT	KM 15526		
Prästgården	669671	324208	669389	24202	Inscription	Post-Medieval			Nyberg 1984	
Pölsböle	670235	324698	669954	24691	Undefined	Undated				
Sildala, Stortervo	668882	323657	668601	23650	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Skärmola	669442	323271	669161	23265	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Skräbböle	669473	323928	669192	23921	Inscription	Post-Medieval			Nyberg 1984	
Sorpo, Dirgerholmen	668185	323784	667904	23778	Stone oven	Post-Medieval			Nyberg 1984	
Sorpo, Porttorpsbacken	668021	323816	667741	23810	Stone oven	Post-Medieval			Nyberg 1984	
Stormälö, Klofsudden	669247	322927	668966	22921	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Strandby, Norrby	669710	322957	669429	22951	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992

Sunnanberg	669848	323379	669567	23373	Undefined	Undated				
Sydmo	669515	322984	669234	22978	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sydmo, Ålö					Boat find	Post-Medieval		KM kt 7490		
Sydmo, Sydmo malmarna	669722	323061	669441	23055	Settlement site?	Stone and/or Bronze Age		TYA 499:1-2	Tuovinen 1989	
Tara, Norrgård	669840	323714	669559	23708	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tara, Norrgård	669841	323708	669560	23702	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Toijois	669893	323445	669611	23439	Undefined	Undated				
Tojoinen, Vivalängsberg	669895	323451	669613	23444	Undefined	Undated			Brusila 1989	
Vallis, Södergård	669690	323669	669408	23663	Cairn	Bronze and/or Iron Age		TYA 170	Mickelson 1954; Sjöstrand 1980	Tuovinen & Vuorinen 1992
Vannais, Nygård	670007	323262	669726	23256	Stray find?	Undated				
Vannais, Nygård	669961	323299	669679	23293	Stray find	Undated		KM 10958:1		Lehto 1959: 2
Vannais, Nygård	669981	323301	669699	23295	Stray find	Iron Age		KM 10958:2		
Vånå, Uppgård					Stray find	Post-Medieval		KM Rahakammio 69004		Ahlberg 1998: 11, 50
Västermälö	669227	323189	668946	23183	Undefined	Undated			Rajala 1992	
Västermälö, Vestergård	669191	323120	668910	23114	Tomtning	Medieval or Post-Medieval		TYA 788:1-5	Asplund 2002	
Vävargatan	669698	324100	669416	24093	Stray find	Historical Period				
Widkulla					Stray find	Medieval or Post-Medieval		Pargas hembygds-museum 672		

Perniö

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
					Stray find	Undated		KM 10045:14		
					Stray find	Stone Age		KM 10045:16-17		
					Undefined	Stone Age	BAT	KM 10531		
					Stray find	Undated		KM 16727		
					Stray find	Stone Age		KM 2912:142		
					Stray find	Stone Age	BAT	KM 2912:143		
					Stray find	Stone Age		KM 2912:150		
					Stray find	Stone Age		KM 3106:6		
					Stray find	Stone Age	BAT	KM 3163:12		
					Stray find	Stone Age		KM 3163:13		
					Stray find	Stone Age		KM 3187:21		
					Stray find	Stone Age		KM 3187:22		
					Stray find	Stone Age		KM 3187:27		
					Stray find?	Iron Age		KM 3187:44		
					Stray find	Stone Age		KM 3684:23		
					Stray find	Historical Period?		KM 6129:6		
					Stray find	Stone Age		KM 8707:7		
					Stray find	Stone Age		Paarskylän kartano F.K.2		
					Stray find	Undated		Paarskylän kartano F.K.3		
					Stray find	Undated		Paarskylän kartano F.K.4		
					Stray find	Stone Age		Paarskylän kartano F.K.5		
					Stray find	Undated		Paarskylän kartano F.K.6		
					Stray find	Stone Age		Paarskylän kartano F.K.6		
					Stray find	Bronze Age		Perniön museo		
					Stray find	Stone Age		Perniön museo 10:1		
					Stray find	Stone Age		Perniön museo 11:1		
					Stray find	Stone Age		Perniön museo 13:1		
					Stray find	Stone Age		Perniön museo 14:1		
					Stray find	Stone Age		Perniön museo 15:1		
					Stray find	Stone Age		Perniön museo 16:1		
					Stray find	Stone Age		Perniön museo 17		
					Stray find	Stone Age		Perniön museo 19:1		
					Stray find	Stone Age		Perniön museo 2:1		

					Stray find	Stone Age		Perniön museo 20:1		
					Stray find	Stone Age		Perniön museo 21:1		
					Stray find	Stone Age		Perniön museo 2148 A		
					Stray find	Stone Age		Perniön museo 22:1		
					Stray find	Stone Age?		Perniön museo 25:1		
					Stray find	Stone Age		Perniön museo 27:1		
					Stray find	Stone Age		Perniön museo 29:1		
					Stray find	Stone Age		Perniön museo 30:1		
					Stray find	Bronze Age	LNE/EBA	Perniön museo 3076		
					Stray find	Stone Age		Perniön museo 3080		
					Stray find	Stone Age		Perniön museo 3081		
					Stray find	Stone Age	MES	Perniön museo 3082		
					Stray find	Stone Age		Perniön museo 3083		
					Stray find	Iron Age		Perniön museo 3090		
					Stray find	Stone Age		Perniön museo 3091		
					Stray find	Stone Age		Perniön museo 31:1		
					Stray find	Stone Age	BAT	Perniön museo 33:1		
					Stray find	Stone Age	BAT	Perniön museo 35:1		
					Stray find	Bronze Age		Perniön museo 37:1		
					Stray find	Undated		Perniön museo 38:1		
					Stray find	Undated		Perniön museo 39:1		
					Stray find	Undated		Perniön museo 40:1		
					Stray find	Undated		Perniön museo 41:1		
					Non-site	Undated		Perniön museo 43:1		
					Stray find	Stone Age		Perniön museo 44:1		
					Stray find	Stone Age		Perniön museo 45:1		
					Stray find	Undated		Perniön museo 48:1		
					Stray find	Undated		Perniön museo 49:1		
					Stray find	Iron Age		Perniön museo 50:1		
					Stray find	Bronze and/or Iron Age		Perniön museo 51:1		
					Stray find	Bronze and/or Iron Age		Perniön museo 52:1		
					Stray find	Undated		Perniön museo 53:1		
					Stray find	Stone Age		Perniön museo 6:1		
					Stray find	Stone Age		Perniön museo 7:1		
					Stray find	Stone Age		Perniön museo 8:1		
					Stray find	Stone Age		Perniön museo 9:1		

					Stray find	Stone Age		Perniön museo Ac		
					Stray find?	Undated		Perniön museo Ad		
					Stray find	Stone Age		Perniön museo Ak		
					Stray find	Stone Age		Perniön museo Ar		
					Stray find	Undated		Perniön museo Ba		
					Stray find?	Iron Age?		Perniön museo Be		
					Stray find?	Iron Age?		Perniön museo Bf		
					Stray find?	Iron Age?		Perniön museo Bg		
					Stray find	Undated		TMM 6416:1		
					Stray find	Undated		TMM 6417:1		
Aaljoki					Stray find	Stone Age		KM 3106:4		
Aaljoki **	668885	329287	668604	29278	Stray find	Stone Age		KM 6832:1	Raike 1998	
Aaljoki					Stray find	Stone Age		KM 8707:2		
Aaljoki					Stray find	Undated		KM 8707:3		
Aaljoki					Stray find	Stone Age		TMM/Linderin kokoelma 187		
Aaljoki					Stray find	Stone Age		TMM 13171:1-3		
Aaljoki, Alaskylä **	668901	329358	668620	29349	Stray find	Stone Age		KM 6918	Raike 1998	
Aaljoki, Alatalo **	669008	329311	668727	29302	Stray find	Stone Age?		KM 3187:25		
Aaljoki, Alkio					Stray find	Stone Age		KM 3187:28		
Aaljoki, Kavanderin torppa					Stray find	Stone Age		KM 6800:4		
Aaljoki, Knaapila					Stray find	Stone Age		KM 6037:4		
Aaljoki, Kraatari **	668831	329365	668550	29356	Stray find	Stone Age		KM 3106:7	Raike 1998	
Aaljoki, Kraatari **	668885	329287	668604	29278	Stray find	Stone Age		KM 6037:2	Raike 1998	
Aaljoki, Kraatarin talo **	668885	329287	668604	29278	Stray find	Iron Age		KM 6037:6	Raike 1998	
Aaljoki, Metsäniittu **	668885	329287	668604	29278	Stray find	Stone Age		KM 6800:2	Raike 1998	
Aaljoki, Metsäniittu **	668885	329287	668604	29278	Stray find	Undated		KM 6800:3	Raike 1998	
Aaljoki, Onnenmäki 1	668917	329273	668636	29264	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Aaljoki, Onnenmäki 2	668933	329269	668653	29261	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Aaljoki, Onnenmäki 2	668934	329268	668654	29260	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Aaljoki, Takapelto **	669008	329311	668727	29302	Stray find	Stone Age		KM 8707:1	Raike 1998	
Aaljoki, Takapelto					Stray find	Stone Age		Perniön museo 1:1		
Aaljoki, Uustupa					Stray find	Stone Age	BAT	KM 3106:2		
Aaljoki, Uustupa					Stray find	Stone Age		KM 3106:3		
Aaljoki, Värrä **	668907	329324	668626	29316	Stray find	Stone Age		KM 3106:1	Raike 1998	
Aaljoki, Värrä **	669008	329311	668727	29302	Stray find	Stone Age		KM 3106:5	Raike 1998	
Aaljoki, Värrä **	669008	329311	668727	29302	Stray find	Stone Age		KM 3444:3	Raike 1998	

Aaljoki, Värrä **	668907	329324	668626	29316	Stray find	Stone Age		KM 6037:1	Raike 1998	
Aimontappo, Korven niitty **	669215	329118	668934	29109	Stray find	Stone Age		KM 3684:18	Raike 1998	
Aimontappo, Kuusimäki **	669178	329092	668897	29084	Settlement site	Stone Age		KM 15837; KM 19756:1-6; KM 19757; KM 19758:1-2	Salmo 1927; Salmo 1963; Raike 1998	Salmo 1980: 18-19
Aimontappo, Kuusimäki					Stray find	Stone Age		KM 17924:1		
Aimontappo, Kuusimäki					Stray find	Stone Age		KM 17924:2		
Aimontappo, Kuusimäki					Stray find	Stone Age		KM 17924:3		
Aimontappo, Kuusimäki	669145	329055	668864	29046	Stray find	Stone Age	BAT	KM 20500		
Aimontappo, Rauha **	669215	329118	668934	29109	Stray find	Stone Age		KM 6766:2	Raike 1998	
Aimontappo, Salminiemi					Stray find	Stone Age?		KM 15810	Salmo 1963	
Aimontappo, Salminiemi **	668980	329077	668699	29069	Stray find	Stone Age		KM 15810:1-3		
Aimontappo, Vuorela **	668961	329140	668680	29132	Stray find	Stone Age		KM 8707:4	Raike 1998	
Alaspää **	667555	328891	667275	28883	Stray find	Stone Age		KM 3444:1-2		
Alaspää					Stray find	Stone Age		Perniön museo 27 A		
Arpala					Boat find	Undated		Perniön museo 2102a		
Arpala					Stray find	Undated		Perniön museo 2102b		
Arpalahti					Stray find	Undated		KM 51		
Arpalahti, Kankare					Stray find	Bronze Age		KM 6795:5	Hackman 1916	
Arpalahti, Korven niitty					Stray find	Stone Age		KM 3684:17		
Arpalahti, Tervakankare					Stray find	Stone Age	BAT	Paarskylän kartano F.K.1		
Arpalahti, Tyynelä	669061	328664	668780	28656	Cemetery	Iron Age	MER, VA	KM 3593:1-12; KM 4078:1-48; KM 5441:1-3; KM 8707:11-18; KM 9265	Ailio 1900; Salmo 1927; Cleve 1930; Raike 1998	Salmo 1980: 62-63, 74
Arpalahti, Tyynelä					Stray find	Iron Age?		KM 9119		
Arpalahti, Tyynelä					Stray find	Iron Age	MER	Perniön museo 54		
Arpalahti, Tyynelä					Stray find	Iron Age	MER	Perniön museo 55		
Arpalahti, Unosi					Stray find?	Stone Age				
Arpalahti, Vähätupa					Stray find	Iron Age?		KM 24549		
Arpalahti, Vierniitty					Stray find	Stone Age		KM 2912:149		
Arpalahti, Yliskylän hau-tausmaa	669118	328618	668837	28609	Cemetery	Iron Age	MER, VA, CP	KM 2912:1-43,44-132; KM 2939:1-3; KM 3106:25-33; KM 13199; KM 13248:1-3; KM 17381	Salmo 1927; Appelgren 1897; Raike 1998	Salmo 1980: 58-62, 84-88
Arpalahti, Yliskylän hautausmaa	669118	328618	668837	28609	Stray find	Iron Age	LRA	KM 2912:44		Hackman 1905: 33, Atlas 1:9
Asteljoki					Undefined pit site	Undated				
Asteljoki, Asteljoen kartano	668244	328726	667963	28718	Cairn?	Bronze and/or Iron Age			Salmo 1964; Raike 1998	Tuovinen & Vuorinen 1992
Asteljoki, Hiettaronmäki	668257	328897	667977	28889	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992

Asteljoki, Hiettaronmäki	668253	328891	667972	28882	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	
Asteljoki, Hiettaronmäki	668250	328889	667969	28880	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	
Asteljoki, Hiettaronmäki	668248	328891	667967	28882	Cairn	Bronze and/or Iron Age			Raike 1998	
Asteljoki, Hiettaronmäki	668245	328887	667964	28879	Cairn	Bronze and/or Iron Age			Raike 1998	
Asteljoki, Jokiharju	668367	328882	668087	28874	Cairn?	Bronze and/or Iron Age			Raike 1998	Tuovinen & Vuorinen 1992
Ervelä					Stray find	Stone and/or Bronze Age		KM 3469		
Ervelä, Antinmäki	668458	328989	668178	28981	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Ervelä, Antinmäki	668417	328955	668136	28947	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Ervelä, Antinmäki	668427	328953	668146	28944	Cairn?	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Ervelä, Asteljoki					Boat find	Undated		KM 5683:1-5		
Ervelä, Kaukonpyöli	668411	329132	668130	29124	Stray find	Stone Age		KM 21890		
Germundsvedja					Stray find	Iron Age				Salmo 1980: 52-53
Germundsvedja					Stray find	Stone Age		Perniön museo 18:1		
Germundsvedja					Stray find	Stone Age		Perniön museo 5:1		
Germundsvedja, Alkoholistihuoltola	668081	327175	667801	27168	Stray find	Iron Age		KM 20323		
Germundsvedja, Slottkärr					Stray find	Stone Age		Perniön museo 3:1, Perniön museo 4:1		
Germundsvedja, Takaniitunkallio	667877	327168	667597	27160	Cairn	Bronze and/or Iron Age			Raike 1998	Tuovinen & Vuorinen 1992
Germundsvedja, Viikinkivuori	667973	327094	667692	27086	Cairn	Bronze and/or Iron Age			Raike 1998	Tuovinen & Vuorinen 1992
Germundsvedja, Viikinkivuori	667971	327116	667690	27108	Cairn	Bronze and/or Iron Age			Raike 1998	Tuovinen & Vuorinen 1992
Germundsvedja, Viksberg **	668080	327193	667800	27186	Stray find	Stone Age		KM 3104:1		
Haarla, Grönbacka					Stray find	Undated		Perniön museo 1501		
Haarla, Niemi					Stray find	Stone Age		Perniön museo Af		
Haarla, Ruoksuo					Stray find	Stone and/or Bronze Age	LNE/EBA	Perniön museo 36:1		
Haarla, Susi **	668237	328456	667957	28448	Stray find	Iron Age	VA	KM 15503		Salmo 1980: 80-81
Haaroinen, Rinne **	668757	329346	668476	29338	Stray find	Undated		KM 6832:3	Raike 1998	
Hirvilahti					Stray find	Undated		KM 23228		
Hirvilahti, Huusla					Stray find?	Stone Age				
Huhti **	668477	329003	668196	28995	Mound	Undated			Salmo 1927	
Huhti **	668477	329003	668196	28995	Cairn?	Bronze and/or Iron Age			Salmo 1927	
Huhti **	668477	329003	668196	28995	Cairn?	Bronze and/or Iron Age			Salmo 1927	
Huhti **	668477	329003	668196	28995	Mound	Undated			Salmo 1927	
Huhti **	668477	329003	668196	28995	Mound	Undated			Salmo 1927	

Huhti **	668477	329003	668196	28995	Mound	Undated			Salmo 1927	
Huhti **	668477	329003	668196	28995	Stray find	Undated		KM 3444:44	Salmo 1927	
Huhti					Stray find	Iron Age		KM 6129:5		
Huhti, Antinmäki	668458	328989	668178	28981	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Huhti, Antinmäki	668457	328990	668177	28982	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Huhti, Varemäki	668494	329016	668214	29007	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Huhti, Varemäki	668495	329017	668214	29008	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Hämeenkylä, Härkähaka					Stray find	Stone Age		KM 9591:1		
Hämeenkylä, Kalliola					Stray find	Stone Age		KM 16747		
Hämeenkylä, Kätkynmäki					Stray find	Stone Age		KM 9591:3		
Hämeenkylä, Kirkola					Stray find	Stone Age		Perniön museo 24:1		
Hämeenkylä, Kivelä					Stray find	Stone Age		KM 14544		
Hämeenkylä, Nummila					Stray find	Stone Age		Perniön museo 123		
Iso-Kestrikki, Leikkonen					Stray find	Undated		KM 16144		
Isopappila					Stray find	Stone Age		Perniön museo 2203:1; Perniön museo 2204:1		
Kakola					Stray find	Undated		KM 8707:5		
Kakola, Saarinen					Stray find	Stone Age		Perniön museo 26:1		
Kalliomäki					Stray find	Stone Age		KM 27733		
Kantola **	668466	329412	668185	29404	Stray find	Bronze Age	LNE/EBA	KM 12022		
Kestrikki, Leikkonen 1	667700	328414	667420	28406	Cemetery	Iron Age		KM 30656:1-5	Raike 1998	
Kestrikki, Leikkonen 2	667669	328406	667388	28398	Settlement site	Bronze and/or Iron Age		KM 30657:1	Raike 1998	
Kettukankare					Undefined	Iron Age?		KM 30642		
Ketunkankare					Undefined	Iron Age?		KM 30659		
Ketunpyöli					Stray find	Bronze Age	LNE/EBA	KM 10920		
Ketunpyöli *	668706	328979	668425	28970	Stray find	Stone Age	LNE/EBA	Perniön museo 3641		
Kieronperä	669235	328915	668954	28907	Cairn	Bronze and/or Iron Age			Raike 1998	Tuovinen & Vuorinen 1992
Kieronperä	669201	328734	668920	28725	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kieronperä	669202	328736	668921	28727	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kieronperä	669220	328727	668939	28719	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kieronperä	669222	328727	668941	28718	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kieronperä	669227	328724	668946	28715	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kieronperä, Kansakoulu					Stray find	Historical Period		KM 6915:2		
Kieronperä, Kieronperä 1	669175	328754	668894	28746	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kieronperä, Kieronperä 2	669183	328753	668902	28744	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kieronperä, Kieronperä 2	669185	328751	668904	28743	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992

Kirjakkala					Stray find	Stone Age		TMM 13234		
Kirjakkala, Onnelannummi	669031	327930	668751	27922	Stone oven	Historical Period			Asplund 1992; Raike 1998	
Kirjakkala, Tattaroistenmäki	669278	327778	668997	27770	Cairn	Bronze Age		KM 3618:1; KM 4079:1-3	Salmo 1927; Raike 1998	Salmo 1980: 36, 38; Tuovinen & Vuorinen 1992
Kivelä	668149	328195	667868	28187	Cairn?	Iron Age?			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kivelä	668155	328192	667875	28184	Cemetery?	Iron Age?		KM 4464:1-2	Sirelius 1902; Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kivelä, Uusitalo	668133	328147	667853	28139	Cairn?	Bronze and/or Iron Age			Raike 1998	
Kivelä, Vaarnummi	668118	328154	667837	28146	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kivelä, Vaarnummi	668118	328155	667837	28147	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kivelä, Vaarnummi	668118	328150	667837	28142	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kivelä, Vaarnummi	668132	328149	667851	28141	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kivelä, Vaarnummi	668121	328152	667840	28144	Cairn	Bronze and/or Iron Age		KM 6129:1-4	Ailio 1912; Salmo 1927; Raike 1998	Salmo 1980: 37; Tuovinen & Vuorinen 1992
Knaapila					Stray find	Stone Age	BAT	KM 2803:1		
Knaapila					Stray find	Stone Age	BAT	Perniön museo At		
Knaapila, Harjula					Stray find	Stone Age		Perniön museo 1691		
Knaapila, Marjakankare					Stray find?	Stone Age				
Knaapila, Mäntylä	668743	329269	668462	29260	Cairn	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927	Tuovinen & Vuorinen 1992
Knaapila, Tamminummi	668742	329157	668461	29149	Cairn	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Knaapila, Tamminummi	668742	329156	668461	29148	Cairn	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Knaapila, Tamminummi	668742	329157	668461	29149	Cairn	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Knaapila, Tamminummi	668738	329160	668457	29152	Cairn?	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927	Tuovinen & Vuorinen 1992
Knaapila, Uusitupa					Stray find	Stone Age		KM 3684:20		
Knaapila, Varemäki	668755	329267	668474	29259	Cairn	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Knaapila, Varemäki	668754	329267	668473	29259	Cairn	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Knaapila, Varemäki	668753	329269	668472	29260	Cairn	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Knaapila, Varemäki	668753	329269	668472	29260	Cairn	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Knaapila, Varemäki	668741	329271	668460	29262	Cairn	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Knaapila, Varemäki	668753	329267	668472	29258	Cairn	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927; Salonen 1929; Raike 1998	Salmo 1980: Kuva 22; Tuovinen & Vuorinen 1992
Knaapila, Varemäki	668743	329267	668462	29258	Cairn?	Bronze and/or Iron Age			Europaeus 1924; Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992

Knaapila, Varemäki					Stray find	Undated		KM 10398		
Knaapila, Varemäki	668753	329267	668472	29258	Cairn?	Bronze and/or Iron Age		KM 10579:1-3	Europaeus 1924; Salmo 1927; Kivikoski 1937; Raike 1998	Tuovinen & Vuorinen 1992
Knaapila, Varemäki	668753	329267	668472	29258	Cairn?	Undated		KM 8612:1-3	Europaeus 1924; Tallgren 1925; Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Koivisto, Kirisoja **	668017	328803	667737	28795	Stray find	Stone Age	BAT	KM 6766:1		
Koivisto, Vähätalo **	668004	328927	667723	28918	Stray find	Stone Age		KM 6026:1		
Kokkila					Stray find	Stone Age		KM 14589		
Kokkila, Hakala					Stray find	Bronze Age	LBA	KM 9138:2	Cleve 1930; Pälsi 1930	
Kokkila, Hakala					Stray find	Stone Age		KM 9151:1		
Kokkila, Hakala					Stray find	Undated		KM 9151:2		
Kokkila, Hakala					Settlement site	Stone and/or Bronze Age		KM 9193:1-2	Cleve 1930; Pälsi 1930	
Kokkila, Hakala					Stray find	Stone Age		KM 9193:3		
Korttila	668205	329136	667925	29127	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Korttila, Alitalo	668220	329145	667939	29136	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	
Korttila, Alitalo	668220	329146	667939	29137	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	
Korttila, Rajamäki	668225	329145	667944	29136	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Korttila, Rajamäki	668225	329145	667944	29136	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Korttila, Rajamäki	668229	329143	667948	29135	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Korttila, Rajamäki	668234	329143	667953	29135	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Korttila, Rajamäki	668233	329139	667953	29131	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Korttila, Rajamäki	668235	329139	667955	29131	Cairn?	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Korttila, Rajamäki	668235	329140	667955	29132	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Korttila, Rajamäki	668236	329140	667956	29132	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Korvenkylä, Ahjo **	669281	328766	669000	28758	Stray find	Stone Age		KM 15835:1-2	Salmo 1963; Raike 1998	
Koski					Stray find	Stone Age		KM 6302:5		
Koski					Stray find	Stone Age		Perniön museo 3085		
Koski					Stray find	Undated		Perniön museo 3088		
Koski, Kansakoulu					Stray find	Undated		Perniön museo 2093		
Koski, Kollarla					Stray find	Stone Age		KM 2794:52		
Koski, Myllylahti **	668214	329497	667933	29488	Stray find	Undated		KM 6357:1		
Kouvola, Uusiniitty **	668521	328463	668241	28455	Stray find	Stone Age		KM 8707:6		
Kuhminen	669037	328674	668756	28666	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kuhminen	668981	328655	668701	28646	Clearance cairn	Historical Period			Raike 1998	
Kuhminen					Stray find	Stone Age	BAT	F. Kaarlosen yksityiskokoelma		
Kuhminen					Stray find	Stone Age		KM 6795:1		

Kuhminen					Stray find	Stone Age		KM 6795:3		
Kuhminen, Antlanpelto	669050	328652	668769	28643	Settlement site	Iron Age		KM 24547:1-9; KM 30643	Poutiainen 1989; Raike 1998	
Kuhminen, Anttila					Cairn?	Undated			Salmo 1927	
Kuhminen, Anttila					Stray find	Stone Age		KM 3315:55		
Kuhminen, Anttila **	669002	328868	668721	28859	Stray find	Iron Age		KM 3444:5	Raike 1998	
Kuhminen, Anttila					Stray find	Stone and/or Bronze Age	LNE/EBA	KM 8708:1		
Kuhminen, Huvimäki					Stray find	Undated		KM 14166		
Kuhminen, Kankare					Stray find	Stone Age		KM 17043		
Kuhminen, Kankare					Stray find	Stone Age		KM 6795:2		
Kuhminen, Kankare					Stray find	Undated		Perniön museo 3089		
Kuhminen, Kulla	668989	328619	668708	28610	Stray find	Iron Age		KM 24546:1-4	Raike 1998	
Kuhminen, Laurila					Stray find	Stone Age		KM 11785		
Kuhminen, Laurila					Stray find	Stone Age		KM 14167		
Kuhminen, Linnamäki	668976	329002	668695	28993	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kuhminen, Linnamäki	668974	329001	668693	28992	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kuhminen, Linnamäki	668974	329003	668693	28994	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kuhminen, Linnamäki	668972	329002	668691	28993	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Kuhminen, Linnamäki	668973	329001	668692	28992	Hillfort?	Undated			Salmo 1927; Raike 1998	Salmo 1980: 94
Kumionpää					Stray find	Iron Age		KM 2912:156		
Kumionpää, Alitalo					Stray find	Stone Age		KM 2912:139		
Kumionpää, Muuraissuo					Stray find	Stone Age		KM 2912:153		
Kyynämäki					Stray find	Stone Age		KM 3315:53		
Kyynämäki, Isotalo	667849	328533	667569	28525	Undefined	Undated		KM 3315:52	Appelgren 1896; Salmo 1927; Raike 1998	
Kyynärä					Stray find	Stone Age		Perniön museo 2026		
Laiterla, Laiterlan koulu					Stray find	Stone Age	BAT	Perniön museo 3640		
Laitila					Stray find	Historical Period		KM 3315:58		
Lapparla	668154	328908	667873	28900	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lapparla	668173	328926	667892	28918	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lapparla, Hiettaronmäki	668235	328932	667954	28924	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lapparla, Isonummenahde	668154	328927	667873	28919	Mound?	Undated			Salmo 1927; Raike 1998	
Lapparla, Isonummenahde	668154	328927	667873	28919	Mound?	Undated			Salmo 1927; Raike 1998	
Lapparla, Isonummenahde	668154	328927	667873	28919	Cairn?	Undated			Salmo 1927; Raike 1998	
Lapparla, Isonummenahde	668153	328915	667873	28907	Mound?	Undated			Salmo 1927; Raike 1998	
Latokartano, Maasilta					Stray find	Stone Age		KM 2794:18		
Latokartano, Maasilta					Stray find	Stone Age		KM 2794:24		

Latokartano, Ryssäntorninmäki	667439	328701	667159	28692	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lehtiniitty					Stray find	Stone Age		KM 11391:1-2		
Lemu					Stray find	Stone Age		KM 4102:1		
Lemu					Stray find	Stone Age		KM 9168		
Lemu, Keskitalo					Stray find	Stone Age		Perniön museo 3077		
Lemu, Palteila					Stray find	Bronze Age		KM 13774:1-2		
Lemu, Tyystö					Stray find	Stone Age		Perniön museo 1689		
Lemu, Tyystö					Stray find	Stone Age		Perniön museo 1690		
Lemunkartano, Hyypiän-mäki	668372	329129	668091	29120	Cairn	Bronze and/or Iron Age			Salmo 1927; Lähdesmäki 1980; Raike 1998	
Lemunkartano, Hyypiän-mäki	668376	329124	668096	29115	Cairn	Bronze and/or Iron Age			Salmo 1927; Lähdesmäki 1980; Raike 1998	
Lemunkartano, Hyypiän-mäki	668376	329123	668096	29114	Cairn?	Bronze and/or Iron Age			Salmo 1927; Lähdesmäki 1980; Raike 1998	
Lemunkartano, Hyypiän-mäki	668375	329122	668095	29113	Cairn	Bronze and/or Iron Age			Salmo 1927; Lähdesmäki 1980; Raike 1998	
Lemunkartano, Hyypiän-mäki	668374	329123	668094	29114	Cairn?	Bronze and/or Iron Age			Salmo 1927; Lähdesmäki 1980; Raike 1998	
Lemunkartano, Lehmihaka	668366	329048	668085	29040	Cairn?	Bronze and/or Iron Age			Salmo 1927; Lähdesmäki 1980; Lähdesmäki 1980; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668380	329070	668099	29061	Cairn	Bronze and/or Iron Age			Salmo 1927; Lähdesmäki 1980; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668377	329068	668096	29059	Cairn	Bronze and/or Iron Age			Salmo 1927; Lähdesmäki 1980; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668365	329054	668085	29046	Cairn	Bronze and/or Iron Age			Salmo 1927; Lähdesmäki 1980; Läh-desmäki & Salo 1982; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668367	329051	668087	29043	Undefined	Undated			Lähdesmäki 1980; Lähdesmäki & Ruotsalainen 1982; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668383	329072	668102	29063	Cairn	Bronze and/or Iron Age			Salmo 1927; Lähdesmäki 1980; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668382	329062	668101	29053	Undefined	Undated			Lähdesmäki 1980; Lähdesmäki & Ruotsalainen 1982; Raike 1998	
Lemunkartano, Lehmihaka	668365	329046	668084	29038	Undefined	Undated			Salmo 1927; Lähdesmäki 1980; Lähdesmäki & Ruotsalainen 1982; Raike 1998	
Lemunkartano, Lehmihaka	668367	329051	668086	29042	Cairn?	Bronze and/or Iron Age			Lähdesmäki 1980; Lähdesmäki & Ruotsalainen 1982; Raike 1998	
Lemunkartano, Lehmihaka	668383	329067	668102	29058	Cairn	Bronze and/or Iron Age		TYA 158:1-13	Salmo 1927; Lähdesmäki 1980; Raike 1998	Tuovinen & Vuorinen 1992

Lemunkartano, Lehmihaka	668363	329050	668083	29042	Cairn	Bronze and/or Iron Age		TYA 158:14-18	Salmo 1927; Lähdesmäki 1980; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668366	329047	668085	29039	Cairn	Bronze and/or Iron Age		TYA 158:19-65	Salmo 1927; Lähdesmäki 1980; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668366	329047	668085	29039	Cairn	Bronze and/or Iron Age		TYA 158:66-70	Salmo 1927; Lähdesmäki 1980; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668368	329053	668088	29045	Cairn	Bronze and/or Iron Age		TYA 174:1-16	Salmo 1927; Lähdesmäki 1980; Lähdesmäki 1980; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668368	329052	668088	29044	Cairn	Bronze and/or Iron Age		TYA 174:17-31	Salmo 1927; Lähdesmäki 1980; Lähdesmäki 1980; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668366	329049	668085	29041	Cairn	Bronze and/or Iron Age		TYA 174:32-54	Salmo 1927; Lähdesmäki 1980; Lähdesmäki 1980; Raike 1998	
Lemunkartano, Lehmihaka	668365	329050	668085	29042	Cairn	Bronze and/or Iron Age		TYA 174:55-75	Salmo 1927; Lähdesmäki 1980; Lähdesmäki 1980; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668366	329046	668085	29038	Settlement site	Early Metal Period	LBA, PRIA	TYA 174:76-77; TYA 196: 52-80; TYA 207:137-202	Lähdesmäki & Ruotsalainen 1982; Raike 1998	Lähdesmäki 1983; Lähdesmäki 1987
Lemunkartano, Lehmihaka	668367	329051	668087	29043	Cairn	Bronze and/or Iron Age		TYA 196:1-51; TYA 417	Salmo 1927; Lähdesmäki 1980; Lähdesmäki & Ruotsalainen 1982; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Lehmihaka	668366	329046	668085	29038	Cairn	Bronze and/or Iron Age		TYA 207:1-136	Salmo 1927; Lähdesmäki 1980; Lähdesmäki & Ruotsalainen 1982; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Pajapakankankare	668306	329118	668026	29109	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Rajakallio	668235	329142	667955	29134	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Rajakallio	668238	329140	667958	29132	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Rajakallio	668240	329140	667960	29131	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Rajakallio	668240	329140	667960	29131	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Rajakallio	668240	329139	667960	29130	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Rajakallio	668242	329137	667962	29128	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Rajakallio	668243	329136	667963	29127	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Rajakallio	668244	329137	667964	29128	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkartano, Rajakallio	668245	329154	667964	29145	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lemunkylä, Suulpakankankare	668303	329130	668022	29122	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lemunsuo	668247	329077	667966	29068	Pollen sample site					Vuorela 1985
Liiri	667921	328698	667640	28690	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Lupaja					Cup-marked stone?	Iron Age?				Salmo 1980: 93
Lupaja					Stray find	Stone Age	BAT	KM 2025:8		
Lupaja					Stray find	Iron Age?		KM 3104:22		
Lupaja, Horttomäki	668098	328715	667818	28707	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992

Lupaja, Horttomäki	668098	328713	667818	28705	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lupaja, Horttomäki	668100	328716	667820	28707	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lupaja, Karpinmäki	668025	328580	667745	28572	Undefined	Undated				Tuovinen & Vuorinen 1992
Lupaja, Karpinmäki 1	668043	328530	667762	28521	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lupaja, Karpinmäki 1	668044	328529	667763	28520	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lupaja, Karpinmäki 2	668037	328546	667756	28538	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lupaja, Prestkullanmäki	668163	328590	667882	28582	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lupaja, Prestkullanmäki	668164	328589	667884	28581	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Lupaja, Rantala 1	668005	328574	667724	28566	Cup-marked stone	Iron Age?			Salmo 1927; Salmo 1955; Raike 1998	
Lupaja, Rantala 2	668000	328567	667719	28558	Cup-marked stone	Iron Age?			Salmo 1955; Raike 1998	Salmo 1980: 93
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi	667954	328562	667674	28553	Cup-marked stone	Iron Age?			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667966	328557	667686	28549	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	

Lupaja, Tiikkinummi*	667954	328569	667673	28560	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi*	668002	328559	667722	28551	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi	667956	328559	667676	28550	Cup-marked stone	Iron Age?			Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi					Stray find	Historical Period		KM 29608		
Lupaja, Tiikkinummi					Undefined	Iron Age?		KM 30302		
Lupaja, Tiikkinummi	667962	328564	667681	28556	Cemetery	Iron Age	LRA	KM 3106: 9-13	Salmo 1927; Raike 1998	Hackman 1905: 26; Salmo 1980: 49-50
Lupaja, Tiikkinummi	667954	328569	667673	28560	Mound?	Iron Age?		KM 3106:8	Salmo 1927; Raike 1998	
Lupaja, Tiikkinummi	667965	328566	667684	28558	Cemetery	Iron Age	LRA	KM 3720:1-155	Salmo 1927; Raike 1998	Hackman 1905: Fig. 14, 26-32; Salmo 1980: 49-50
Lupaja, Tiikkinummi	667969	328557	667689	28549	Cemetery	Iron Age	LRA	KM 3720:156-167	Salmo 1927; Raike 1998	Hackman 1905: 32-33
Lupaja, Tiikkinummi	667998	328550	667717	28541	Cemetery?	Iron Age	LRA	KM 3720:218-220		Hackman 1905: 33
Lupaja, Tiikkinummi					Stray find	Undated		KM 3720:221		
Lupaja, Tiikkinummi	667954	328568	667674	28560	Cemetery	Iron Age	MER, VA	KM 7752:1-60; KM 30441	Salmo 1927; Salmo 1955; Asplund 1996; Raike 1998	Salmo 1980: 68
Lupaja, Tiikkinummi					Stray find	Iron Age	VA	KM 8582		Salmo 1980: 81-82
Lupaja, Tiikkinummi	667948	328595	667668	28587	Stray find	Iron Age	VA	KM 9191:1-3		Salmo 1980: 81-82
Lupaja, Uusitalo	668010	328591	667729	28583	Undefined	Undated	LRA		Salmo 1927; Raike 1998	
Lupaja, Uusitalo	668010	328591	667729	28583	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	
Lupaja, Uusitalo	668010	328591	667729	28583	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Uusitalo	668010	328591	667729	28583	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Uusitalo	668010	328591	667729	28583	Undefined	Undated			Salmo 1927; Raike 1998	
Lupaja, Uusitalo	668025	328602	667745	28594	Cemetery	Iron Age	LRA, MIG	KM 3720:168-206	Salmo 1927; Raike 1998	Hackman 1905: 24-26; Salmo 1980: 51
Lupaja, Uusitalo	668009	328594	667728	28586	Cemetery	Iron Age	LRA	KM 3720:207-217	Salmo 1927; Raike 1998	Hackman 1905: 23-24; Salmo 1980: 50-51
Mathildedal					Stray find	Stone Age?		KM 25786		
Mathildedal					Stray find	Stone Age		KM 2794:68		
Matilda, Matilda 1	668418	327526	668137	27518	Stray find	Stone Age		KM		
Matilda, Matilda 2	668393	327528	668112	27520	Stray find	Stone Age		KM		
Matilda, Matilda 3	668386	327534	668106	27526	Stray find	Stone Age		KM		
Matilda, Matilda 4	668381	327537	668101	27530	Stray find	Stone Age		KM		
Matilda, Matilda A	668409	327534	668129	27526	Settlement site?	Stone Age		KM		
Matilda, Matilda B	668429	327576	668148	27568	Settlement site?	Stone Age		KM		
Matinkylä					Stray find	Stone Age		KM 10126:3		
Melkkilä, Kivikankare					Stray find	Iron Age?		KM 28695		
Merihuhti					Stray find	Stone Age		KM 3104:3		

Metsänoja					Stray find	Stone Age		Perniön museo 28:1		
Metsänoja, Yrjännummi					Stray find	Stone Age?		KM 26579		
Mustasaari, Kaukari					Stray find	Stone Age		KM 3684:21		
Mutainen	669229	327926	668948	27918	Settlement site	Stone Age	CC	KM 15251:1-30; KM 15255:1; KM 15256; KM 15491:1-112; KM 26413; Perniön museo 2506	Meinander 1961; Raike 1998	Salmo 1980: 21-25
Mutainen					Stray find	Stone Age		KM 15255:1		
Mutainen					Stray find	Stone Age		KM 20441:1-6		
Mutainen					Stray find	Stone Age	BAT	Perniön museo 34:1		
Mutainen, Rantakallio					Stray find	Stone Age		Perniön museo 3079		
Mutainen, Rantakallio					Stray find	Stone Age		Perniön museo 3087		
Mylpakan torppa					Stray find	Undated		Perniön museo 3078		
Mäkisauru	668694	328510	668413	28502	Cup-marked stone	Iron Age?			Raike 1998	
Mäkisauru	668694	328510	668413	28502	Cemetery?	Iron Age			Raike 1998	
Mäkisauru	668694	328510	668413	28502	Settlement site?	Iron Age and/or Medieval		KM 24554	Raike 1998	
Mäkisauru					Undefined	Iron Age?		KM 30658		
Mäkisauru, Iso-Perhe	668717	328546	668436	28538	Cemetery?	Iron Age		KM 30641	Raike 1998	
Mälkilä, Sivinaho	668129	328360	667849	28352	Cairn?	Bronze and/or Iron Age			Salmo 1927; Raike 1998	
Mälkilä, Sivinaho	668131	328361	667851	28353	Cairn?	Bronze and/or Iron Age			Salmo 1927; Raike 1998	
Mälkkilä	668131	328365	667851	28357	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Mälkkilä	668132	328362	667852	28354	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Nakola **	668358	329009	668078	29000	Stray find	Bronze Age	LBA	KM 12069		
Nokipelto					Stray find	Stone Age		KM 3187:26		
Nurkkila					Stray find	Stone and/or Bronze Age		Perniön museo 46:1		
Nurkkila					Stray find	Stone and/or Bronze Age		Perniön museo 47:1		
Nurkkila, Alastalo					Stray find	Stone and/or Bronze Age		KM 3104:8		
Nurkkila, Alastalo					Stray find	Stone and/or Bronze Age		KM 3104:9		
Osala	667778	328559	667497	28550	Cemetery?	Iron Age?			Salmo 1945; Raike 1998	Salmo 1980: 49
Osala	667776	328557	667496	28548	Cemetery	Iron Age	LRA	KM 11233:1-9	Salmo 1945; Raike 1998	Salmo 1980: 49, Kuva 32-33
Osala, Nybacka	667777	328557	667497	28548	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Osala, Nybacka	667777	328557	667497	28548	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Paarskylä					Stray find	Bronze Age	LNE/EBA	KM 2025:10		
Paarskylä, Hepohaanmäki 1	668614	329026	668333	29018	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Paarskylä, Hepohaanmäki 2	668613	328998	668333	28990	Cairn?	Bronze and/or Iron Age			Raike 1998	Tuovinen & Vuorinen 1992
Paarskylä, Holminalusta					Stray find	Stone Age		KM 10013		

Paarskylä, Hossanpelto					Stray find	Stone Age		KM 9283:1		
Paarskylä, Isoniitty					Stray find	Stone Age		KM 9374		
Paarskylä, Kanturböle					Stray find	Iron Age		KM 8708:2		
Paarskylä, Kataviston pelto **	668816	328599	668535	28591	Stray find	Iron Age	VA	KM 9859		
Paarskylä, Lehtiniitty					Stray find	Stone Age		KM 11185		
Paarskylä, Lehtiniitty					Stray find	Stone Age		KM 3684:22		
Paarskylä, Lepistö					Stray find	Iron Age	MER	F. F. Kaarlosen kokoelma		
Paarskylä, Lepistö	668868	328634	668587	28626	Cemetery	Iron Age	MIG, MER	KM 8533:1-9; KM 9284	Salmo 1927; Poutiainen 1989; Raike 1998	Salmo 1980: 53-55, 57, 64
Paarskylä, Muuraissuo					Stray find	Stone Age		KM 2912:152		
Paarskylä, Paarskylän kartano					Undefined pit site	Undated			Appelgren 1897	
Paarskylä, Paarskylän kartano					Stray find	Iron Age	CP	KM 10794		
Paarskylä, Paarskylän kartano	668805	328662	668524	28654	Stray find?	Stone and/or Bronze Age		KM 10795:40	Voionmaa & Leppäaho 1938	
Paarskylä, Paarskylän kartano	668805	328662	668524	28654	Cemetery	Iron Age	MER, VA, CP	KM 577; KM 2912:162,164-205; KM 3106:14-24; KM 3187:51; KM 3315:1-51; KM 8846; KM 10795:1-39,41-110; KM 11252:1-98; KM 17137:1-56	Appelgren 1896; Appelgren 1896; Appelgren 1897; Salmo 1927; Voionmaa & Leppäaho 1938; Salmo 1940; Keskitalo 1966; Raike 1998	Salmo 1980: 65-67, 76-80
Paarskylä, Pajanpelto					Stray find	Stone Age		KM 12528		
Paarskylä, Puolamäki					Stray find	Stone Age		KM 8707:8		
Paarskylä, Sahanpelto **	668823	328649	668543	28641	Stray find	Bronze and/or Iron Age		KM 11194:1		
Paarskylä, Sahanpelto					Stray find	Undated		KM 11194:2		
Paarskylä, Sahanpelto **	668823	328648	668543	28640	Stray find	Iron Age	VA	KM 11253:1-2		Salmo 1980: 79-80
Paarskylä, Sahanpelto **	668831	328620	668550	28611	Stray find	Iron Age		KM 13404		Salmo 1980: Kuva 64, 90
Paarskylä, Sahanpelto					Stray find	Undated		KM 9283:2		
Paarskylä, Sauru **	668808	328599	668527	28590	Stray find	Iron Age	MER	KM 9981		
Pappila					Stray find	Stone Age		KM 1119		
Pappila, Ikäkiven pelto **	668328	328536	668047	28527	Stray find	Iron Age		KM 2912:157		
Pappila, Tammelin	668368	328537	668087	28529	Stray find	Iron Age	VA	KM 7069:1-3		Salmo 1980: 80
Penttilä, Hakamäki	668143	328312	667862	28304	Cairn	Bronze and/or Iron Age			Salmo 1927	Tuovinen & Vuorinen 1992
Penttilä, Hakamäki	668142	328312	667861	28304	Cairn	Bronze and/or Iron Age			Salmo 1927	Tuovinen & Vuorinen 1992
Penttilä, Kruuvankankare	668129	328318	667849	28310	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Penttilä, Kruuvankankare	668132	328316	667852	28308	Cairn	Bronze and/or Iron Age			Salmo 1927; Salmo 1929; Raike 1998	Tuovinen & Vuorinen 1992
Penttilä, Penttilä 1	668155	328317	667875	28309	Cairn?	Undated			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992

Penttilä, Penttilä 3	668133	328360	667853	28351	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Pohjankartano					Stray find	Stone Age		KM 2912:148		
Pohjankartano					Stray find	Stone Age		KM 3187:23		
Pohjankartano, Lehtikankare					Stray find	Stone Age		KM 2912:146		
Pohjankartano, Lindströmin torppa					Stray find	Stone Age		KM 2912:137		
Pohjankartano, Masurinpelto					Stray find	Stone Age		KM 2912:133		
Pohjankartano, Rajapakan torppa					Stray find	Stone Age		KM 2912:134		
Pohjankartano, Sillanpää					Stray find	Stone Age		KM 2912:147		
Pohjankylä					Stray find	Stone Age		KM 3187:20		
Pohjankylä					Stray find	Stone Age		KM 3187:24		
Pohjankylä					Stray find	Stone Age		KM 9207:3-5		
Pohjankylä, Aurasen torppa					Stray find	Stone Age		KM 2912:151		
Pohjankylä, Halla					Stray find	Stone Age		Perniön museo 2072		
Pohjankylä, Halla					Stray find	Stone Age		Perniön museo 2073		
Pohjankylä, Hamarinkoski					Stray find	Iron Age?		KM 24555		
Pohjankylä, Kuukallio	669453	328468	669172	28459	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Pohjankylä, Nirva					Stray find	Stone Age		KM 9076		
Pohjankylä, Pohjan kartano					Stray find	Stone Age		Perniön museo Ag		
Pohjankylä, Risamäki					Stray find	Iron Age?		KM 24556		
Pohjankylä, Rysspakan mäki					Stray find	Stone Age		KM 2912:145		
Preitti, Preitti 1	667592	328320	667312	28312	Settlement site	Iron Age		KM 30644:1-11	Raike 1998	
Preitti, Preitti 10	667609	328336	667328	28327	Settlement site	Bronze and/or Iron Age		KM 30653:1-6	Raike 1998	
Preitti, Preitti 11	667609	328336	667328	28327	Settlement site?	Bronze and/or Iron Age		KM 30654:1-2	Raike 1998	
Preitti, Preitti 12	667562	328320	667282	28311	Settlement site	Bronze and/or Iron Age		KM 30655:1-2	Raike 1998	
Preitti, Preitti 2	667598	328324	667318	28316	Settlement site	Iron Age		KM 30645:1-6	Raike 1998	
Preitti, Preitti 3	667585	328307	667305	28298	Settlement site	Iron Age		KM 30646:1-8	Raike 1998	
Preitti, Preitti 4	667595	328303	667315	28295	Settlement site	Bronze and/or Iron Age		KM 30647:1-2	Raike 1998	
Preitti, Preitti 5	667636	328329	667356	28321	Settlement site	Bronze and/or Iron Age		KM 30648:1-4	Raike 1998	
Preitti, Preitti 6	667633	328321	667353	28313	Settlement site	Bronze and/or Iron Age		KM 30649:1-10	Raike 1998	
Preitti, Preitti 7	667632	328318	667351	28309	Settlement site	Bronze and/or Iron Age		KM 30650:1-3	Raike 1998	
Preitti, Preitti 8	667627	328305	667347	28297	Settlement site	Bronze and/or Iron Age		KM 30651:1-4	Raike 1998	
Preitti, Preitti 9	667616	328320	667336	28312	Settlement site	Bronze and/or Iron Age		KM 30652:1-3	Raike 1998	
Päärinen, Erkintalo	668904	328611	668623	28603	Settlement site	Iron Age		KM 25348:1-5	Raike 1998	
Päärinen, Hakala	668838	328534	668557	28525	Settlement site	Stone Age		KM 30640:1-2	Raike 1998	

Päärinen, Ketunkankare	668904	328603	668623	28595	Mound	Iron Age?			Salmo 1958; Raike 1998	
Päärinen, Ketunkankare	668899	328609	668618	28600	Undefined pit site	Undated			Salmo 1958; Salmo 1959	
Päärinen, Ketunkankare					Stray find	Bronze and/or Iron Age		KM 11058		Salmo 1980: Kuva 37
Päärinen, Pihlajamäki	668955	328589	668674	28581	Cup-marked stone	Iron Age?			Voionmaa 1938; Poutiainen 1989; Raike 1998	Salmo 1980: 93
Päärinen, Riihimäki	668899	328609	668618	28600	Cemetery	Iron Age	MER, VA	KM 14471:1-3; KM 14621:1-158; KM 15336	Salmo 1958; Salmo 1959; Raike 1998	Salmo 1980: 64-65, 74-76
Pääris					Stray find	Stone Age		KM 21920:1		
Pääris					Stray find	Undated		KM 21920:2		
Radanvarsi	669140	328570	668859	28561	Stray find?	Iron Age			Raike 1998	
Skoila **	668079	327613	667799	27605	Stray find	Undated		KM 3104:7		
Skoila					Stray find	Stone Age		Perniön museo 1651		
Skoila, Brokärr **	668079	327613	667799	27605	Stray find	Stone Age		KM 3104:2		
Skoila, Isorahka	668245	327587	667964	27579	Settlement site	Stone Age		KM 25785	Brusila 1990; Raike 1998	
Skoila, Itätalo	668114	327643	667833	27636	Cairn?	Undated			Raike 1998	
Sormijärvi					Stray find	Stone Age		KM 4163:5		
Sormijärvi, Kuuttasuo					Stray find	Stone Age		KM 3684:19		
Sormijärvi, Puolamäki	668734	328960	668453	28951	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Sormijärvi, Puolamäki	668736	328957	668456	28948	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Sormijärvi, Puolamäki	668737	328957	668457	28948	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Sormijärvi, Puolamäki	668742	328964	668461	28956	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Sormijärvi, Puolamäki	668734	328958	668453	28949	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Sormijärvi, Puolamäki					Stray find	Stone Age	BAT	KM 4163:6		
Sormijärvi, Puolamäki					Stray find	Stone Age		KM 4163:7		
Sormijärvi, Sällylä					Stray find	Stone and/or Bronze Age		KM 4163:1-4		
Sormijärvi, Sällylä **	668837	329019	668556	29011	Stray find	Stone Age		KM 8707:9		
Sormijärvi, Varemäki	668865	329011	668584	29002	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Strömma					Stray find	Stone Age		KM 25339		
Strömma					Stray find	Undated		KM 3104:6		
Strömma, Sandåkern **	668107	327279	667826	27271	Stray find	Iron Age		KM 23042		
Suksenböle	668137	328624	667857	28616	Settlement site	Bronze and/or Iron Age		KM 28170:1-4	Bilund 1994; Raike 1998	
Suomenkylä	668544	329097	668263	29089	Cairn	Bronze and/or Iron Age			Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä	668546	329091	668265	29083	Cairn	Bronze and/or Iron Age			Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä	668544	329097	668263	29089	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä	668535	329080	668255	29071	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä	668535	329079	668255	29070	Cairn	Bronze and/or Iron Age			Raike 1998	Tuovinen & Vuorinen 1992

Suomenkylä	668533	329078	668253	29069	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä	668536	329079	668256	29070	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä					Stray find	Stone Age		KM 6037:3		
Suomenkylä, Lampola					Stray find	Stone Age		KM 3684:24		
Suomenkylä, Lampola					Stray find	Stone Age		KM 3684:25		
Suomenkylä, Leuarinmäki	668508	329179	668227	29170	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Leuarinmäki	668492	329169	668212	29161	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Leuarinmäki	668489	329168	668209	29159	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Leuarinmäki	668487	329166	668207	29157	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Leuarinmäki	668487	329166	668207	29157	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Leuarinmäki	668486	329167	668206	29158	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Leuarinmäki	668475	329163	668194	29155	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Leuarinmäki	668468	329169	668188	29160	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Leuarinmäki	668467	329170	668187	29161	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Leuarinmäki	668457	329166	668177	29158	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Leuarinmäki	668477	329181	668196	29173	Cairn?	Bronze and/or Iron Age			Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Ritanummi	668468	329127	668187	29118	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Ritanummi	668470	329126	668190	29118	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Ritanummi	668473	329125	668193	29117	Cairn?	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Ritanummi	668473	329131	668192	29123	Cairn?	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Ritanummi	668480	329099	668200	29091	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Tuomolanhaka	668502	329127	668221	29119	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Tuomolanhaka	668503	329128	668222	29119	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Tuomolanhaka	668503	329129	668222	29120	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Suomenkylä, Tuomolanhaka	668498	329125	668218	29117	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Teijo					Stray find	Stone Age		Perniön museo 2456		
Teijo					Stray find	Undated		Perniön museo 2457		
Teijo					Stray find	Stone Age		Perniön museo Aa		
Teijo					Stray find	Undated		Teijon kansakoulu		
Teijo, Kansakoulu					Stray find	Iron Age		Perniön museo 1502		
Teijo, Kausmosasuo					Stray find	Stone Age		Perniön museo 127		
Teijo, Kirakanjärvi	668299	327638	668018	27630	Stone oven	Historical Period			Asplund 1992; Raike 1998	
Teijo, Lakiassuo	668386	327615	668105	27607	Stone oven	Historical Period			Asplund 1992; Raike 1998	
Teijo, Lankkeri					Stray find	Stone Age		Perniön museo 128		
Teijo, Pellonpää					Stray find	Stone Age		Teijon kansakoulu		
Teijo, Punassuo	668516	328037	668235	28029	Stone oven	Historical Period			Asplund 1992	

Teijo, Rivolanmäki					Stray find	Undated		KM 12419		
Teijo, Teijon kirkkomäki					Stray find	Historical Period		TYA 185:1		
Tilkkala					Stray find	Stone Age	BAT	KM 12026		
Tilkkala	668340	329323	668059	29315	Cairn	Bronze and/or Iron Age		KM 14588:1-7	Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Tilkkala	668345	329324	668064	29315	Cairn	Bronze and/or Iron Age		KM 14588:1-7	Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Tilkkala					Stray find	Stone Age		Perniön museo 2148		
Torkila	668286	329210	668006	29201	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Torkila, Uutela	668255	329158	667975	29150	Cairn	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Torkila, Varemäki	668303	329232	668023	29223	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Torkila, Varemäki	668309	329230	668029	29221	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Torkila, Yhteismetsä	668286	329209	668006	29200	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tottola					Stray find	Undated		KM 25349		
Tuohittu					Stray find	Stone Age	BAT	TMM / Linderin kokoelma 181		
Tuohittu					Stray find	Stone Age		TMM / Linderin kokoelma 182		
Tuohittu					Stray find	Stone Age		TMM / Linderin kokoelma 191		
Tuohittu					Stray find	Stone Age		TMM / Linderin kokoelma 192		
Tuohittu					Stray find	Stone Age		TMM / Linderin kokoelma 194		
Tuohittu					Stray find	Stone Age		TMM / Linderin kokoelma 195		
Tuohittu, Hannu **	669207	329294	668926	29285	Stray find	Stone Age	BAT	KM 2912:144	Raike 1998	
Tuohittu, Koivula	669179	329607	668898	29598	Cairn?	Bronze and/or Iron Age			Salmo 1927; Raike 1998	Tuovinen & Vuorinen 1992
Tuohittu, Koivula					Stray find	Stone Age		KM 6832:2		
Tuohittu, Naarjärven saari	669184	329536	668903	29527	Settlement site?	Stone Age		KM 2912:140-141	Salmo 1927; Raike 1998	
Tuohittu, Naarjärvi					Stray find	Undated		KM 2912:163		
Tuohittu, Pietilä					Stray find	Early Metal Period		KM 7173		
Tuohittu, Pietilä					Stray find	Undated		KM 8707:10		
Tuohittu, Pieto					Stray find	Stone Age		KM 2436:16		
Tuohittu, Pieto					Stray find	Stone Age		KM 2436:17		
Tuohittu, Pieto					Stray find	Stone Age		KM 2436:18		
Tuohittu, Pieto					Stray find	Stone Age		KM 2912:154		
Tuohittu, Saloniemi **	669286	329526	669005	29517	Stray find	Iron Age		KM 6915:1		
Tuulihattu	661531	328527	661253	28519	Stray find	Stone Age		KM 21891		
Uusiniitty					Stray find	Stone Age		KM 11316:2		
Vaivaistalo					Stray find	Stone Age		KM 3104:5		
Vihiniemi					Stray find	Stone Age		KM 9152		
Vihiniemi, Aspen					Stray find	Stone Age		KM 8984:3		
Vihiniemi, Koski					Stray find	Stone Age		KM 10045:2		

Vihiniemi, Kupparinkoski					Stray find	Stone Age		KM 14575:1-2		
Vihiniemi, Törmä					Stray find	Stone Age		Perniön museo Aj		
Viipuri, Aateliskankare	667779	328229	667498	28221	Undefined	Undated			Salmo 1927; Asplund 1992	
Viipuri, Kallela	667844	328238	667563	28230	Pit-trap?	Historical Period			Asplund 1992; Raike 1998	
Viipuri, Lundelin	667777	328229	667496	28221	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Väärlä, Alitalo					Stray find	Stone Age?		KM 14192		
Väärlä, Pohjanrinne					Stray find	Stone Age		KM 14474		
Yliskylä	669124	328583	668843	28575	Cemetery?	Iron Age?			Raike 1998	
Yliskylä					Stray find	Iron Age?		KM 24552		
Yliskylä					Stray find	Stone Age		Perniön museo 23:1		
Yliskylä, Ajon haka					Stray find	Stone Age		Perniön museo 3084		
Yliskylä, Ketunkankare					Stray find	Iron Age	VA	KM 16632	Raike 1998	
Yliskylä, Ketunkankare	669183	328586	668902	28577	Settlement site	Iron Age		KM 24553:1-5	Raike 1998	
Yliskylä, Matsuo	669191	328578	668910	28570	Cemetery?	Iron Age		KM 25347:1-4	Poutiainen 1989; Raike 1998	
Yliskylä, Ristinkulma					Stray find	Iron Age?		KM 24548		
Yliskylä, Öfverbygård 1	669135	328591	668854	28583	Cup-marked stone	Iron Age			Poutiainen 1989; Poutiainen 1989; Raike 1998	
Yliskylä, Öfverbygård 1	669135	328591	668854	28583	Settlement site?	Iron Age		KM 24550:1-2	Poutiainen 1989; Poutiainen 1989; Raike 1998	
Yliskylä, Öfverbygård 2	669137	328579	668856	28571	Cup-marked stone	Iron Age			Poutiainen 1989; Poutiainen 1989; Raike 1998	
Yliskylä, Öfverbygård 2	669137	328579	668856	28571	Settlement site?	Iron Age		KM 24545:1-4	Poutiainen 1989; Poutiainen 1989; Raike 1998	
Yliskylä, Öfverbygård 3	669147	328590	668866	28582	Settlement site?	Iron Age	VA	KM 16633; KM 24551:1-5	Raike 1998	
Öyrilä					Stray find	Stone Age		KM 3163:14		
Öyrilä, Isotalo					Stray find	Stone Age		KM 6905:6		
Öyrilä, Isotalo					Stray find	Stone Age		Perniön museo Ah		
Öyrilä, Vähätalo **	668604	329395	668324	29386	Stray find	Stone Age	BAT	KM 2912:138		
Öyrilä, Vähätalo **	668604	329395	668324	29386	Stray find	Stone Age		KM 6409:3		

Pertteli

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
					Stray find	Stone and/or Bronze Age		KM 10014	Pukkila 2002	
					Stray find	Bronze Age		KM 8837:124	Huurre 1965; Pukkila 2002	
Hähkänä					Stray find?	Stone Age			Huurre 1965; Pukkila 2002	
Hähkänä					Stray find	Stone Age		Hähkänän koulu	Huurre 1965; Pukkila 2002	
Hähkänä					Stray find	Stone Age	MES	KM 2025:3	Huurre 1965; Pukkila 2002	
Hähkänä, Ali-Arkkila	670978	329248	670696	29240	Settlement site	Stone Age	MES	KM 16786; Perttelin museo	Huurre 1965; Pukkila 2002	
Hähkänä, Haankorpi	670807	329299	670525	29290	Stray find	Stone Age			Pukkila 2002	
Hähkänä, Hiidenmäki	670682	329186	670400	29177	Stray find	Stone Age		Perttelin museo	Pukkila 2002	
Hähkänä, Hiirla	670730	329231	670448	29222	Stray find?	Stone Age			Huurre 1965; Pukkila 2002	
Hähkänä, Iimetsä					Stray find	Iron Age?		KM 6704:4	Huurre 1965; Pukkila 2002	
Hähkänä, Mäkimaa	670813	329222	670532	29213	Stray find	Stone Age	MES	KM 16784:1-2	Huurre 1965; Pukkila 2002	
Hähkänä, Mustakorpi	670771	329423	670490	29414	Stray find?	Stone Age			Huurre 1965; Pukkila 2002	
Hähkänä, Myllö	670727	329254	670445	29245	Stray find	Stone Age	BAT	KM 9175	Huurre 1965; Pukkila 2002	
Hähkänä, Niittymäki	670749	329324	670467	29315	Stray find?	Stone Age			Huurre 1965; Pukkila 2002	
Hähkänä, Palomäki	670641	329287	670360	29278	Stray find?	Stone Age			Huurre 1965; Pukkila 2002	
Hähkänä, Ristnummi	670863	329252	670581	29243	Undefined pit site	Historical Period?			Huurre 1965; Pukkila 2002	
Hähkänä, Sotjonkrotti	670881	329323	670599	29314	Stray find	Iron Age		KM 6578:3	Huurre 1965; Pukkila 2002	
Hähkänä, Venhekarppi	670583	329543	670301	29534	Settlement site	Stone Age		KM 33190:1-4	Pukkila 2002	
Hähkänä, Yli-Arkkila	670869	329355	670588	29347	Stray find	Stone Age	MES	KM 6589:3; KM 33196:1-2	Huurre 1965; Pukkila 2002	
Inkere					Stray find	Stone Age		KM 3684:16		
Inkere, Ali-Suutari	670960	329506	670678	29497	Stray find	Undated		KM 16770; KM 33197:1; Perttelin museo	Huurre 1965; Pukkila 2002	
Inkere, Haavankanto	670775	329838	670494	29829	Settlement site?	Stone Age		TMM 6791; KM 33198:1	Pukkila 2002	
Inkere, Holmen					Stray find	Stone Age		Perttelin museo 1128	Huurre 1965; Pukkila 2002	
Inkere, Kalkkimäki	670835	329829	670553	29820	Quarry	Historical Period			Huurre 1965; Pukkila 2002	
Inkere, Karistoja	670706	329579	670424	29571	Stray find	Stone Age		Perttelin museo	Huurre 1965; Pukkila 2002	
Inkere, Kotaniitty	670938	329501	670656	29492	Stray find	Stone Age		Perttelin museo	Huurre 1965	
Inkere, Muovitehdas	670804	329545	670522	29536	Settlement site?	Stone Age		KM 16771; KM 33188:1-6	Huurre 1965; Pukkila 2002	
Inkere, Pajari	670944	329491	670663	29482	Cemetery?	Iron Age	CP	KM 12387; KM 16769:1-5; KM 33193:1	Huurre 1965; Pukkila 2002	
Inkere, Pajarin Kotoniittu	670933	329491	670652	29482	Settlement site?	Stone Age		KM 4403:1-2; KM 16769:6-8	Huurre 1965; Pukkila 2002	
Inkere, Toramäki	671008	329544	670726	29535	Inscription	Historical Period			Huurre 1965; Pukkila 2002	
Inkere, Yhteismaa	670763	329553	670482	29544	Settlement site	Stone Age		KM 16772; 16773:1-2	Huurre 1965; Pukkila 2002	
Iso-Hiisi, Metsäniemi	671130	329792	670848	29783	Stray find	Stone Age		Perttelin museo	Huurre 1965; Pukkila 2002	

Iso-Hiisi, Metsäniemi	671141	329783	670860	29774	Stray find	Stone Age		Perttelin museo 511	Huurre 1965; Pukkila 2002	
Iso-Hiisi, Sippari	671135	329830	670853	29821	Stray find	Stone Age	MES	KM 10741:1-2	Huurre 1965; Pukkila 2002	
Iso-Hiisi, Sippari	671163	329797	670881	29789	Stray find	Stone Age		KM 16783	Huurre 1965; Pukkila 2002	
Iso-Hiisi, Ylhäinen	671096	329981	670815	29972	Stray find	Undated		Perttelin museo 1545	Huurre 1965; Pukkila 2002	
Kaivola **	671020	329336	670738	29328	Stray find?	Stone Age			Huurre 1965; Pukkila 2002	
Kaivola					Stray find	Stone Age		KM 2025:9	Pukkila 2002	
Kaivola					Stray find	Stone Age		KM 3684:14	Huurre 1965; Pukkila 2002	
Kaivola, Ali-Kauko	670999	329343	670718	29335	Stray find	Stone and/or Bronze Age		KM 16767	Huurre 1965; Pukkila 2002	
Kaivola, Kirkko	670987	329386	670706	29377	Stray find?	Iron Age?			Huurre 1965; Pukkila 2002	
Kaivola, Kotiranta	671002	329327	670720	29319	Stray find	Stone and/or Bronze Age		KM 16766:1-2; KM 33194:1	Huurre 1965; Pukkila 2002	
Kaivola, Kärri	670999	329383	670718	29375	Settlement site	Stone Age		KM 16768:1-4; KM 16897; KM 33192:1	Huurre 1965; Pukkila 2002	
Kaivola, Pappila	670945	329348	670663	29339	Stray find	Iron Age		KM 14792:1-2	Huurre 1965; Pukkila 2002	
Kaivola, Passi					Stray find	Stone Age		KM 2025:2		
Kaivola, Passi					Stray find	Stone Age		KM 6589:2	Huurre 1965; Pukkila 2002	
Kaivola, Uotila	671079	329365	670798	29356	Stray find	Iron Age		KM 15229	Salmo 1961; Huurre 1965; Pukkila 2002	
Kaivola, Yli-Kauko	670974	329297	670693	29289	Settlement site	Stone and/or Bronze Age		KM 16764:1-2; KM 16765:1-3; KM 33191:1	Huurre 1965; Pukkila 2002	
Kajala					Stray find	Iron Age		KM 3684:44	Huurre 1965; Pukkila 2002	
Kajala, Latopuosta	670672	329558	670390	29549	Settlement site	Stone Age		KM 16774:1-4; KM 16775; KM 16776; Perttelin museo 744,745	Huurre 1965; Pukkila 2002	
Kajala, Latopuosta	670661	329545	670379	29537	Stray find	Stone Age		Perttelin museo 743	Huurre 1965	
Kajala, Toivola	670624	329525	670343	29516	Stray find	Stone Age		KM 16785	Huurre 1965; Pukkila 2002	
Kaukola, Jokela	671139	329152	670857	29144	Stray find	Iron Age	VA	KM 16745	Huurre 1965; Pukkila 2002	
Kaukola, Kankare	671386	329159	671104	29150	Settlement site	Early Metal Period	LNE/EBA, PRIA	KM 16763:1-2	Huurre 1965; Pukkila 2002	Meinander 1969: 44; Hirviluoto 1991: 68, 205
Kaukola, Korpela	671181	329229	670899	29221	Stray find	Stone Age	MES	KM 13659	Huurre 1965; Pukkila 2002	
Kaukola, Kurajoen ranta	671056	329276	670775	29267	Stray find	Stone Age		KM 6578:1-2	Huurre 1965; Pukkila 2002	
Kaukola, Lononmäki	671359	329159	671077	29151	Cairn?	Undated			Pukkila 2002	
Nokka-Hiisi, Koskela					Stray find	Undated		KM 16898	Pukkila 2002	
Patala					Stray find	Historical Period		KM 3684:52	Pukkila 2002	
Patala, Keskitalo	670925	329954	670644	29945	Stray find	Stone Age	BAT	KM 16677	Huurre 1965; Pukkila 2002	
Perttelin kirkko					Stray find	Historical Period		KM 4593:12-13		
Pitkäkoski, Heinola	671314	330075	671033	30066	Stray find	Stone Age	MES	Perttelin museo 1543	Huurre 1965; Pukkila 2002	
Pitkäkoski, Heinola	671314	330075	671033	30066	Stray find	Undated		Perttelin museo 1544	Pukkila 2002	

Pitkäkoski, Rintala					Stray find	Stone Age		KM 9165	Huurre 1965; Pukkila 2002	
Pöytiö, Hiironpelto	670533	329719	670252	29710	Settlement site	Stone Age		KM 16782:1-3	Huurre 1965; Pukkila 2002	
Pöytiö, Järvelä	670354	330014	670072	30005	Stray find	Stone Age		KM 10181:1	Pukkila 2002	
Pöytiö, Linnamäki	670372	329834	670090	29825	Hillfort	Iron Age?			Huurre 1965; Pukkila 2002	
Pöytiö, Mertasaari	670358	330274	670077	30265	Stray find	Stone Age		KM 8893:7-9	Huurre 1965; Pukkila 2002	
Pöytiö, Pöytäluhta	670447	329719	670166	29710	Stray find	Iron Age		Perttelin museo	Huurre 1965; Pukkila 2002	
Pöytiö, Räimä					Stray find	Stone Age		KM 3829:3	Huurre 1965; Pukkila 2002	
Pöytiö, Räimä	670452	329701	670171	29692	Stray find	Undated		Perttelin museo	Huurre 1965; Pukkila 2002	
Pöytiö, Räimänummi	670280	330025	669999	30016	Undefined pit site	Undated			Pukkila 2002	
Romsila, Harjula	670595	329872	670313	29863	Settlement site?	Stone Age		KM 13314; KM 16678:1-5	Huurre 1965; Pukkila 2002	
Romsila, Kalliola	670494	329877	670213	29868	Settlement site?	Stone Age		KM 5987; KM 16781:1-2	Huurre 1965; Pukkila 2002	
Romsila, Kuusiranta	670591	329692	670309	29683	Settlement site	Stone Age		KM 16779:1-2; KM 33189:1-3	Huurre 1965; Pukkila 2002	
Romsila, Lehtimäki					Stray find	Stone Age		KM 4219:6-7	Huurre 1965; Pukkila 2002	
Romsila, Lempo	670618	329787	670337	29778	Stray find	Stone Age		Perttelin museo	Huurre 1965; Pukkila 2002	
Romsila, Luhta	670659	329824	670377	29815	Stray find	Stone Age		Perttelin museo	Huurre 1965; Pukkila 2002	
Romsila, Niku	670595	329816	670314	29807	Settlement site?	Stone Age		KM 16780:1-2	Huurre 1965; Pukkila 2002	
Romsila, Ojanperä E	670635	329687	670353	29679	Settlement site	Stone Age		KM 16778:1-7; Perttelin museo	Huurre 1965; Pukkila 2002	
Romsila, Ojanperä W	670645	329656	670364	29647	Settlement site	Stone Age		KM 16777:1-4; Perttelin museo	Huurre 1965; Pukkila 2002	
Romsila, Ruti					Stray find	Stone Age		KM 6589:1	Huurre 1965; Pukkila 2002	
Romsila, Seppälä					Stray find	Stone Age		KM 4199:1	Pukkila 2002	
Romsila, Töyrylä					Stray find?	Stone Age			Huurre 1965; Pukkila 2002	
Särksen torppa					Stray find	Historical Period		KM 3684:51	Pukkila 2002	
Tattula, Halla	671215	329521	670934	29513	Undefined pit site	Undated			Huurre 1965	
Tattula, Halla	671215	329521	670934	29513	Settlement site	Stone Age		KM 16787:1-6	Huurre 1965; Pukkila 2002	
Tattula, Kankareenpelto	671181	329543	670900	29534	Inscription	Post-Medieval			Huurre 1965; Pukkila 2002	
Tattula, Kartanonpelto	671087	329436	670805	29427	Stray find	Iron Age	VA	KM 6578:4; KM 33195:1-8	Huurre 1965; Pukkila 2002	
Tattula, Kurajoki					Stray find	Stone Age		KM 3684:15	Huurre 1965; Pukkila 2002	
Tattula, Ojala	671199	329531	670917	29522	Stray find	Stone Age	MES	KM 24798	Pukkila 2002	
Tattula, Ylöjoen pelto	671058	329452	670777	29444	Cemetery	Iron Age		KM 5857:1-2; KM 16679:1-7; KM 17858:1-2	Huurre 1965; Pukkila 2002	
Vähä-Hiisi, Rinne	671520	329785	671238	29776	Undefined pit site	Undated			Huurre 1965; Pukkila 2002	
Valkjärvi, Peltola	669938	330089	669656	30080	Stray find	Stone Age		KM 17440	Pukkila 2002	
Vihmalo, Haavikeoja					Undefined	Undated		Halikon kotis.museo 167		
Vihmalo, Haavikeoja	671131	329552	670849	29543	Cemetery	Iron Age	VA	KM 2025:11-14; KM 5361:3	Appelgren-Kivalo 1909; Huurre 1965; Pukkila 2002	

Piikkiö

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
					Stray find	Stone Age		Hämeen museo 945:5-7		
					Stray find	Stone Age		KM 30318		
					Stray find	Stone Age		Perniön museo 32:1		
					Stray find	Stone Age	BAT	TMM 119		
					Stray find	Stone Age	BAT	TMM 120		
					Stray find	Stone and/or Bronze Age	LNE/EBA	TMM 121		Luoto 1989: 26
					Stray find	Stone Age		TMM 124		
					Stray find	Stone Age		TMM 133		
					Stray find	Stone Age		TMM 134		
					Stray find	Stone Age		TMM 150		
					Stray find	Undated		TMM 166		
					Stray find	Undated		TMM 16613:2		
					Stray find	Stone Age		TMM 56		
					Stray find	Stone Age	BAT	TMM 7		
					Stray find	Stone Age?		TMM 90		
					Stray find	Stone Age		TMM 96		
Aro, Alitalo	671112	325709	670830	25702	Cairn	Bronze and/or Iron Age			Koskimies & Haapanen 1954; Brusila 1995	Tuovinen & Vuorinen 1992
Aro, Alitalo	671114	325706	670832	25699	Cairn	Bronze and/or Iron Age			Koskimies & Haapanen 1954; Brusila 1995	Tuovinen & Vuorinen 1992
Aro, Alitalo	671106	325710	670824	25703	Cairn	Bronze and/or Iron Age			Koskimies & Haapanen 1954; Brusila 1995	
Aro, Kesäkallio	671119	325768	670837	25761	Cairn	Bronze and/or Iron Age			Koskimies & Haapanen 1954; Brusila 1995	Tuovinen & Vuorinen 1992
Aro, Ylitalo	671130	325738	670848	25731	Undefined	Undated			Koskimies & Haapanen 1954; Brusila 1995	Tuovinen & Vuorinen 1992
Aro, Ylitalo A	671150	325746	670868	25739	Cairn	Bronze and/or Iron Age			Brusila 1995	Tuovinen & Vuorinen 1992
Aro, Ylitalo B	671149	325746	670867	25739	Cairn	Bronze and/or Iron Age			Brusila 1995	Tuovinen & Vuorinen 1992
Aro, Ylitalo C	671152	325745	670871	25737	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Aro, Ylitalo D	671155	325751	670873	25743	Cairn	Bronze and/or Iron Age			Brusila 1995	Tuovinen & Vuorinen 1992
Aro, Ylitalo E	671143	325744	670862	25737	Cairn	Bronze and/or Iron Age			Brusila 1995	Tuovinen & Vuorinen 1992
Aro, Ylitalo F	671143	325745	670861	25738	Cairn	Bronze and/or Iron Age			Brusila 1995	Tuovinen & Vuorinen 1992
Bussila					Stray find	Stone Age		KM 5573:5-13	Koskimies & Haapanen 1954; Brusila 1995	Knaapinen 1935: 12

Bussila, 1 **	671265	325483	670984	25476	Settlement site	Stone and/or Bronze Age		KM 24132:1-10	Asplund 1988; Poutiainen 1988; Brusila 1995	Asplund 1988
Bussila, 1	671270	325478	670988	25471	Settlement site?	Iron Age		TYA 259:1-3; TYA 391:1-2	Asplund & Luoto 1984; Asplund 1988; Brusila 1995	Asplund 1988
Bussila, 2 **	671229	325437	670948	25430	Settlement site?	Stone and/or Bronze Age		KM 24131:1-13	Asplund 1988; Poutiainen 1988; Brusila 1995	Asplund 1988
Bussila, 3 *	671225	325474	670943	25467	Settlement site?	Stone and/or Bronze Age		KM 24133:1-4	Poutiainen 1988; Brusila 1995	Asplund 1988
Bussila, Hepojoenranta	671282	325517	671000	25510	Settlement site?	Iron Age?		KM 29087:1-5; TYA 414:3-4	Asplund & Luoto 1984; Asplund 1988; Brusila 1995	
Bussila, Rydingin torppa					Stray find	Stone Age		Hämeen museo 396:1-5		Knaapinen 1935
Bussila, Skänkilä	671235	325444	670953	25437	Settlement site?	Iron Age and/or Medieval		KM 24130:1-13; TYA 414:1-2	Asplund & Luoto 1984; Asplund 1988; Poutiainen 1988; Brusila 1995	Asplund 1988
Bussila, Vuortenpää	671237	325549	670956	25542	Settlement site	Stone Age		KM 29088:1-7	Brusila 1995	
Hadvala, Asunto	670994	325298	670713	25291	Cemetery?	Iron Age		TYA 229:1-126	Asplund & Luoto 1983; Brusila 1995	
Hadvala, Kärmä 1	670998	325239	670716	25232	Cup-marked stone	Iron Age?			Brusila 1994; Brusila 1995	
Hadvala, Kärmä 2	671002	325242	670720	25235	Cup-marked stone	Iron Age?			Brusila 1994; Brusila 1995	
Hadvala, Mattilanmaa *	670997	325278	670716	25271	Settlement site	Iron Age	CP	KM 30442:1; TYA 229:16-111	Asplund & Luoto 1983; Asplund & Luoto 1983; Brusila 1995; Asplund 1996	Luoto 1989: 43
Hadvala, Mattilanmaa a	671002	325275	670721	25268	Stray find	Iron Age		KM 29409:1-3	Brusila 1995	
Hadvala, Moskala	671053	325191	670771	25185	Stray find	Stone and/or Bronze Age			Brusila 1995	
Hadvala, Myrskylinna	670958	325208	670676	25201	Cemetery	Iron Age	LRA, CP	KM 15692:1-2; KM 16168:1-14; KM 16234:1-9; KM 17308:25-45; KM 17794:1-25; KM 19001:1-62	Hirviluoto 1963; Hirviluoto 1964; Tamminen 1965; Lehtosalo 1968; Lehtosalo-Hilander 1969; Vikkula 1981; Vikkula 1982; Brusila 1995	Luoto 1989: 39-41
Hadvala, Myrskylinna	670958	325208	670676	25201	Settlement site?	Iron Age		KM 17308:1-24	Lehtosalo 1968; Brusila 1995	
Hadvala, Navirenrinne					Stray find?	Iron Age				Ikäheimo 1982: 22
Hadvala, Rekola 1	670992	325259	670710	25252	Cup-marked stone	Iron Age?			Brusila 1994; Brusila 1995	
Hadvala, Rekola 2	670993	325263	670711	25256	Cup-marked stone	Iron Age?			Brusila 1994; Brusila 1995	
Hadvala, Rekolanmäki	670991	325264	670709	25257	Cemetery	Iron Age		KM 29092:1-43; TYA 229:1-126	Asplund & Luoto 1983; Brusila 1995	
Hadvala, Ylhäisi	671004	325211	670722	25204	Stray find	Iron Age	VA	TMM 14662:1-32	Salmo 1953; Brusila 1995	Luoto 1989: 41-42
Harvaluoto					Stray find?	Undated			Brusila 1995	
Harvaluoto, Alastalo **	670456	325257	670175	25250	Stray find	Stone and/or Bronze Age	LNE/EBA	TMM 14847		
Hepojoki					Stray find	Stone and/or Bronze Age		KM 3696:1	Koskimies & Haapanen 1954; Brusila 1995	
Hepo-oja					Stray find	Stone Age		KM 22804		
Hulkis-Tuorla, Tuorla A	670894	324916	670613	24909	Cairn?	Bronze and/or Iron Age			Viitaharju 1984; Brusila 1995	
Hulkis-Tuorla, Tuorla B	670897	324921	670615	24914	Cairn?	Bronze and/or Iron Age			Viitaharju 1984; Brusila 1995	
Huttala					Stray find?	Undated		Åbo katedralskola	Koskimies & Haapanen 1954; Brusila 1995	

Huttala					Stray find?	Undated		Turun suomalainen klassillinen lyseo		
Huttala, Huttalanmäki	671024	325428	670742	25421	Settlement site	Iron Age	PRIA, CP	TYA 225:1-5; TYA 253:1-150; TYA 283:1-86	Asplund & Luoto 1983; Asplund & Luoto 1985; Liippo 1985; Asplund & Luoto 1985; Brusila 1995	Luoto 1989: 44-52
Huttala, Huttalanmäki	671025	325430	670744	25423	Cemetery	Iron Age	CP	TYA 334:1-291; TYA 388:1-219	Asplund & Luoto 1985; Brusila 1995	Luoto 1989: 48-51
Huttala, Kiettiönhaanvuori	671029	325666	670747	25659	Cairn	Bronze and/or Iron Age			Koskimies & Haapanen 1954; Brusila 1995	Tuovinen & Vuorinen 1992
Huttala, Pohtionvuori	671011	325587	670730	25580	Cairn	Bronze and/or Iron Age			Koskimies & Haapanen 1954; Brusila 1995	Tuovinen & Vuorinen 1992
Huttala, Tammisillanoja	671019	325475	670738	25468	Settlement site?	Iron Age				Luoto 1989: 45, 52
Ikkerlä, Pussilan linnavuori	671441	325507	671159	25500	Hillfort?	Undated			Koskimies & Haapanen 1954; Brusila 1995	Luoto 1989: 54
Ikkerlä, Ristivuori	671570	325438	671288	25431	Undefined	Undated			Brusila 1995	
Iso-Hepojoki, Pötrönen					Stray find?	Stone Age		Pötrösen kokoelma		
Joensuu, Kipervuori	670731	325355	670450	25348	Undefined	Undated			Koskimies & Haapanen 1954	
Joensuu, Kylänpään palsta	670930	325346	670648	25339	Cemetery	Iron Age	VA	KM 4249:1; KM 4567:18; KM 10731:1-2; TMM 7430:1	Rinne 1905; Kivikoski 1937; Brusila 1995	Luoto 1989: 53
Joensuu, Vihersalo					Stray find	Stone Age		KM 14444	Brusila 1995	
Kalainen, Etelävuori	671111	325671	670829	25663	Cairn	Bronze and/or Iron Age			Brusila 1995	Tuovinen & Vuorinen 1992
Kalainen, Ylhäinen	671099	325652	670818	25645	Cairn	Bronze and/or Iron Age			Koskimies & Haapanen 1954; Brusila 1995	Tuovinen & Vuorinen 1992
Kalaisi, Liuskala	671228	325693	670946	25686	Stray find	Stone and/or Bronze Age	LNE/EBA	TMM 14564	Brusila 1995	
Katari	670956	325597	670674	25590	Cairn	Bronze and/or Iron Age			Brusila 1995	Tuovinen & Vuorinen 1992
Katari, Huttalan linnavuorenrinne	670944	325539	670663	25532	Settlement site	Iron Age		KM 29085:1-8	Brusila 1995	
Katari, Huttalan linnavuori	670959	325524	670677	25517	Cup-marked stone	Iron Age?			Brusila 1994; Brusila 1995	
Katari, Huttalan linnavuori	670961	325523	670679	25516	Hillfort	Iron Age	PRIA, CP	TYA 226:1-20	Koskimies & Haapanen 1954; Hirviluoto 1963; Asplund & Luoto 1983; Brusila 1995	Luoto 1989: 54-55
Kierlä, Nummi	671370	325289	671089	25282	Stray find	Stone and/or Bronze Age		TMM 6088; TMM 6089; TMM 6090	Brusila 1995	Luoto 1989: 29
Kipervuori	670742	325335	670461	25328	Inscription	Post-Medieval			Brusila 1995	
Kirkonkylä, Honkasalon huvila					Stray find?	Stone Age			Koskimies & Haapanen 1954; Brusila 1995	Knaapinen 1935: 20
Kirkonkylä, Kellotapulinmäki	671012	325344	670731	25337	Cup-marked stone	Iron Age?			Brusila 1994; Brusila 1995	
Koroinen, Metsärinne	671095	325269	670813	25262	Settlement site	Stone and/or Bronze Age		KM 29089:1-3	Brusila 1995	
Koski	671004	325141	670723	25134	Settlement site	Iron Age		KM 27983:1-45; KM 28056:1-55	Sartes 1993; Brusila 1995	

Koski, Koskenhaka	671012	325110	670730	25103	Cemetery	Iron Age	ERA, LRA	KM 10547:1; KM 10605:1-162; KM 10843:1-5,9-11,13,18,30-35	Kivikoski 1937; Kivikoski 1939; Koskimies & Haapanen 1954; Brusila 1995	Salo 1968; Luoto 1989: 31-35
Koski, Koskenhaka	671010	325108	670729	25101	Cemetery	Iron Age	MER	KM 10843:6-8,12,14-17,19-24,26-29	Kivikoski 1939; Koskimies & Haapanen 1954; Brusila 1995	Luoto 1989: 35-36.
Koski, Koskenhaka	671011	325114	670729	25107	Settlement site?	Iron Age		KM 27057:28-54	Tiitinen 1992; Brusila 1995	
Koski, Koskenhaka					Stray find	Iron Age		KM 30205		
Koski, Mäntysalo	671092	325013	670811	25006	Stray find?	Stone Age			Brusila 1995	
Koski, Ristkankare	671022	325136	670740	25129	Settlement site?	Iron Age		KM 10547:2; KM 10844:1-2; KM 29084:1-6	Kivikoski 1937; Brusila 1995	Luoto 1989: 36-37
Kuoppajärvi	670793	325648	670511	25641	Pollen sample site					Salonen et al. 1981
Makarla					Stray find	Stone Age		KM 25420		
Makarla, Alaskartano					Stray find?	Stone Age	BAT		Brusila 1995	Knaapinen 1935
Makarla, Alaskartano					Stray find	Stone Age		KM 5102:1-2	Koskimies & Haapanen 1954; Brusila 1995	Tallgren 1931: 173; Luoto 1989: 22
Makarla, Ojalan hiekkakuop-pa					Stray find	Stone Age		KM 13570	Koskimies & Haapanen 1954; Brusila 1995	
Makarla, Pyökäri					Cemetery?	Iron Age	MER	KM 12153	Koskimies & Haapanen 1954; Brusila 1995	Luoto 1989: 53
Makarla, Vuortenpää	671228	325547	670947	25540	Settlement site	Stone Age		TYA 254:1-3	Asplund & Luoto 1984; Brusila 1995	Luoto 1989: 16-17
Moisio					Cup-marked stone?	Undated				
Moisio	670944	325608	670662	25601	Cairn	Bronze and/or Iron Age	PRIA	TYA 228:1-2	Hirviluoto 1963; Asplund & Luoto 1983; Brusila 1995	Tuovinen & Vuorinen 1992
Moisio, Alistalo	670948	325635	670666	25628	Settlement site	Bronze and/or Iron Age	LBA, PRIA	KM 29086:1-5; TYA 255:1, TYA 369:1-3, TYA 392:1-13, TYA 444, TYA 513:1; TYA 644:1-37	Asplund & Luoto 1984; Asplund 1987; Asplund & Luoto 1988; Brusila 1995; Saarinen 1999	
Moisio, Heernummenkallio	670949	325640	670667	25633	Cairn	Bronze and/or Iron Age			Brusila 1995	
Moisio, Kaatopaikan kallio	670952	325617	670670	25610	Cairn	Bronze and/or Iron Age			Asplund & Luoto 1984; Brusila 1995	Tuovinen & Vuorinen 1992
Moisio, Kalmukankare	670892	325437	670610	25430	Cemetery	Iron Age	CP	KM 4189:2; KM 13572; KM 19684:1-2; TYA 85:1-30	Koskimies & Haapanen 1954; Salo 1975; Salo 1975; Asplund & Luoto 1983; Brusila 1995	Luoto 1989: 53-54
Nunna, Viljamaa					Stray find	Stone Age		KM 14790	Brusila 1995	
Pappila					Stray find	Iron Age?		TMM 8102		Luoto 1989: 43-44
Pappila, Aaltonen **	671043	325327	670761	25320	Stray find	Iron Age		TMM 15818:1-3	Brusila 1995	Luoto 1989: 43-44
Pukkila					Settlement site?	Stone Age		KM 25998		
Raadelma					Stray find?	Stone Age?			Viitaharju 1984; Brusila 1995	
Raadelma	670902	325033	670620	25026	Cairn?	Iron Age?			Viitaharju 1984; Brusila 1995	
Raadelma					Stray find	Stone Age	BAT	TMM 8920		

Raadelma, Kranaatin torppa					Stray find	Stone and/or Bronze Age	LNE/ EBA	KM 4258:1	Koskimies & Haapanen 1954; Viitaharju 1984; Brusila 1995	
Raadelma, Raadelman kartano **	670922	325004	670641	24997	Stray find	Iron Age?		KM 11390	Koskimies & Haapanen 1954; Brusila 1995	Luoto 1989: 31
Raadelma, Rojolanmäen rinne	670906	325047	670625	25041	Settlement site	Historical Period			Brusila 1995	
Raadelma, Rojolanmäki					Stray find?	Undated			Viitaharju 1984; Brusila 1995	
Raadelma, Rojolanmäki	670914	325043	670632	25036	Cairn?	Bronze and/or Iron Age			Brusila 1995	
Reunavuori					Stray find	Stone Age		Perniön museo 3086	Brusila 1995	
Runa					Undefined	Undated		TMM 6131:1		
Runko, Koskenhaka *	671003	325110	670721	25103	Settlement site?	Iron Age	PRIA	KM 27057:1-27	Tiitinen 1992; Brusila 1995	
Runko, Lindroosin palsta					Stray find	Iron Age	MIG	KM 10604	Koskimies & Haapanen 1954	Luoto 1989: 37
Runko, Onnela	671000	325089	670718	25082	Cairn	Bronze and/or Iron Age			Koskimies & Haapanen 1954; Brusila 1995	
Runko, Onnela	671000	325088	670718	25081	Cairn?	Iron Age?			Koskimies & Haapanen 1954	
Runko, Sipiranta	670986	325160	670704	25153	Cup-marked stone	Iron Age?			Brusila 1994; Brusila 1995	
Runko, Tiitusmäki	670985	325176	670703	25169	Cemetery	Iron Age	LRA, MIG, VA	KM 10603:1-7; KM 11285:1-152	Kivikoski 1941; Koskimies & Haapanen 1954; Brusila 1995	Luoto 1989: 37-39
Salvela, Kiettiö	670995	325668	670713	25661	Cairn	Bronze and/or Iron Age			Brusila 1995	
Salvela, Korvenmäki **	670993	325437	670711	25430	Stray find	Iron Age	VA	KM 13234	Koskimies & Haapanen 1954; Brusila 1995	Luoto 1989: 53
Suopohja, Keskikankare					Stray find	Iron Age	VA	KM 13571	Koskimies & Haapanen 1954; Brusila 1995	Luoto 1989: 31
Suurhepojoki, Hakalan pelto					Stray find?	Iron Age?			Koskimies & Haapanen 1954; Brusila 1995	Knaapinen 1935
Suurhepojoki, Lausmäki	671572	325622	671290	25615	Settlement site	Stone Age	CC, BAT	KM 29091:1-3; TYA 256:7-12; TYA 333:1-23,25-26,28; TYA 370:1-4	Asplund & Luoto 1984; Asplund 1987; Brusila 1995	Luoto 1989: 16-18
Suurhepojoki, Lausmäki	671572	325622	671290	25615	Cemetery	Stone Age	BAT	TYA 256:1-6; TYA 333:24,27,29	Asplund & Luoto 1984; Brusila 1995	Luoto 1989: 19-21
Suurhepojoki, Palomäki	671561	325688	671279	25681	Settlement site?	Stone and/or Bronze Age		KM 29090:1-5	Brusila 1995	
Suurhepojoki, Ylikylä					Stray find	Stone Age	BAT	KM 13569	Koskimies & Haapanen 1954; Brusila 1995	
Tammisilta, Kerätie 5	671090	325786	670809	25779	Stray find?	Stone Age?			Asplund 1991	
Teppala, Korsuvuori	671137	325158	670856	25151	Undefined pit site	Undated			Brusila 1995	
Teppala, Lehmusto	671037	325163	670755	25156	Settlement site?	Iron Age?		KM 29083:1-7	Brusila 1995	
Teppala, Teppalanmäki	671048	325169	670766	25162	Cup-marked stone	Iron Age?			Brusila 1994; Brusila 1995	
Teppala, Yli-Teppala					Stray find	Iron Age	MER	KM 10580:1-2	Brusila 1995	Luoto 1989: 39

Varesvuori	671078	325118	670796	25111	Settlement site	Historical Period			Brusila 1995	
Viuhkala, Jääranta					Stray find?	Iron Age		TMM 14275		
Viukkala					Stray find	Iron Age	VA	KM 12258		Luoto 1989: 54
Viukkala, Järvenmäki	670787	325624	670506	25617	Cairn	Bronze and/or Iron Age			Koskimies & Haapanen 1954; Brusila 1995	Tuovinen & Vuorinen 1992
Viukkala, Kylänpää	670847	325456	670565	25449	Cup-marked stone	Iron Age?			Brusila 1994; Brusila 1995	
Viukkala, Leskelä ja Kurkola	670877	325489	670595	25481	Cemetery?	Iron Age		TYA 230:1-25	Asplund & Luoto 1983; Brusila 1995	Luoto 1989: 54
Viukkala, Perosmäki					Stray find?	Iron Age?			Koskimies & Haapanen 1954; Brusila 1995	Knaapinen 1935
Vähä-Hepojoki, Pyökäri					Stray find	Stone Age		TMM 16284:1		
Vähä-Hepojoki, Toikka					Stray find	Undated		TMM 16284:2		

Salo

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
					Stray find	Stone Age		Hämeen museo / Lindellin kokoelma 97		
					Stray find	Stone Age		KM 11178:3		
					Stray find	Stone Age		KM 27150		
					Stray find	Stone Age		KM 2794:43		Hirviluoto 1991: 207
					Stray find	Stone Age		KM 2912:135-136		Hirviluoto 1991: 208
					Stray find	Stone Age		KM 30		
					Stray find	Stone Age		KM 3187:29		
					Stray find	Stone Age		KM 3187:31		
					Stray find	Stone Age		KM 3187:5		
					Stray find	Stone Age		KM 4593:2-6	Tallgren 1906	
					Stray find	Stone Age		KM 4730		
					Stray find	Stone Age		KM 5267:1-2		
					Stray find	Stone Age		KM 5512:1		
					Stray find?	Stone Age		KM 5512:2-10		
					Stray find?	Undated		KM 5531:10		
					Stray find?	Stone Age		KM 5531:1-9		
					Stray find?	Historical Period		KM 6014		
					Stray find	Stone Age	BAT	KM 674		
					Stray find	Stone Age	BAT	KM 785		
					Stray find	Medieval		KM 8205:2		Taavitsainen 1989
					Stray find	Stone Age		KM 8864:4		
					Stray find	Stone Age		Salon keskuskansakoulun kokoelma		
					Stray find	Iron Age	VA	TMM 14105:1		
					Stray find	Stone Age		TMM 180		
					Stray find	Stone Age		TMM 181		
					Stray find	Stone Age		TMM 182		
					Stray find	Stone Age		TMM 183		
					Stray find	Stone Age		TMM 187		
					Stray find	Stone Age		TMM 188		Hirviluoto 1991: 209
					Stray find	Stone Age		TMM 189		
					Stray find	Stone Age		TMM 190		

					Stray find	Stone Age		TMM 191		
					Stray find	Stone Age		TMM 192		
					Stray find	Stone Age?		TMM 193		
					Stray find?	Iron Age?		TMM 6300		
					Stray find?	Stone Age		TMM 6301		
					Stray find?	Stone Age		TMM 6845		
Alhaisi, Kirjolanmäki	670186	328610	669904	28602	Settlement site	Iron Age		KM 32850:1-4	Raike 2001	
Alhaisi, Leikkipuisto	670196	328657	669915	28648	Cup-marked stone	Iron Age			Raike 2001	Hirviluoto 1991
Anjala					Stray find	Undated		KM 29157		
Anjala, Karvasenmaa					Stray find	Stone Age		KM 2436:7		
Breidilä, Friisinkruunu	669982	328265	669701	28257	Cairn	Bronze and/or Iron Age			Brusila 2005	
Fulkkila					Stray find	Bronze Age	LNE/ EBA	KM 2058:2		Hirviluoto 1991: 67
Fulkkila, Tampaltanmäki	669978	328426	669697	28418	Cairn	Bronze and/or Iron Age			Salonen 1927; Asplund 1998; Raike 2001	Hirviluoto 1991: 60-63; Tuovinen & Vuorinen 1992
Haitio	670829	329024	670548	29016	Settlement site	Iron Age		KM 32838:1-5	Raike 2001	
Hakastaro	669594	328375	669313	28367	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Hakastaro					Settlement site?	Stone Age?			Raike 2001	
Hakastaro, Hakastaron linnamäki	670122	328727	669840	28719	Undefined pit site	Undated			Raike 2001	Appelgren 1891: 67-71, 223
Hakastaro, Hakastaron linnamäki	670122	328727	669840	28719	Hillfort	Medieval or Post-Medieval		KM 2435:14-16	Raike 2001	Appelgren 1891: 67-71, 223; Hirviluoto 1991: 183-185
Hakastaro, Hossama					Stray find?	Stone and/or Bronze Age				
Hakastaro, Hossamaa					Stray find	Undated		KM 8579:2		
Hakastaro, Hossanmaa					Stray find	Stone Age		KM 23525		
Hakastaro, Kankare					Stray find	Stone Age		KM 4593:10		
Hakastaro, Kavilannummi	669561	328384	669280	28376	Undefined	Undated				Hirviluoto 1991: 222
Hakastaro, Pelimäki	669560	328390	669279	28382	Cairn	Bronze and/or Iron Age			Brusila 2005	
Hakastaro, Ryssänrinnanmäki **	670109	328713	669827	28704	Settlement site	Historical Period		KM 2912:206-217	Appelgren 1898	Hirviluoto 1991
Haukkala, Jaakko					Stray find	Stone Age		KM 8808		
Haukkala, Pälkkö					Stray find	Stone Age		KM 2436:8		
Helisnummi					Stray find	Stone Age		KM 17008		
Helisnummi					Stray find	Stone Age		KM 6750:1		
Hämmäinen 1	670229	328882	669948	28873	Settlement site	Iron Age		KM 32849:1-6	Raike 2001	
Hämmäinen 2	670220	328878	669939	28870	Cemetery?	Iron Age		KM 32848:1-2	Raike 2001	
Hämmäinen, Aromäki	670086	329034	669805	29026	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Hirviluoto 1991; Tuovinen & Vuorinen 1992

Hämmäinen, Haukkamäki	670178	328943	669897	28935	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Hirviluoto 1991; Tuovinen & Vuorinen 1992
Hämmäinen, Hevoshaka	670227	328867	669945	28859	Settlement site?	Iron Age		KM 32847:1-2	Raike 2001	
Hämmäinen, Marjanen					Stray find	Iron Age	VA	TMM 13038:1		
Hämmäinen, Metsäniitty					Stray find	Stone Age		TMM 13025:1		
Hämmäinen, Puustellin lohko	670213	328899	669932	28890	Cup-marked stone	Iron Age			Raike 2001	
Isokylä	670599	328792	670317	28784	Cairn?	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Isokylä	670597	328814	670315	28806	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Isokylä	670610	328816	670328	28807	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Isokylä					Stray find	Stone Age		Halikon kotis.museo 303		
Isokylä					Stray find?	Multi-Period		KM 17009		
Isokylä					Stray find	Iron Age		KM 24489		
Isokylä					Stray find	Undated		KM 26578		
Isokylä					Stray find	Stone Age		TMM 12955:1		
Isokylä					Stray find	Stone Age		TMM 13008:1		
Isokylä, Alho	670501	328700	670220	28691	Cemetery	Iron Age	MIG	KM 10505:1-2; KM 10514:3-6,8-9		Schauman-Lönnqvist et al 1986; Hirviluoto 1991
Isokylä, Aro	670676	328826	670395	28817	Stray find	Iron Age	MER	KM 3316:11	Appelgren 1896; Appelgren 1896	Schauman-Lönnqvist et al 1986; Hirviluoto 1991
Isokylä, Aro	670677	328818	670395	28809	Stray find	Iron Age?		KM 3316:12	Appelgren 1896; Appelgren 1896	Schauman-Lönnqvist et al 1986; Hirviluoto 1991
Isokylä, Emäkirkko					Stray find	Stone Age	BAT	KM 10338:13		
Isokylä, Hämeenojan puisto					Settlement site?	Iron Age		KM 24892; KM 26103		
Isokylä, Isomäen luoteisrinne	670580	328745	670298	28737	Settlement site	Early Metal Period	PRIA, ERA, LRA	KM 18808		Schauman-Lönnqvist et al 1986: 24; Uino 1986: 133; Hirviluoto 1991: 205
Isokylä, Isomäki	670677	328800	670396	28791	Cairn	Iron Age?			Raike 2001	Schauman-Lönnqvist et al 1986
Isokylä, Isotupa	670502	328706	670221	28697	Cemetery	Iron Age	LRA	KM 10328; KM 10577:1-12	Kivikoski 1937; Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 17-18; Hirviluoto 1991: 210
Isokylä, Katajamäen palsta *	670546	328741	670265	28732	Settlement site	Stone Age	CC	KM 7095:62-63; KM 8232:8-10; KM 20251:307,354,488; KM 20558:1-2; KM 20561:1436	Europaeus 1917; Europaeus 1923; Carpelan & Uino 1978	Uino 1986: 70-83; Hirviluoto 1991
Isokylä, Katajamäki	670541	328740	670259	28732	Settlement site?	Early Metal Period			Raike 2001	Schauman-Lönnqvist et al 1986; Hirviluoto 1991
Isokylä, Katajamäki	670541	328743	670260	28735	Cairn	Iron Age?				Schauman-Lönnqvist et al 1986

Isokylä, Katajamäki	670541	328740	670259	28732	Cemetery	Iron Age	LRA, MIG	KM 6459:1-78; KM 6479; KM 6668:1-24; KM 6788:1-8	Europaeus 1914; Europaeus 1914; Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 33-37; Hirviluoto 1991: 213
Isokylä, Ketohaan alue *	670546	328747	670265	28738	Settlement site	Bronze and/or Iron Age		KM 20252:4-34; KM 20562:1-481; KM 20838:1-312,359-621	Carpelan & Uino 1978; Carpelan et al. 1980	Schauman-Lönnqvist et al 1986; Uino 1986; Hirviluoto 1991
Isokylä, Ketohaka	670547	328755	670265	28747	Cairn?	Iron Age?				Schauman-Lönnqvist et al 1986
Isokylä, Ketohaka	670544	328747	670262	28739	Settlement site?	Iron Age		KM 20838:313-358	Carpelan et al. 1980	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 37-38
Isokylä, Ketohaka	670548	328747	670266	28738	Settlement site	Stone and/or Bronze Age	LBA	KM 6914	Hackman 1916	Hackman 1917b: 59-61; Fig. 14:2; Schauman-Lönnqvist et al 1986; Uino 1986: 125, 129, Fig. 5:5; Schauman-Lönnqvist 1989: 39-42; Hirviluoto 1991: 100, 215
Isokylä, Ketohaka (1)	670554	328745	670272	28736	Cemetery	Iron Age	MIG, MER	KM 5614:1-6; KM 6125:12-30; KM 6658:130-177	Tallgren 1912; Hackman 1914	Schauman-Lönnqvist et al 1986
Isokylä, Ketohaka (10)	670542	328747	670260	28739	Cairn	Iron Age?				Schauman-Lönnqvist et al 1986
Isokylä, Ketohaka (11)	670556	328749	670275	28741	Cemetery	Iron Age	MIG	KM 21170:819-887	Carpelan et al. 1981	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 50-51; Hirviluoto 1991
Isokylä, Ketohaka (12)	670544	328747	670262	28739	Cairn?	Iron Age?				Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 37-38; Hirviluoto 1991
Isokylä, Ketohaka (2)	670553	328745	670271	28737	Cemetery	Iron Age	LRA	KM 6658:18-129; KM 6914:100-101	Hackman 1914	Formisto 1984: 43-45; Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989; Hirviluoto 1991
Isokylä, Ketohaka (3)	670552	328745	670271	28736	Cemetery	Iron Age	LRA, MIG	KM 6669:1-7	Europaeus 1914	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 42-43; Hirviluoto 1991
Isokylä, Ketohaka (4)	670551	328744	670270	28735	Cairn?	Iron Age?		KM 5614:7-8		Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 42
Isokylä, Ketohaka (5)	670551	328745	670269	28737	Cairn?	Iron Age?				Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 42
Isokylä, Ketohaka (6)	670548	328747	670266	28738	Cemetery	Iron Age	LRA, VA	KM 6914:4-99,102-103	Hackman 1915	Hackman 1917: 59-61; Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 39-42; Hirviluoto 1991: 100, 215
Isokylä, Ketohaka (7)	670547	328748	670265	28740	Cemetery	Iron Age	LRA	KM 9391:1-21	Kivikoski 1931	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 38-39; Hirviluoto 1991: 102, 216
Isokylä, Ketohaka (8)	670545	328748	670264	28740	Cairn?	Iron Age?				Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 38

Isokylä, Ketohaka (9)	670544	328750	670263	28742	Cairn?	Iron Age		KM 16135:1-2	Hirviluoto 1963	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 38
Isokylä, Ketohaka 1 *	670548	328742	670266	28733	Settlement site	Bronze and/or Iron Age	LBA, PRIA	KM 7095:64-66; KM 7300:5-6; KM 20251:1-306,308-353,355-487,489-709; KM 20561:1-1435,1437-1674	Europaeus 1917; Carpelan & Uino 1978	Uino 1986; Schauman-Lönnqvist et al 1986; Hirviluoto 1991
Isokylä, Ketohaka 2 *	670557	328748	670276	28740	Pollen sample site					Tolonen 1985
Isokylä, Ketohaka 2 *	670557	328748	670276	28740	Settlement site	Bronze and/or Iron Age	LBA, PRIA	KM 20252:1-3; KM 20838:622-1166; KM 21170:1-818,888-899	Carpelan et al. 1978; Carpelan et al. 1980; Carpelan et al. 1981	Uino 1986; Schauman-Lönnqvist et al 1986; Hirviluoto 1991
Isokylä, Ketohaka N	670570	328743	670288	28735	Cairn	Iron Age?			Raike 2001	Schauman-Lönnqvist et al 1986
Isokylä, Ketohaka N	670570	328744	670289	28736	Cairn	Iron Age?			Raike 2001	Schauman-Lönnqvist et al 1986
Isokylä, Ketohaka N	670571	328744	670289	28735	Cairn	Iron Age?			Raike 2001	Schauman-Lönnqvist et al 1986
Isokylä, Ketohaka N	670573	328743	670292	28734	Cairn	Iron Age?			Raike 2001	Schauman-Lönnqvist et al 1986
Isokylä, Ketohaka NE	670566	328758	670285	28750	Cairn	Iron Age?				Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 54
Isokylä, Ketohaka NE	670565	328758	670284	28750	Cairn		LRA	KM 2434:1-16	Raike 2001	Hackman 1905; Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 52-54; Hirviluoto 1991
Isokylä, Ketohaka S					Settlement site?	Iron Age		KM 24893		
Isokylä, Ketola	670537	328733	670256	28725	Cairn	Iron Age?			Leppäaho 1950	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 31-32
Isokylä, Ketola	670540	328739	670259	28730	Cemetery?	Iron Age	MER	KM 7300:7	Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 32-33
Isokylä, Ketomäki	670569	328803	670287	28794	Cairn?	Iron Age?			Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 57
Isokylä, Ketomäki	670569	328799	670288	28790	Cairn	Iron Age?			Hirviluoto 1962; Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 57
Isokylä, Ketomäki	670571	328794	670289	28786	Cairn?	Iron Age?			Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 58
Isokylä, Ketomäki	670573	328793	670292	28785	Cairn	Iron Age?			Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 58
Isokylä, Ketomäki	670565	328792	670284	28784	Cemetery	Iron Age	MIG	KM 5580:120; KM 7095:1-9,11-49	Hackman 1916; Raike 2001	Hackman1917;Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 54-57; Hirviluoto 1991: 113-114, 216-217
Isokylä, Ketomäki	670565	328796	670284	28787	Stray find	Iron Age	VA	KM 6464		Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 57; Hirviluoto 1991

Isokylä, Ketomäki	670565	328792	670284	28784	Settlement site	Bronze and/or Iron Age	LBA, PRIA	KM 7095:10	Hackman 1916	Hackman 1917b: Fig. 14:1; Meinander 1969: 45; Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 54-57; Hirviluoto 1991: 113-114, 216-217
Isokylä, Klaavu	670638	328820	670357	28812	Stray find	Stone Age		KM 20234		
Isokylä, Klaavu					Stray find	Stone Age		KM 20328		
Isokylä, Klaavu	670620	328825	670339	28817	Stray find	Iron Age		KM 25384:1-3	Poutiainen 1989	
Isokylä, Klaavu	670628	328828	670347	28819	Settlement site?	Early Metal Period	PRIA	KM 25384:1-3; KM 32844	Raike 2001	Hirviluoto 1991: 76, 205
Isokylä, Klaavu					Stray find	Stone Age		KM 6824:1-2		
Isokylä, Koivumäki	670590	328816	670308	28807	Cemetery	Iron Age	MIG, MER	KM 5580:1-119; KM 6658:1-17	Hackman 1910; Hackman 1914; Katiskoski 1983; Raike 2001	Hackman 1914; Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 58-63; Hirviluoto 1991: 114, 217
Isokylä, Kupila					Stray find	Undated		KM 21189		
Isokylä, Kupila **	670657	328883	670375	28875	Settlement site	Iron Age		KM 25385:1-6	Poutiainen 1989	Hirviluoto 1991: 175
Isokylä, Kupila					Stray find	Stone Age		KM 29760		
Isokylä, Kupila	670653	328855	670371	28846	Cemetery	Iron Age	MIG	KM 3316:1-10	Appelgren 1896; Appelgren 1896; Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 67-69; Hirviluoto 1991
Isokylä, Kupila	670689	328848	670408	28840	Stray find	Iron Age	VA	TMM 14762		Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 70; Hirviluoto 1991: 167-170, 221
Isokylä, Kupilan pelto **	670636	328877	670355	28869	Stray find	Historical Period?		KM 32845:1,3	Raike 2001	
Isokylä, Kupilan pelto **	670636	328877	670355	28869	Stray find	Iron Age?		KM 32845:2	Raike 2001	
Isokylä, Matamäki	670655	328861	670373	28853	Cemetery	Iron Age	VA	KM 3187:47-50; KM 3316:16	Appelgren 1896; Appelgren 1896; Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 66-67; Hirviluoto 1991: 218
Isokylä, Palomäki	670591	328815	670309	28807	Cairn	Iron Age?				Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 63
Isokylä, Palomäki	670596	328823	670314	28814	Cairn?	Iron Age?			Hirviluoto 1962	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 63
Isokylä, Palomäki 1	670613	328817	670331	28809	Cairn	Bronze and/or Iron Age			Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 66
Isokylä, Palomäki 2	670596	328816	670315	28807	Cairn	Bronze and/or Iron Age			Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 63
Isokylä, Palomäki 2	670597	328813	670315	28805	Cairn	Bronze and/or Iron Age			Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 63
Isokylä, Palomäki 2	670600	328821	670319	28813	Cemetery	Iron Age	MIG	KM 4395:1-12; KM 4567:2-14	Rinne 1905; Raike 2001	Rinne 1906; Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 64-65; Hirviluoto 1991: 114-115, 217-218

Isokylä, Palomäki 2	670600	328821	670319	28813	Stray find	Bronze Age	LNE/ EBA	KM 4567:1	Rinne 1905; Raike 2001	Rinne 1906; Hirviluoto 1972: 64; Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 64-65; Hirviluoto 1991: 114-115, 217-218
Isokylä, Paltta	670568	328774	670287	28765	Cairn	Iron Age?				Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 54
Isokylä, Paltta	670575	328774	670294	28766	Cairn	Iron Age?				Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 54
Isokylä, Paltta	670577	328777	670296	28769	Cairn	Iron Age?				Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 54
Isokylä, Peltola					Undefined pit site	Undated			Leppäaho 1953	
Isokylä, Rintala	670574	328819	670293	28811	Stray find?	Undated		KM 20440		
Isokylä, Ruoksmäki	670709	328889	670428	28881	Stray find	Iron Age	CP	KM 23250	Raike 2001	Schauman-Lönnqvist et al 1986; Hirviluoto 1991
Isokylä, Ruoksmäki **	670709	328889	670428	28881	Stray find	Iron Age	VA	KM 25915	Raike 2001	Hirviluoto 1991
Isokylä, Ruoksmäki	670708	328895	670427	28887	Cemetery	Iron Age		KM 32843:1-4	Raike 2001	
Isokylä, Santamäensuo	670927	328794	670645	28786	Pollen sample site					Tolonen 1985b
Isokylä, Santamäki	670931	328777	670649	28769	Stray find	Iron Age	VA	KM 12861		Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 72; Hirviluoto 1991
Isokylä, Tienhaara	670463	328724	670182	28716	Stray find	Iron Age	VA	KM 9898		Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 14; Hirviluoto 1991
Isokylä, Tyynelänkatu					Stray find	Undated		KM 20868		Hirviluoto 1991: 220
Isokylä, Töyrä	670536	328727	670254	28719	Cairn	Iron Age?			Leppäaho 1950	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 31; Hirviluoto 1991
Isokylä, Uskelan emäkirkko	670586	328908	670305	28899	Cemetery	Iron Age	VA	KM 4567:15; KM 6792:1-2	Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 66; Hirviluoto 1991: 176-177
Isokylä, Valholanmäki	670498	328671	670217	28663	Cemetery	Iron Age	MIG	KM 10514:1-2,7; KM 10578:1-11	Kivikoski 1937; Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 16; Hirviluoto 1991
Isokylä, Vanumammantie					Settlement site?	Iron Age		KM 26577		
Isokylä, Vanumammantie 16					Settlement site?	Iron Age		KM 26104		
Isokylä, Vanutehtaanmäki	670515	328715	670233	28706	Settlement site?	Early Metal Period	PRIA		Schauman-Lönnqvist 1987	Schauman-Lönnqvist et al 1986; Hirviluoto 1991
Isokylä, Vanutehtaanmäki	670515	328717	670234	28708	Settlement site?	Early Metal Period			Schauman-Lönnqvist 1987	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 23-24; Hirviluoto 1991

Isokylä, Vanutehtaanmäki	670508	328718	670227	28709	Cairn?	Iron Age	MIG	KM 10327:1-7	Kivikoski 1936	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 19-20; Hirviluoto 1991
Isokylä, Vanutehtaanmäki					Stray find	Iron Age	MIG	KM 11178:4-9		Schauman-Lönnqvist 1989: 31
Isokylä, Vanutehtaanmäki	670521	328721	670239	28712	Cairn?	Iron Age		KM 18809		
Isokylä, Vanutehtaanmäki					Settlement site?	Iron Age		KM 20081:1-101		
Isokylä, Vanutehtaanmäki	670536	328729	670255	28721	Stray find	Stone Age		KM 20123		
Isokylä, Vanutehtaanmäki	670512	328724	670231	28715	Cairn?	Iron Age	LRA, MIG	KM 20610:452	Linturi 1980	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 22-23; Hirviluoto 1991
Isokylä, Vanutehtaanmäki	670519	328717	670237	28709	Cairn	Iron Age?		KM 21201	Linturi 1982	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 26; Hirviluoto 1991
Isokylä, Vanutehtaanmäki	670517	328716	670236	28707	Cemetery	Iron Age	MIG	KM 21201:45,78,79,104,109	Linturi 1982	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 25-26; Hirviluoto 1991
Isokylä, Vanutehtaanmäki	670515	328715	670233	28706	Cairn	Iron Age	MIG	KM 21499:1-135,168	Schauman-Lönnqvist 1987; Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 23; Hirviluoto 1991
Isokylä, Vanutehtaanmäki	670515	328717	670234	28708	Cairn	Iron Age?		KM 21499:136-165,169	Schauman-Lönnqvist 1987	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 23-24; Hirviluoto 1991
Isokylä, Vanutehtaanmäki					Undefined	Undated		KM 21499:166-167,170	Schauman-Lönnqvist 1987	
Isokylä, Vanutehtaanmäki	670496	328714	670215	28706	Cairn?	Iron Age		KM 23249:1-99		Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 18-19; Hirviluoto 1991
Isokylä, Vanutehtaanmäki	670522	328720	670241	28712	Cairn?	Iron Age	LRA	KM 6125:1-11	Tallgren 1912	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 29-30; Hirviluoto 1991
Isokylä, Vanutehtaanmäki	670511	328717	670229	28709	Cairn	Iron Age	LRA	KM 6914:1; KM 7095:50-57,59-61	Hackman 1916	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 20-22; Hirviluoto 1991
Isokylä, Vanutehtaanmäki	670510	328742	670228	28734	Settlement site?	Early Metal Period		KM 7095:58	Hackman 1916	Schauman-Lönnqvist 1989: 20-22
Isokylä, Vanutehtaanmäki	670521	328719	670240	28710	Cemetery	Iron Age	LRA, MIG	KM 7138:1-62; KM 21500	Tallgren 1916; Linturi 1983; Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 26-29; Hirviluoto 1991
Isokylä, Vanutehtaanmäki	670515	328716	670234	28708	Cemetery	Iron Age	MIG	KM 9821:1-3; KM 9829:1-10	Kivikoski 1934; Pälsi 1934	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 24-25; Hirviluoto 1991
Isokylä, Vanutehtaanmäki 1 *	670508	328720	670226	28712	Settlement site	Iron Age	LRA, MIG, MER	KM 20610:1-451,453-488; KM 20869:1-859	Linturi 1980; Linturi 1981	Uino 1986: 156-157; Schauman-Lönnqvist et al 1986

Isokylä, Vanutehtaanmäki 2 *	670549	328725	670268	28717	Settlement site	Early Metal Period		KM 18807:1-2; KM 20870:1-206; KM 21200:1-121	Linturi 1981	Uino 1986: 157; Schauman-Lönnqvist et al 1986
Isokylä, Vanutehtaanmäki 3 *	672978		672978		Settlement site	Early Metal Period		KM 21201:1-330	Linturi 1982	Uino 1986: 158; Schauman-Lönnqvist et al 1986
Isokylä, Vanutehtaanmäki 4 *	670524	328719	670243	28710	Settlement site	Iron Age		KM 21500:1-466	Linturi 1983	Uino 1986: 158; Schauman-Lönnqvist et al 1986
Joensuu					Stray find	Iron Age	VA	KM 7019:1		Hirviluoto 1992: 145
Joensuu, Majala	670496	328435	670214	28427	Stray find	Iron Age	CP	KM 2570:1-5		Hirviluoto 1991: 186-188; Purhonen 1998: 59
Karjaskylä					Stray find	Stone Age		KM 8789:2		
Karjaskylä, Aarnionperän-mäki	670120	328939	669839	28930	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Karjaskylä, Aarnionsuo	670084	328891	669803	28883	Settlement site?	Stone Age		KM 19740:1-7	Raike 2001	Hirviluoto 1991
Karjaskylä, Eerikki	670239	328860	669958	28852	Cup-marked stone	Iron Age			Raike 2001	
Karjaskylä, Eerikki	670239	328860	669958	28852	Settlement site	Iron Age		KM 32846:1-3	Raike 2001	
Karjaskylä, Enolanmäki					Stray find	Undated		KM 7297		
Karjaskylä, Hopeakankare	670291	328856	670010	28848	Stray find	Iron Age	MIG	KM 24490; Maija-Liisa Luojuksen kokoelma	Vikkula 1983	Hirviluoto 1991: 116-117, 219
Karjaskylä, Kurjenpahna					Stray find	Stone Age	BAT	KM 10376		
Karjaskylä, Kurjenpahna					Stray find	Stone Age	BAT	KM 2436:10		
Karjaskylä, Vähäsilta					Stray find	Stone Age	BAT	KM 12301:1		
Karjaskylä, Vähäsilta					Stray find	Bronze and/or Iron Age		KM 12301:2		
Kaukvuori, Pohkallio	669588	328602	669307	28594	Cairn	Bronze and/or Iron Age			Raike 2001	Tuovinen & Vuorinen 1992
Kaukvuori, Pohkallio	669594	328601	669313	28593	Cairn	Bronze and/or Iron Age			Raike 2001	Tuovinen & Vuorinen 1992
Kaukvuori, Reunala					Stray find	Stone Age		KM 27204		
Kaukvuori, Utiskanmäki	670014	328624	669733	28616	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Kavila	669606	328461	669325	28452	Stray find	Stone Age		KM 21304		
Kavila, Kavilannummi **	669550	328399	669269	28391	Stray find	Iron Age	CP	KM 9419		Hirviluoto 1991: 178-179, 220
Kriikki, Enolan mäki					Stray find	Iron Age		Viinamäen museo 5		
Krottila, Krottilan torppa					Stray find	Iron Age	VA	Viinamäen museo		
Kupila, Ruoksmäki					Stray find	Iron Age		KM 28759		
Kärkis-Fulkila, Noppila					Stray find	Stone Age		KM 16895		
Kärkis-Fulkkila, Mäntymaa	669717	328824	669436	28816	Settlement site	Stone Age		KM 10598:5; KM 11291:1; KM 20047:1-6; KM 20683:1-3, KM 23299.1-5	Raike 2001	Hirviluoto 1991

Kärkkä					Stray find	Stone Age		KM 28206		
Kärkkä, Kärkkään kellari	670175	328550	669894	28541	Stray find	Iron Age		KM 5422:1	Raike 2001	Hirviluoto 1991
Kärkkä, Noppa	669684	328843	669403	28834	Settlement site?	Stone Age		KM 17018:1-5		Hirviluoto 1991
Kärkkä, Tampaltanmäki	669978	328414	669697	28406	Cairn?	Undated			Raike 2001	Tuovinen & Vuorinen 1992
Kärkkä, Viitamäki	670065	328406	669784	28398	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Kärkkä, Viitamäki	670053	328422	669771	28414	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Hirviluoto 1991: 64; Tuovinen & Vuorinen 1992
Kärkkä, Viitamäki	670053	328416	669772	28408	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Hirviluoto 1991: 64; Tuovinen & Vuorinen 1992
Kärkkä, Viitamäki	670052	328417	669771	28409	Cairn	Bronze and/or Iron Age			Asplund 1996	
Loppi					Stray find	Stone Age		KM 2025:1		
Loppi, Kynttelkoski	671386	329159	671104	29150	Undefined	Undated				
Meriniitynpuisto	670381	328518	670099	28510	Cemetery	Iron Age	LRA	KM 30930; KM 32225:1-201	Raike 2001	Pesonen & Lahti 2005; Pesonen 2006
Moisio, Mahlakankare	670433	328889	670152	28880	Cemetery?	Iron Age	MIG	KM 9247:1-2	Salmo 1930; Hirviluoto 1966; Vikkula 1983; Raike 2001	Hirviluoto 1991
Moisio, Mahlakankare					Stray find	Stone Age		KM 9247:3		
Mököinen, Ilola	670415	328892	670133	28884	Stray find	Stone and/or Bronze Age		KM 15896:1-5	Hirviluoto 1966; Vikkula 1983	Hirviluoto 1991
Mököinen, Uusitalo					Stray find?	Undated		KM 16129		
Pahkavuori	670336	328786	670054	28778	Stray find	Iron Age	VA	KM 10930:1-2	Raike 2001	Hirviluoto 1991: 170-171
Pahkavuori, Marttila	670282	328817	670001	28808	Cup-marked stone	Iron Age			Raike 2001	
Pahkavuori, Muurila					Stray find	Stone Age	BAT	KM 3684:13		
Pajula, Pähkinärinne	670459	328497	670177	28489	Cairn?	Iron Age		KM 16859	Raike 2001	Hirviluoto 1991: 219
Pajula, Pähkinärinne 22					Undefined	Iron Age		KM 26426		
Pettilä					Stray find	Stone Age		KM 10026		
Pettinen, Katinkallio	670051	328891	669770	28882	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Pukkila **	669687	328839	669406	28831	Pollen sample site					Tolonen 1983
Pukkila					Stray find	Stone Age		KM 3187:30		
Pukkila					Stray find	Stone Age		KM 3187:32		
Pukkila					Stray find	Stone Age		KM 3187:34		
Pukkila					Stray find	Stone Age		KM 3187:36		
Pukkila					Stray find	Stone Age		KM 3187:37		
Pukkila					Stray find	Stone Age		KM 3187:38		
Pukkila					Stray find	Stone Age		KM 3187:39		
Pukkila					Stray find?	Undated		KM 3187:40		

Pukkila					Stray find	Stone Age		KM 8315:2		
Pukkila					Stray find	Undated		KM 8760:3		
Pukkila					Stray find	Stone Age		KM 8797		
Pukkila					Stray find?	Iron Age	VA	KM 8797:2		Hirviluoto 1991: 221
Pukkila					Stray find	Stone Age		Pukkilan museo 343		
Pukkila					Stray find	Stone Age		Pukkilan museo 344		
Pukkila					Stray find	Stone Age		Pukkilan museo 345		
Pukkila					Stray find	Stone Age		Pukkilan museo 346		
Pukkila					Stray find	Stone Age		Pukkilan museo 347		
Pukkila					Stray find	Stone Age		Pukkilan museo 348		
Pukkila					Stray find	Stone Age		Pukkilan museo 349		
Pukkila					Stray find	Stone Age?		Pukkilan museo 350		
Pukkila					Stray find	Stone Age		Pukkilan museo 351		
Pukkila					Stray find	Stone Age		Pukkilan museo 352		
Pukkila					Stray find	Stone Age		Pukkilan museo 353		
Pukkila					Stray find	Stone Age		Pukkilan museo 354		
Pukkila					Stray find	Stone Age		Pukkilan museo 355		
Pukkila					Stray find	Stone Age		Pukkilan museo 356		
Pukkila					Stray find	Stone Age		Pukkilan museo 357		
Pukkila					Stray find	Stone Age		Pukkilan museo 358		
Pukkila					Stray find	Stone Age?		Pukkilan museo 359		
Pukkila					Stray find	Stone Age		Pukkilan museo 360		
Pukkila					Stray find	Stone Age		Pukkilan museo 361		
Pukkila					Stray find	Stone Age		Pukkilan museo 362		
Pukkila					Stray find	Stone Age		Pukkilan museo 363		
Pukkila					Stray find	Stone Age?		Pukkilan museo 364		
Pukkila					Stray find	Stone Age?		Pukkilan museo 365		
Pukkila					Stray find	Stone Age?		Pukkilan museo 366		
Pukkila					Stray find	Stone Age?		Pukkilan museo 367		
Pukkila					Stray find	Stone Age?		Pukkilan museo 368		
Pukkila					Stray find	Stone Age	CC	Pukkilan museo 369		
Pukkila					Stray find	Stone Age	CC	Pukkilan museo 370		
Pukkila					Stray find	Stone Age	CC	Pukkilan museo 371		
Pukkila					Stray find	Stone Age	CC	Pukkilan museo 372		
Pukkila					Stray find	Stone Age	CC	Pukkilan museo 373		
Pukkila					Stray find	Stone Age	CC	Pukkilan museo 374		

Pukkila					Stray find	Stone Age	CC	Pukkilan museo 375		
Pukkila					Stray find	Stone Age		Pukkilan museo 376		
Pukkila					Stray find	Stone Age		Pukkilan museo 377		
Pukkila					Stray find	Stone Age		Pukkilan museo 378		
Pukkila					Stray find	Undated		Pukkilan museo 379		
Pukkila					Stray find	Undated		Pukkilan museo 381-383		Hirviluoto 1991: 209
Pukkila					Stray find	Stone Age		TMM 16132:1-29		
Pukkila, Alhonpelto	669703	328796	669422	28787	Settlement site	Stone Age	CC	KM 10490:2-8; KM 10566:10-28; KM 10625:3-6; KM 10723:12-18; KM 10796:1-6; KM 10830:33-47; KM 10978:10-14; KM 11029:23-46; KM 11177:1-6; KM 11189:11-15; KM 11192:1-2; KM 11245:3; KM 11255:5-11; KM 11307:1-4; KM 11316:3-6	Raike 2001	Hirviluoto 1991: 201
Pukkila, Falkki	669676	328931	669395	28922	Cairn?	Undated			Salonen 1927	
Pukkila, Falkki	669669	328942	669388	28934	Settlement site	Stone Age	BAT	KM 11470:1-2; KM 20322:1-15; KM 20906:1-3	Luho 1945; Raike 2001	Hirviluoto 1991: 203
Pukkila, Falkki					Stray find	Stone Age		Moision kansakoulun kokoelma / Meritalon museo		Hirviluoto 1991: 209
Pukkila, Haavisto					Stray find	Stone Age?		KM 23302		
Pukkila, Kovaskallio	669654	328973	669373	28964	Cairn	Bronze and/or Iron Age			Salonen 1927; Luho 1945; Raike 2001	Tuovinen & Vuorinen 1992
Pukkila, Kovaskallio	669654	328973	669373	28964	Cairn?	Bronze and/or Iron Age			Salonen 1927; Luho 1945; Raike 2001	Tuovinen & Vuorinen 1992
Pukkila, Kovaskallio	669653	328974	669372	28965	Cairn?	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Pukkila, Kovaskallio					Stray find	Undated		KM 8660:1		
Pukkila, Kupparinpelto	669767	328828	669486	28820	Settlement site	Stone Age		KM 10566:31-32; KM 10625:1-2; KM 10836:5-6; KM 10978:1-2; KM 11245:1; KM 23301:1	Luho 1945; Raike 2001	Hirviluoto 1991: 204
Pukkila, Kuusimaa	669664	329007	669383	28999	Settlement site?	Stone Age		KM 10338:9-11	Luho 1945	Hirviluoto 1991: 205
Pukkila, Lehmussaari					Stray find	Stone Age		TMM 14899:1-10		
Pukkila, Lehtiniitty	669818	328794	669537	28785	Settlement site	Stone Age		KM 10566:33-34; KM 11177:16; KM 11469	Luho 1945; Raike 2001	Hirviluoto 1991: 204
Pukkila, Leilä					Stray find	Stone Age		KM 2794:44-47		Hirviluoto 1991: 207
Pukkila, Lintula	669557	328687	669276	28678	Settlement site?	Stone Age				
Pukkila, Lintula pihapelto	669583	328688	669302	28680	Settlement site	Stone Age		KM 9050:1,4	Luho 1945; Raike 2001	Hirviluoto 1991

Pukkila, Myllypelto	669703	328796	669422	28787	Settlement site	Stone Age	CC, LNE/ EBA	KM 10338:12; KM 10498:12-15; KM 10566: 29-30; KM 10574:1-5; KM 10598:1-3; KM 10609:40-41; KM 10625:7-8; KM 10723:9-11; KM 10796:7-12; KM 10830:1-32; KM 10836:7-12; KM 10978:15-34; KM 11029:1-22; KM 11177:10-15; KM 11189:7-10; KM 11192:7-14; KM 11245:2,4-6	Raike 2001	Hirviluoto 1991: 53, 201-202
Pukkila, Myllypelto	669703	328796	669422	28787	Stray find	Stone and/or Bronze Age	LNE/ EBA	KM 11316:8		Hirviluoto 1991: 201-202
Pukkila, Noppila					Stray find	Stone Age		KM 15428:1-5		
Pukkila, Noppila					Stray find	Stone Age		KM 17018:1-5		
Pukkila, Perkiönpelto					Stray find	Stone Age		KM 5598:5		
Pukkila, Pikimäki					Stray find	Stone Age		KM 3187:35		
Pukkila, Pirtinpelto	669654	328761	669372	28753	Settlement site	Stone Age	BAT, LNE/ EBA	KM 8790:2; KM 10348:1-2; KM 10374:8-11; KM 10490:1; KM 10498:1-11,16; KM 10566:1-9; KM 10598:6-71, KM 10609:1-39; KM 10625:11-45; KM 10723:1-8; KM 10978:4-9; KM 11177:7-9; KM 11189:1-6; KM 11192:3-6; KM 11255:1-4	Luho 1945; Raike 2001	Hirviluoto 1991: 53, 202
Pukkila, Rauhala	669736	328793	669455	28785	Settlement site?	Stone Age		KM 23300:1-2	Raike 2001	Hirviluoto 1991: 204
Pukkila, Sinikallio	669590	328698	669309	28690	Settlement site?	Stone Age		KM 10625:9-10	Luho 1945	Hirviluoto 1991: 203
Pukkila, Sinivuori					Settlement site?	Stone Age		KM 30600		
Pukkila, Sinivuori I	669712	328818	669431	28810	Settlement site	Stone Age	CC, BAT	KM 4716:1-9; KM 5598:2-4,6-13; KM 6378:3-10; KM 6380:1-22; KM 6759:3-8; KM 6762:1; KM 7300:2-4; KM 8315:1; KM 8316; KM 8579:1,3; KM 8676; KM 8760:1; KM 8789:1; KM 8790:1; KM 8864:1-3; KM 10338:1-8; KM 10348:3-7; KM 10374:1-2,4-7; KM 10490:9,11-15; KM 1059	Tallgren 1906; Tallgren 1913; Europaeus 1923; Europaeus 1924; Luho 1945; Raike 2001	Hirviluoto 1991: 200
Pukkila, Sinivuori I	669712	328818	669431	28810	Settlement site?	Early Metal Period	PRIA	KM 6378:5; KM 10374:3; KM 10490:10; KM 19740:1-7		Hirviluoto 1991: 75-76, 200
Pukkila, Sinivuori II	669719	328820	669438	28812	Settlement site	Stone Age		KM 20661:1-2; KM 20662:1-38; KM 20663	Raike 2001	Hirviluoto 1991: 200-201

Pukkila, Sinivuori III	669718	328816	669437	28808	Settlement site	Stone Age		KM 20620:1-78; KM 20661:3-5; KM 20662:39-40	Raike 2001	Hirviluoto 1991: 201
Pukkila, Sorronpelto	669590	328698	669309	28690	Settlement site?	Stone Age		KM 9050:2-3; KM 9819:1-5; KM 10272:1-7; KM 10978:3	Luho 1945; Raike 2001	Hirviluoto 1991
Raatihuoneen puisto					Stray find			TMM 13105:1		
Rauvola, Kivihaka					Stray find	Bronze Age	LNE/ EBA	KM 9305		Hirviluoto 1991: 66-67
Rauvola, Pajamäki					Stray find	Stone Age		KM 28484		
Rauvola, Peppursuo	669666	328316	669385	28308	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Saari					Stray find	Iron Age	VA, CP			Hirviluoto 1991: 185-186
Salo	669596	328372	669315	28364	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Salo	669596	328372	669315	28364	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Salo	669594	328375	669313	28367	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Salo					Stray find	Undated		KM 11611		
Salo, Andelinin torppa					Stray find	Stone Age		KM 3684:9		
Salo, Lukkarinmäki	670273	328661	669992	28653	Stray find	Iron Age	MER	KM 8067A:1-42; KM 9192:1-25	Nordman 1922; Cleve 1930	Hirviluoto 1991: 152-156
Salo, Nokkamäki	670221	328752	669940	28744	Stray find	Iron Age	VA	KM 9849; KM 9985	Leppäaho 1934; Raike 2001	Hirviluoto 1991
Salo, Pappilanhaka	670207	328621	669925	28613	Cemetery	Iron Age		KM 15691	Hirviluoto 1963; Raike 2001	Hirviluoto 1991: 219
Salo, Pappilanhaka	670207	328621	669925	28613	Settlement site	Iron Age		KM 27206	Raike 2001	
Salo, Peppursuo	669664	328314	669383	28306	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Salo, Suopellonmäki	669883	328409	669602	28401	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Tuovinen & Vuorinen 1992
Salo, Uusiniitty	669879	328461	669597	28453	Stray find	Stone Age		KM 22501		
Salo, Valhoja					Stray find	Stone and/or Bronze Age		KM 16723		
Salo, Viitan torppa					Stray find	Stone Age		KM 3684:10		
Sauvonkylä, Uusitalo					Stray find	Stone Age		KM 2436:14		
Supi					Stray find	Stone Age		KM 6795:4		
Toijala, Myllymäki	670432	328560	670150	28552	Cairn?	Iron Age		KM 19641; KM 27663	Raike 2001	Hirviluoto 1991: 219
Tottola					Stray find	Stone Age	BAT	KM 4593:1		
Tottola					Stray find	Stone Age		KM 4730:1		
Ullenböle, Ilmusmäki	669853	328690	669572	28682	Cairn	Bronze and/or Iron Age			Salonen 1927; Raike 2001	Hirviluoto 1991; Tuovinen & Vuorinen 1992
Uoti	670841	329036	670559	29027	Settlement site	Iron Age		KM 32837:1-5	Raike 2001	
Varesvuori	670436	328488	670155	28480	Cairn?	Undated			Brusila 2006	
Veitakkala	670738	328973	670456	28964	Stray find	Iron Age	VA	KM 18394		Hirviluoto 1971; Edgren 1973; Schauman-Lönnqvist et al. 1986; Schauman-Lönnqvist 1989: 70; Hirviluoto 1991: 173-174

Veitakkala	670772	328970	670490	28962	Stray find	Iron Age	VA	KM 2436:20		Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 70-71; Hirviluoto 1991: 172
Veitakkala, Hankala	670845	328878	670563	28869	Settlement site	Stone Age		KM 32842:1-3	Raike 2001	
Veitakkala, Jumbrosund	670802	329004	670521	28995	Cemetery?	Iron Age		KM 32839:1-8	Raike 2001	Hirviluoto 1991: 219
Veitakkala, Junttila	670778	328977	670496	28968	Cemetery?	Iron Age		KM 32840:1-2	Raike 2001	
Veitakkala, Linnamäki	670817	328912	670535	28904	Cairn	Bronze Age	LNE/ EBA		Salonen 1927; Raike 2001	Hirviluoto 1991: 63; Tuovinen & Vuorinen 1992
Veitakkala, Linnamäki	670815	328912	670533	28904	Hillfort?	Iron Age?		KM 2435:11,13	Salonen 1927; Raike 2001	Schauman-Lönnqvist et al 1986; Schauman-Lönnqvist 1989: 71-72; Hirviluoto 1991: 181, 223
Veitakkala, Peltoniemi					Settlement site?	Stone Age		KM 25707		
Veitakkala, Puutarha	670762	328974	670480	28965	Settlement site	Iron Age		KM 32841:1-4	Raike 2001	
Villilä					Stray find	Stone Age		KM 6800:1		
Villilä, Kankare					Stray find	Stone Age		KM 16893:1-2		
Villilä, Lehtiranta **	669550	328714	669268	28706	Stray find	Bronze Age	LBA	KM 7109	Europaeus 1917	Hirviluoto 1991: 67
Villilä, Mäki					Stray find	Undated		KM 11468		
Villilä, Mäntylä					Stray find	Stone Age?		KM 16896		
Villilä, Rannoja					Stray find	Stone Age		KM 11316:1		
Villilä, Tomma					Stray find	Stone Age	BAT	KM 8660:2		
Villilä, Tomma					Stray find	Stone Age		KM 8760:2		
Villilä, Toukola					Stray find	Undated		KM 16894		
Villilä, Villajärvi					Stray find	Stone Age		KM 2794:42		
Vuohensaari	670109	328320	669828	28312	Undefined	Undated			Asplund 1998	
Ylhäisi					Stray find	Stone Age		KM 10898		
Ylhäisi, Metsäranta	670072	328611	669791	28603	Cemetery	Iron Age	MIG	KM 10832:1-5; KM 10881:1-6	Leppäaho 1939; Raike 2001	Hirviluoto 1991: 117, 219
Yli-Koski, Umpaidan pelto					Stray find	Stone Age?		KM 11471:10		

Sauvo

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
					Stray find	Stone Age	BAT	KM 1754:1		
					Stray find	Stone Age	BAT	KM 1754:2		
					Stray find	Stone Age		KM 22803		
					Stray find?	Stone Age		KM 5573:1-4		
					Stray find	Stone Age		KM 7511		
					Stray find?	Stone Age		Korpelan kansakoulu		
					Stray find?	Stone Age		Korpelan kansakoulu		
					Stray find?	Stone Age		Korpelan kansakoulu		
					Stray find?	Stone Age		Korpelan kansakoulu		
					Stray find	Undated		Sauvon kotis.museo 1123		
					Stray find	Undated		Sauvon kotis.museo 1279		
					Stray find?	Stone Age?		Sauvon kotis.museo 1945		
					Stray find	Stone Age		Sauvon kotis.museo 1946		
					Stray find	Stone Age		Sauvon kotis.museo 1947		
					Undefined	Undated		Sauvon kotis.museo 1948		
					Stray find	Stone Age		Sauvon kotis.museo 1949		
					Stray find	Undated		Sauvon kotis.museo 1951		
					Stray find	Undated		Sauvon kotis.museo 1952		
					Non-site	Undated		Sauvon kotis.museo 1953		
					Stray find	Undated		Sauvon kotis.museo 1954		
					Non-site	Undated		Sauvon kotis.museo 1956		
					Stray find	Stone Age		Sauvon kotis.museo 1957		
					Non-site	Undated		Sauvon kotis.museo 1959		
					Undefined	Undated		Sauvon kotis.museo 1961		
					Stray find	Undated		Sauvon kotis.museo 1962		
					Stray find	Undated		Sauvon kotis.museo 1963		
					Stray find	Stone Age		TMM 30		
					Stray find	Stone Age		TMM 31		
					Stray find	Stone Age	BAT	TMM 4		
					Stray find	Stone Age		TMM 45		
					Stray find	Stone Age	BAT	TMM 5		
					Stray find	Iron Age		TMM 91		
					Stray find	Iron Age		TMM 92		

Alsila, Martböle					Stray find	Stone Age		Alsilan kansakoulu		
Alsila, Martböle					Stray find	Stone Age		Alsilan kansakoulu		
Alsila, Martböle					Stray find	Stone Age		KM 5251:2		
Amböle, Marike					Stray find	Stone Age		KM 10385		
Brännkärr					Stray find	Stone and/or Bronze Age	LNE/EBA	KM 6025:1		
Danskulla	669850	325838	669569	25831	Settlement site	Stone Age		KM 30214:1-4; 32490	Bilund 1997; Raike 2001	
Etelämäki, Brotta					Stray find	Stone Age		Ruonan kansakoulu		
Etelämäki, Brotta					Stray find	Undated		Ruonan kansakoulu		
Etelämäki, Brotta					Stray find	Stone Age		Sauvon kotis.museo 1958		
Falskeri					Stray find	Stone and/or Bronze Age		KM 31794		
Finnkulla, Loitinpaltta					Stray find	Stone Age		KM 12455		
Finnkulla, Loitinpaltta					Stray find	Undated		KM 14970		
Finnkulla, Loitinpaltta	669450	326859	669169	26851	Stray find	Medieval		KM 14973	Waris 1960	Luoto 1990b: 63-64, Kuva 34
Finnkulla, Loitinpaltta					Stray find	Stone Age?		Ruonan kansakoulu		
Finnkulla, Loitinpaltta					Stray find	Undated		Ruonan kansakoulu		
Finnkulla, Ruonan kansakoulu					Stray find	Undated		Ruonan kansakoulu		
Finskilä	670014	326148	669733	26141	Cairn?	Undated			Hirviluoto 1965; Raike 2001	
Finskilä, Ala-Junnola	669970	326166	669689	26159	Cemetery	Iron Age	ERA, LRA	KM 13465:1-35; KM 13850:1-7; KM 14496:1-9; KM 16391:1-2; KM 17309:1-17	Salmo 1954; Waris 1960; Hirviluoto 1965; Lehtosalo 1967; Lehtosalo 1968; Raike 2001	Salo 1968; Luoto 1990b: 48-54
Finskilä, Ali-Junnola **	669979	326158	669697	26151	Stray find	Iron Age?		Ala-Junnolan kokoelmat		Luoto 1990b: 54
Gripsböle					Stray find	Bronze Age		TMM A99		
Haanniemi, Långas	669404	325110	669123	25103	Undefined	Undated			Raike 2001	
Haarakallio, Kalamäki **	669856	326211	669575	26204	Stray find	Iron Age	VA	KM 4681; KM 4810:1-2	Rinne 1906; Waris 1960	Luoto 1990b: 57-59
Haavisto 1	670020	326420	669739	26412	Cemetery	Iron Age		KM 32504:1-2	Raike 2001	
Haavisto 2	670026	326428	669745	26421	Settlement site?	Iron Age		KM 28167; KM 32505	Raike 2001	
Haavisto 3	670024	326410	669742	26403	Settlement site	Iron Age		KM 32506:1-4	Raike 2001	
Hallela, Alitalo					Stray find	Stone Age		KM 14971		
Hallela, Pappilan lohkotila	669944	326377	669662	26369	Cemetery?	Iron Age?			Waris 1960; Raike 2001	Luoto 1990b: 57
Hallela, Sotilasvirkatalo **	669955	326405	669674	26398	Stray find	Iron Age	VA	KM 15795	Waris 1960	
Hallela, Takahaka	669937	326366	669656	26358	Settlement site	Iron Age		KM 32496	Raike 2001	
Inkiniemi, Rauhala	669223	326809	668942	26801	Stray find	Stone Age		KM 15796:1-2	Waris 1960; Raike 2001	
Iso-Mäkipää	670046	325864	669765	25857	Settlement site	Stone Age	BAT	KM 30918:1-2; 32491:1-4	Raike 2001	
Iso-Mäkipää, Varasvuori	670013	325816	669732	25809	Cairn	Bronze and/or Iron Age			Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Järvenkylä, Nummi	669686	326978	669405	26970	Non-site	Undated			Seppänen 1977	
Järvenkylä, Åkerström	669567	326994	669286	26987	Non-site	Undated			Seppänen 1977	

Kalainen, Heinilä	670239	326634	669958	26627	Stray find	Stone Age		KM 17848	Koskimies 1968; Raike 2001	
Kalaisi					Stray find	Stone Age		Saustilan kansakoulu		
Karunan kartano, Muurainsuo					Stray find	Stone Age		KM 14968		
Kaslahti					Non-site	Undated		Sauvon kotis.museo 604		
Kirkonkylä					Cup-marked stone?	Iron Age?				
Kirkonkylä, Isotalo					Stray find	Medieval		KM 4189:4		
Kirkonkylä, Kallinsuo **	669773	326395	669492	26387	Stray find	Iron Age		KM 14972	Waris 1960	
Kirkonkylä, Kallinsuo					Stray find	Bronze Age	LBA	KM 8052	Waris 1960	Luoto 1990b: 29-30, Kuva 13
Kirkonkylä, Kalmasmäenpelto	669997	326211	669715	26203	Settlement site?	Iron Age		KM 32494:1-3	Raike 2001	
Kirkonkylä, Kalmasmäki					Cup-marked stone?	Iron Age?				
Kirkonkylä, Kalmasmäki	669986	326224	669704	26217	Cemetery	Iron Age		KM 32492; TYA 114:1-8	Seppänen 1978; Raike 2001	Luoto 1990b: 54
Kirkonkylä, Keskitalo					Stray find	Undated		KM 18201		
Kirkonkylä, Kirkonmäentie *	669996	326237	669715	26229	Settlement site	Iron Age		KM 28164; KM 32502:1-3	Raike 2001	
Kirkonkylä, Pappila					Undefined	Undated			Waris 1960	
Kirkonkylä, Pappila	669997	326305	669716	26297	Stray find	Medieval		KM 4162:		
Kirkonkylä, Pappila	669997	326305	669716	26297	Cemetery	Iron Age	MER, VA	KM 4162:1-40	Waris 1960; Raike 2001	Luoto 1990b: 54-56
Kirkonkylä, Pappilan Isoniittu					Stray find	Iron Age		KM 4162:41		
Kirkonkylä, Pappilanpelto	670015	326334	669733	26327	Undefined	Undated		KM 32493:1-3	Raike 2001	
Kirkonkylä, Puosnummi					Stray find	Stone Age		Sauvon yhteiskoulu		
Kirkonkylä, Timperi	670025	326197	669744	26190	Settlement site?	Iron Age		KM 32503:1-4	Raike 2001	
Koorila					Stray find	Stone Age	BAT	Saustilan kansakoulu		
Korpela, Etelärinne					Stray find	Undated		KM 14969		
Korpela, Maila					Stray find	Stone Age		KM 5251:1		
Korvala	669994	325940	669713	25933	Stray find	Iron Age	ERA	KM		
Korvala					Stray find	Iron Age	ERA	KM 25783		
Korvala	669919	325905	669638	25897	Cemetery	Iron Age	PRIA, ERA	KM 29710:1-17; KM 30303:1-37; KM 30891; 31522; KM 31696	Schauman-Lönnqvist 1998; Raike 2001	
Koski, Simola					Stray find	Stone Age		KM 6547:1		
Kupiluoto, Katevuo	669019	325501	668738	25494	Stray find	Undated		KM 26074		
Kärkiniemi, Kärkiniemen kartano					Stray find	Undated		KM 9299:5		
Kärkkinen, Nuorisoseurantalo	669312	325579	669031	25571	Inscription	Post-Medieval				
Kärkkinen, Seplahti					Stray find	Stone Age		SatM 2136		
Launila					Non-site	Undated		Sauvon kotis.museo 1955		

Lautkankare, Alitalo					Stray find	Stone Age		KM 4189:1		
Lautkankare, Linnamäki					Stray find	Iron Age	MER	KM 17295		Luoto 1990b: 44, Kuva 20
Lautkankare, Linnamäki	670124	326065	669843	26058	Hillfort	Early Metal Period	PRIA	TYA 139:1-72; TYA 541:1-2	Waris 1960; Luoto 1979; Raike 2001	Luoto 1990b: 36-44
Lautkankare, Linnamäki	670112	326068	669830	26060	Settlement site	Iron Age		TYA 139:73-147	Luoto 1979; Raike 2001	Luoto 1990b: 36-44
Lautkankare, Mäntylä	670166	326110	669885	26103	Cemetery?	Iron Age	VA	KM 16712:1-4; KM 17297:1-2	Raike 2001	Luoto 1990b: 43
Lautkankare, Mäntylä					Stray find	Iron Age	VA	TYA 139:158		Luoto 1990b: 43
Lautkankare, Vallerinoja	670106	326069	669824	26062	Stray find	Iron Age?		TYA 139:154-157	Luoto 1979	Luoto 1990b: 44
Lehmisalmi, Kraatarbacka	669602	327056	669321	27048	Settlement site?	Stone and/or Bronze Age			Waris 1960; Raike 2001	
Liivala, Myllypelto					Cup-marked stone?	Iron Age				
Liivala, Myllypelto	670053	326398	669772	26390	Cemetery?	Iron Age		KM 28166; KM 32497:1-3	Raike 2001	
Marju					Stray find	Stone Age		KM 6025:2		
Mäenala	669866	326269	669585	26261	Stray find	Iron Age	VA	KM 9243:1-5	Tallgren 1930; Waris 1960	Luoto 1990b: 59-60
Mäntykylä	669612	326401	669331	26393	Settlement site?	Stone Age		KM 16735:299; KM 17066:232-233; KM 32488	Koskimies 1966; Raike 2001	
Mäntykylä					Stray find	Stone Age		Sauvon yhteiskoulu		
Mäntykylä					Stray find	Stone Age		Sauvon yhteiskoulu		
Mäntykylä, Danskintie	669629	326423	669348	26416	Settlement site?	Stone Age		KM 32495:1-2	Raike 2001	
Mäntykylä, Nummenharju	669662	326398	669381	26390	Settlement site	Stone Age	CC	KM 16735:1-298; KM 17066:1-231; KM 17694:1-8; KM 20146:1-5; TYA 165:1-14; Sauvon yhteiskoulun kokoelmat	Hirviluoto 1965; Koskimies 1966; Koskimies 1966; Raike 2001	Luoto 1990b: 14-16
Orssaari, Isotalo	669487	325050	669206	25043	Undefined	Undated			Brusila 1987	
Osmalahti					Stray find	Stone Age		KM 1942		
Osmalahti, Övergård					Stray find	Stone Age		KM 8644		
Osmanlahti					Stray find	Iron Age	VA	KM 15099		Luoto 1990b: 63
Osmanlahti, Poutanen	670071	325569	669790	25562	Cairn?	Bronze and/or Iron Age			Koskimies 1967; Raike 2001	Tuovinen & Vuorinen 1992
Paddainen, Sandvik	670214	325707	669933	25700	Mound	Undated			Waris 1960; Raike 2001	
Paddainen, Tryskä	670250	325776	669969	25768	Stray find	Iron Age	VA	KM 15794	Waris 1960	Luoto 1990b: 62-63
Palosuo, Palosuonmäki	669169	326390	668888	26383	Cairn	Bronze and/or Iron Age			Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Pappila					Stray find	Iron Age		KM 28165		
Pappila, Jokipellonlato 1	670001	326348	669720	26341	Cairn	Iron Age		KM 32498:1-3	Raike 2001	
Pappila, Jokipellonlato 2	670006	326355	669725	26348	Cairn	Iron Age		KM 32507	Raike 2001	
Pappila, Kyynäräinen					Mound	Undated	ERA, VA			Luoto 1990b: 56
Pappila, Kyynäräinen	669995	326329	669714	26322	Stray find	Iron Age		Kyynäräisen kokoelma	Raike 2001	Luoto 1990b: 56
Pappila, Kyynäräisen kaivopelto					Stray find	Iron Age		KM 32510	Raike 2001	Luoto 1990b: 56

Pappila, Kyynäräisen metsä	670013	326351	669732	26344	Cairn?	Undated			Raike 2001	
Pappila, Kyynäräisen mökki	670024	326341	669743	26334	Settlement site	Early Metal Period		KM 32499:1-4; TYA 503:1-2	Raike 2001	Luoto 1990b: 18
Pappila, Kyynäräisen yläpelto	669995	326329	669714	26322	Settlement site	Iron Age		KM 32501:1-4; Kyynäräisen kokoelma	Raike 2001	Luoto 1990b: 56
Pappila, Navettapelto	670023	326319	669742	26312	Cemetery?	Iron Age		KM 32500:1-2	Raike 2001	
Patarautela, Keskitalo					Stray find	Stone Age	BAT	KM 6989:1-2		
Patarautila					Stray find	Stone Age		Korpelan kansakoulu		
Patarautila					Stray find	Stone Age		Korpelan kansakoulu		
Patarautila, Keskitalo	669971	326804	669690	26796	Stray find	Stone Age		KM 29613	Anttila 1996	
Pelli					Stray find	Undated		W. J. Kallion kokoelma 3		
Raitaniemi, Raitniemi	669516	326081	669235	26073	Stray find	Bronze Age	LNE/EBA	KM 30213		
Rajalahti, Rajalahti 1	668971	326364	668691	26357	Cairn	Bronze and/or Iron Age			Brusila 1999; Raike 2001	Tuovinen & Vuorinen 1992
Rajalahti, Rajalahti 2	668963	326373	668682	26366	Cairn	Bronze and/or Iron Age			Brusila 1999; Raike 2001	Tuovinen & Vuorinen 1992
Rajalahti, Soreala	668962	326355	668681	26348	Cairn	Bronze and/or Iron Age			Brusila 1999; Raike 2001	
Rajalahti, Tankomäki a	668973	326423	668692	26415	Cairn	Bronze and/or Iron Age			Brusila 1999; Raike 2001	Tuovinen & Vuorinen 1992
Rajalahti, Tankomäki b	668973	326428	668692	26420	Cairn	Bronze and/or Iron Age			Brusila 1999; Raike 2001	Tuovinen & Vuorinen 1992
Rajalahti, Tankomäki c	668973	326431	668693	26423	Cairn	Bronze and/or Iron Age			Brusila 1999; Raike 2001	Tuovinen & Vuorinen 1992
Ristniemi	669430	326188	669149	26181	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Ristniemi, Kotirinne	669448	326123	669167	26115	Cairn	Bronze and/or Iron Age			Leppäaho 1950; Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Ristniemi, Miskerinmäki	669399	326180	669117	26173	Cairn	Bronze and/or Iron Age			Leppäaho 1950; Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Ristniemi, Pellonpää	669436	326145	669155	26138	Cairn	Bronze and/or Iron Age		KM 12333:1-4	Leppäaho 1950; Waris 1960; Raike 2001	Luoto 1990b: 32; Tuovinen & Vuorinen 1992
Ristniemi, Pellonpää 2	669413	326149	669132	26142	Cairn	Bronze and/or Iron Age			Leppäaho 1950; Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Ristniemi, Rantametsä	669472	326092	669191	26084	Cairn	Bronze and/or Iron Age			Leppäaho 1950; Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Ristniemi, Ullaskrooppi	669423	326192	669142	26184	Cairn	Bronze and/or Iron Age			Leppäaho 1950; Waris 1960; Vikkula 1982; Raike 2001	Tuovinen & Vuorinen 1992
Ristniemi, Ullaskrooppi	669427	326187	669146	26179	Cairn	Bronze and/or Iron Age			Leppäaho 1950; Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Ristniemi, Ullaskrooppi	669428	326193	669147	26186	Cairn?	Bronze and/or Iron Age			Leppäaho 1950; Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Ristniemi, Ullaskrooppi 2	669429	326200	669148	26193	Settlement site?	Early Metal Period		KM 29307	Bilund 1996; Raike 2001	
Ristniemi, Yliristniemi	669431	326189	669150	26182	Cairn	Bronze and/or Iron Age			Leppäaho 1950; Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Runagård, Isoluoto	669089	326989	668808	26981	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Ruonlahti, Huusinmäki	669931	325530	669650	25522	Cairn?	Bronze and/or Iron Age			Koskimies 1967; Raike 2001	Tuovinen & Vuorinen 1992

Ruonlahti, Koivumäki	670016	325596	669735	25588	Cairn	Bronze and/or Iron Age			Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Ruonlahti, Koivumäki	670018	325601	669737	25594	Cairn?	Undated			Koskimies 1967	Tuovinen & Vuorinen 1992
Ryttarböle, Ratsula **	669796	326604	669515	26597	Stray find?	Stone Age?			Koskimies 1969	
Ryttarböle, Treskeri **	669741	326542	669459	26534	Stray find?	Stone Age?			Koskimies 1969	
Salmensuu					Stray find	Undated		Sauvon kotis.museo 1960		
Salmi, Myllymäki	670082	326081	669801	26074	Cemetery	Iron Age	VA	KM 4810:3; KM 5204:1-42; KM 32489; TMM 6356; TMM 6357	Rinne 1906; Appelgren-Kivalo 1909; Hackman 1909; Waris 1960; Raike 2001	Luoto 1990b: 44-47
Salmi, Säkkäränkankare	670164	326142	669882	26135	Cemetery?	Iron Age		KM 32509:1-3	Raike 2001	
Salmi, Säkkäränkankare	670168	326141	669887	26133	Cemetery?	Iron Age		KM 8694:1-5	Appelgren-Kivalo 1909; Tallgren 1926; Waris 1960; Raike 2001	Luoto 1990b: 43
Saustila					Undefined	Historical Period		TYA 115		
Saustila, Jokimaa	670436	326543	670154	26536	Stray find	Stone and/or Bronze Age		KM 30796		
Saustila, Vehka-alho					Stray find	Stone Age		Saustilan kansakoulu		
Suojala					Stray find	Stone Age		Alsilan kansakoulu		
Talinkylä, Päivärinne	669393	326799	669112	26792	Undefined	Undated			Brusila 1983	
Teininki, Koivumaa	669551	325353	669270	25346	Cairn	Bronze and/or Iron Age			Brusila 1995; Raike 2001	
Teininki, Steninge (a)	669701	325368	669420	25361	Cairn?	Bronze and/or Iron Age			Brusila 1995; Raike 2001	
Teininki, Steninge (b)	669701	325366	669420	25359	Cairn?	Bronze and/or Iron Age			Brusila 1995; Raike 2001	
Teininki, Uusitalo	669499	325381	669218	25374	Stray find	Undated		KM		
Tiikarla, Rantakallio	669777	325366	669496	25359	Cairn	Bronze and/or Iron Age			Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Timarinjärvi **	669035	325979	668754	25971	Stray find	Iron Age	VA	Sally Oksasen kokoelmat		Luoto 1990b: 63, Kuva 33
Timperlä	670183	326475	669902	26467	Cup-marked stone	Iron Age?				
Timperlä	670183	326495	669901	26487	Settlement site?	Stone Age		KM 28169:1-2,4-7	Bilund 1994; Raike 2001	
Timperlä	670183	326495	669901	26487	Settlement site?	Iron Age?		KM 28169:3	Bilund 1994; Raike 2001	
Timperlä	670170	326502	669889	26495	Settlement site?	Iron Age		KM 28169:8-9	Bilund 1994; Raike 2001	
Vahtinen, Möyrymäki	670027	326184	669746	26177	Cemetery	Iron Age	ERA, LRA	TYA 227:1-13	Luoto & Riikonen 1984; Raike 2001	Luoto 1990b: 47-48
Vartsalo, Teitunpyöli	669925	325874	669644	25867	Settlement site?	Stone and/or Bronze Age			Waris 1960	
Vesti, Pajakankare	669474	326126	669193	26119	Cairn	Bronze and/or Iron Age			Waris 1960; Raike 2001	Tuovinen & Vuorinen 1992
Vähäkylä, Jokiniitty	670063	326412	669782	26405	Settlement site?	Iron Age		KM 32508	Raike 2001	
Vähäkylä, Päivärinta **	670010	326509	669729	26501	Stray find	Undated				
Vähäkylä, Silkkilänjärvi	670008	326610	669727	26602	Stray find	Iron Age	VA	KM 16742	Waris 1960; Koskimies 1965	Luoto 1990b: 62
Vähäkylä, Tuulimäki	670061	326458	669780	26451	Settlement site?	Iron Age		KM 28168	Raike 2001	
Vähä-Mäkipää, Riihipelto	670131	326037	669850	26029	Cup-marked stone	Iron Age?			Asplund 1996; Raike 2001	
Vähä-Mäkipää, Riihipelto	670131	326035	669850	26027	Cup-marked stone	Iron Age?			Tuovinen 1977; Luoto 1979; Asplund 1996; Raike 2001	
Vähä-Mäkipää, Riihipelto	670131	326035	669850	26027	Stray find	Iron Age?		TYA 139:148-153	Luoto 1979; Asplund 1996	

Särkisalo

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
Aisböle, Talkkarmäki	667670	327613	667389	27605	Settlement site	Stone and/or Bronze Age		KM 33306:1-2	Ruohonen 2002	
Falkberg, Saapasmäki	667707	327293	667427	27286	Cairn	Bronze and/or Iron Age			Ruohonen 2002	Tuovinen & Vuorinen 1992
Falkki, Falkinpelto	667731	327324	667450	27316	Stray find	Iron Age		KM 33309	Ruohonen 2002	
Finby, Puosi	667292	327565	667012	27557	Pit-trap?	Undated			Ruohonen 2002	
Finby, Puosinkallio	667269	327578	666988	27570	Cairn	Bronze and/or Iron Age			Ruohonen 2002	Tallgren 1931: 112; Granblom & Häggblom 1969: 2; Tuovinen & Vuorinen 1992
Finby, Puosinkallio	667269	327578	666988	27570	Cairn	Bronze and/or Iron Age			Ruohonen 2002	
Finby, Puosinkallio	667269	327578	666988	27570	Cairn	Bronze and/or Iron Age			Ruohonen 2002	
Finnari, Mikonhuhta	667658	327457	667377	27450	Cairn	Bronze and/or Iron Age			Ruohonen 2002	Tuovinen & Vuorinen 1992
Finnari, Puunokka	667625	327460	667344	27452	Cairn	Bronze and/or Iron Age			Ruohonen 2002	Tuovinen & Vuorinen 1992
Förby, Pettu					Stray find	Undated		KM 15506	Ruohonen 2002	
Gråböle, Kraila	667295	328030	667015	28022	Settlement site?	Stone and/or Bronze Age			Ruohonen 2002	
Hästö, Lehmihaka	667594	327973	667314	27965	Harbour	Historical Period			Ruohonen 2002	
Hästö, Sudenkuoppanummi	667655	328114	667374	28106	Pit-trap	Historical Period			Ruohonen 2002	
Isoluoto, Ryssänmäki S	667168	327247	666888	27239	Settlement site?	Historical Period			Ruohonen 2002	
Kaukassalo, Isotalo					Stray find	Stone Age		KM 2025:9	Ruohonen 2002	
Kaukassalo, Pyölinmäki	667476	327721	667196	27713	Cairn	Bronze and/or Iron Age			Ruohonen 2002	Tuovinen & Vuorinen 1992
Kaukosalo, Klintinmäki	667326	327629	667046	27621	Cairn	Bronze and/or Iron Age			Ruohonen 2002	Tuovinen & Vuorinen 1992
Kirkonkylä					Stray find	Stone Age		KM 12812	Ruohonen 2002	
Mondola, Härkähaka 1	667690	327668	667410	27660	Cairn	Bronze and/or Iron Age			Ruohonen 2002	Tuovinen & Vuorinen 1992
Mondola, Härkähaka 2	667689	327669	667409	27661	Cairn	Bronze and/or Iron Age			Ruohonen 2002	Tuovinen & Vuorinen 1992
Muuri	667274	327247	666993	27239	Inscription	Undated			Ruohonen 2002	
Muurinkylä					Stray find	Undated		KM 12710		
Muurinkylä, Grönbacka					Stray find	Stone Age		KM 3104:4	Ruohonen 2002	
Seppälänkylä, Vähäjärvi	667746	327692	667466	27684	Boat find	Undated			Ruohonen 2002	
Seppälänmäki	667683	327758	667403	27750	Settlement site?	Stone and/or Bronze Age		KM 33307	Ruohonen 2002	
Seppälänmäki, Korkmäki	667779	327576	667499	27568	Settlement site?	Historical Period			Ruohonen 2002	
Siksalo, Stufsund					Stray find	Medieval				Granblom & Häggblom 1969: 5
Suutarkylä	667450	327415	667170	27407	Cairn	Bronze and/or Iron Age			Ruohonen 2002	Tuovinen & Vuorinen 1992
Tessvärr, Gropbukten	666796	326953	666516	26945	Settlement site	Historical Period			Ruohonen 2002	

Västanfjärd

Site name	X0	Y0	E-X	E-Y	Type	General dating	Period	Catalogue num.	Report references	Literature
Engströms torp					Mound?	Undated			Planting 1933	
Galtarby, Galtarby I	666875	325207	666595	25200	Settlement site	Stone Age		TYA 477:1-8	Asplund 1989	
Galtarby, Galtarby II	666956	325353	666676	25346	Settlement site	Stone Age	BAT	TYA 478:1-21	Asplund 1989; Asplund 1989	
Galtarby, Galtarby III	666976	325372	666696	25365	Stray find	Stone Age		TYA 477:9	Asplund 1989	
Galtarby, Galtarby IV	666990	325407	666710	25400	Stray find	Stone Age		TYA 477:10	Asplund 1989	
Galtarby, Galtarby V	666776	325064	666496	25058	Stray find	Stone Age		TYA 477:11-14	Asplund 1989	
Galtarby, Galtarby VI					Settlement site?	Stone Age		TYA 661:1-3		
Galtarby, Råberget	666821	325141	666541	25134	Settlement site	Stone Age		TYA 376:1-6, TYA 390:1-10	Asplund 1987; Asplund 1988	
Galtarby, Råberget **	666829	325133	666549	25126	Quarry	Undated		TYA 390:11	Asplund 1988	
Hagman					Stray find	Undated		KM kt 7843:4		
Kobböle, Kilskullan **	667129	325932	666849	25925	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kobböle, Kilskullan **	667129	325932	666849	25925	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kobböle, Kilskullan **	667129	325937	666849	25930	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Kobböle, Lyckeberget	667115	325835	666835	25828	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Misskärr	666762	325749	666482	25742	Settlement site	Stone Age	CC	TYA 647:1-9, TYA 648:1-2, TYA 660:1-3		
Misskärr **	666771	325765	666491	25758	Quarry	Undated		TYA 660:4		
Nivelax	667246	325747	666965	25740	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Nivelax	667245	325746	666964	25739	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Nivelax	667246	325745	666966	25738	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Nivelax, Frömbärssviden **	667174	325714	666894	25707	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Nivelax, Norrgård					Stray find	Undated		KM 11588		
Nordgård					Stray find	Undated		KM kt 9239:1		
Norrlammala, Lillskogen	666716	325950	666436	25943	Cairn	Bronze and/or Iron Age		KM 2503A:24		Tuovinen & Vuorinen 1992
Norrlammala, Lillskogen	666717	325947	666437	25940	Cairn	Bronze and/or Iron Age		KM 2503A:25		Tuovinen & Vuorinen 1992
Pörtsnäs, Norra Mågsholm	666372	325624	666092	25617	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sirnäs, Söderviken	666561	325551	666281	25543	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Sirnäs, Söderviken	666560	325553	666280	25545	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tappo **	667248	325847	666968	25840	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tappo, Slätängskullan **	667248	325847	666968	25840	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Tappo, Storängen					Stray find	Bronze Age		KM 9749:1		
Tappo, Storängen					Stray find	Stone and/or Bronze Age		KM 9919		

Tappo, Vesteräng	667257	325751	666977	25743	Cairn?	Bronze and/or Iron Age			Kankkunen 1996	
Tappo, Vesteräng	667260	325749	666979	25741	Settlement site	Early Metal Period	PRIA	TYA 514:1-92, KM 28416:1-48	Asplund 1991; Kankkunen 1996	
Tappo, Ångkärrsbergen	667181	325884	666901	25877	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Östanå					Stray find	Undated		KM kt 7843:2		
Östanå					Stray find	Undated		KM kt 7843:3		
Östanå **	667063	325839	666783	25832	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992
Östanå, Norrgård					Stray find	Undated		KM 9920		
Östanå, Norrkulla					Stray find	Bronze Age	LBA	KM 11588		
Östanå, Södergårdskvarn	667049	325724	666769	25717	Cairn	Bronze and/or Iron Age				Tuovinen & Vuorinen 1992

Teija Alenius

The palaeoecological study of three mires on the island Kemiönsaari, SW Finland

Introduction

From an archaeological point of view the island Kemiönsaari is considered to be a margin area because it almost totally lacks Iron Age artefacts. This is typical for southwestern Finland as a whole, as indications of Iron Age settlement are concentrated to the major river valleys on the mainland, whereas in the archipelago and further inland they became rare. On Kemiönsaari archaeologically identifiable settlement continuation similar to that of the mainland can be followed from the late Mesolithic (ca. 6500 cal BC) to the Early Iron Age (ca. 500-1 BC). After this, only sporadic finds indicating land-use are recorded (Asplund 1997). From the Viking Age (800-1050 AD) onwards, signs of human activity in the area, as well as in the archipelago in general, increase somewhat (*cf.* Asplund 2000; 2001). According to archaeological evidence, one possible interpretation is that settlement during the Iron Age may have moved further north to the river valleys on the mainland and returned in the Late Iron Age or in the Middle Ages.

According to archaeological artefacts, it is difficult to draw conclusions about continuity of settlement since the Early Iron Age. Previous pollen analyses carried out indicate that slash-and-burn cultivation was practised in the archipelago about 2000 cal BC and in Kemiö Rugnola in the northern part of Kemiönsaari about 1600 BC. Cultivation in permanent fields started in Kemiö in the 10th century (Asplund & Vuorela 1989; Vuorela 1990). The aim of this paper is to study the early stages of land use by means of pollen analysis of peat and sediment deposits and complement the picture of earlier pollen analysis. The study aims to shed light onto the problem of whether the lack of archaeological material is connected with a diminishing population or whether there are indications of settlement during the time period between 1-1000 AD when the archaeological material is scarce.

Investigation area and study sites

Kemiönsaari (Kemiö Island) lies in southwestern Finland in the archipelago of Turku between 60° 00′ and 60° 30′ E, and 22° 00′ and 23° 00′ N (Fig. 1). It is located in the flat coastal zone where the highest points of the terrain reach an elevation of 86 m a.s.l. The differences in relative heights usually range from 20 to 30 m. In the southern part of the island bedrock consists of granite and in the southern part of the island quartz-feldspar schist and gneiss dominate. The area is mainly composed of exposed bedrock and basal till. Deposits of clay well suited for cultivation occur largely in the area. Salpausselkä III extends fragmented to Kemiönsaari (Kielosto *et al*.1996).

Continental ice sheet retreated from Kemiönsaari about 11,200 years ago (Saarnisto & Saarinen 2001). After deglaciation Kemiönsaari was submerged by the Baltic Ice Lake and went through all the main stages of evolution of the Baltic Sea (Björk 1995) until finally exposed from the Litorina Sea. Litorina transgression resulted from the rising global sea level in areas where the rate of land uplift was slower than the rate of sea-level rise. There is no exact shoreline displacement data for Kemiönsaari, but the shoreline displacement curve for the Tammisaari – Perniö area (Eronen *et al*. 2001) suggests that as a result of the glacio-isostatic land uplift low lying basins between 17 and 12 m a.s.l. were isolated from the Litorina Sea stage between 3800 and 2700 cal BP.

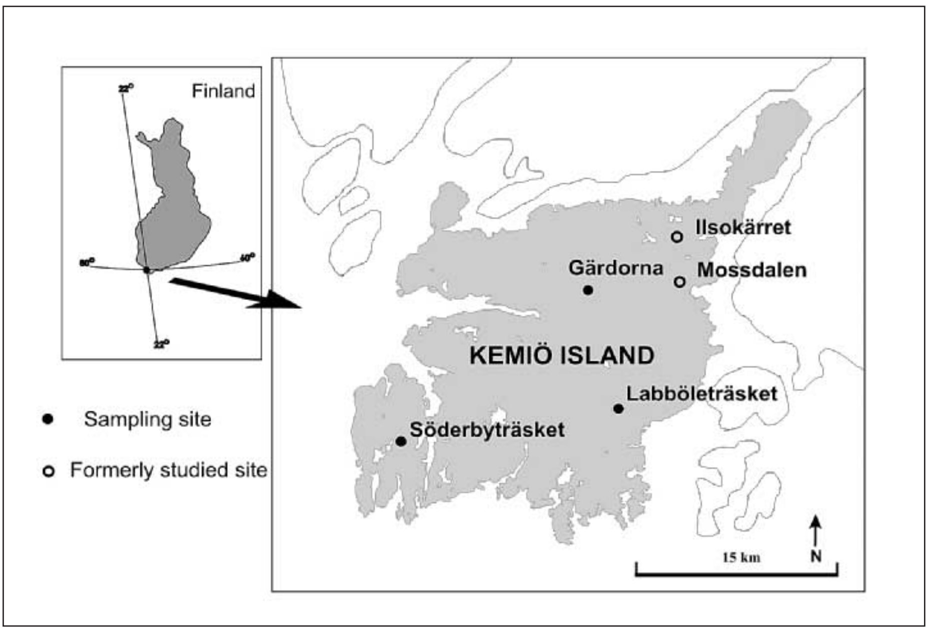


Fig 1. General map of Kemiönsaari and the location of former and present study sites.

The former study sites, the mire of Ilsokärret and the mire of Mossdalen (Asplund & Vuorela 1989) are situated in the northern part of the island. The present study sites (Fig. 2) were selected to complement the picture provided by the former pollen analysis and to provide information from the southern and central part of the island.

Mire of Gärdorna

Gärdorna (X=6674,46, Y=2426,98) is a sedge pine swamp situated in the municipality of Kemiö ca 2.5 km east of the centre of Kemiö (Basic Map 2012 03). The bog is about 14 ha and the altitude of the basin is at 15 m a.s.l. It is affected by drainage and at present dominated by pine and birch mixed with some spruce. Archaeological material indicates settlement in the village of Makila in the Early Iron Age ca. 500-1 BC. There are several Bronze Age or Iron Age cairns in the vicinity of the Gärdorna bog situated on the hilltops (Fig 2A). Charcoal pieces from two excavated cairns at Majberget, about 1.5 km from the sampling site have been radiocarbon dated. The

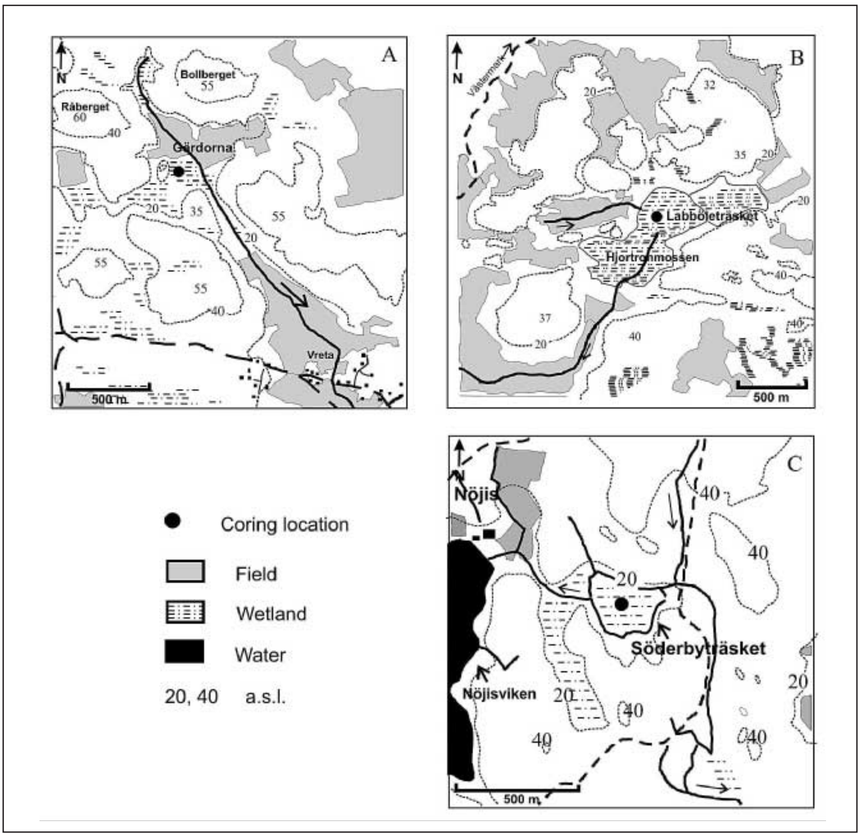


Fig. 2. Detailed maps of location of sites studied. A: Mire of Gärdorna, B; Mire of Labböleträsket, C: Mire of Söderbyträsket

results 1115 ± 35 BP (GrA-14115) and 1215 ± 55 BP (Ua-18804) suggest a dating of both cairns to the Late Iron Age, most probably the Viking Age or (in the latter case) the end of the Merovingian Period or the Viking Age.

Mire of Labböleträsket

Labböleträsket (X = 66647,82, Y = 2429,73) situated in the municipality of Västanfjärd is at an altitude of 12.3 m a.s.l. and about 12 ha in size (Basic Map 2012 02). The former lake of Labböleträsket is strongly affected by a recent ditching. The open water area has nowadays totally dried up and is currently dominated by *Typha*, *Phragmites*, *Carex* and *Cuspidata*. Labböleträsket drains into the bog of Hjortronmossen, a dwarf-shrub pine bog on the southwestern side of Labböleträsket. The archaeological record provides evidence of habitation since the late Stone Age Kiukainen Culture. One Bronze Age cairn is situated about 1.1 km north at an elevation above 20 m a.s.l. (Fig. 2B). The Pre-Roman settlement site in Tappo is situated about 5.5 km west of the sample site.

Mire of Söderbyträsket

Söderbyträsket (X = 6661,19, Y = 1580,01) is a flooded lake with a surface area of 11 ha at an altitude of 17.1 m a.s.l. situated in the municipality of Dragsfjärd ca. 1 km west from the Hammarsboda village (Basic Map 1034 11 and 1034 14). It is a treeless meso-eutrophic sedge fen with *Cuspidata*, *Potentilla palustris*, *Peucedanum palustre* and *Vaccinium oxycoccos* common (Fig. 2C). Within a distance of about 0.5 km a couple of Stone Age settlement sites representing the Comb Ceramic Culture as well as the Battle Axe Culture have been found. About 1.5 km west of the sample site the Late Neolithic settlement sites as well as the Bronze Age cairns and settlement site of Hammarsboda are located. To the east, settlement sites and cairns of approximately the same age can be found in the villages of Kärra and Söderby at a distance of about 1.5 km.

Methods

Sediment coring was carried out during 2002-2004. From Labböleträsket, sediment was first cored from ice in March 2002 with a light model of a piston corer (profile A). Cores obtained consisted of three overlapping sediment sequences (100-257 cm, 253-400 cm, 320-463 cm). Due to the recent drainage of Labbölerträsket, the piston cores were not suitable for collecting the uppermost metre and a hiatus between 56-70 cm was detected. Additional samples from the same location were collected

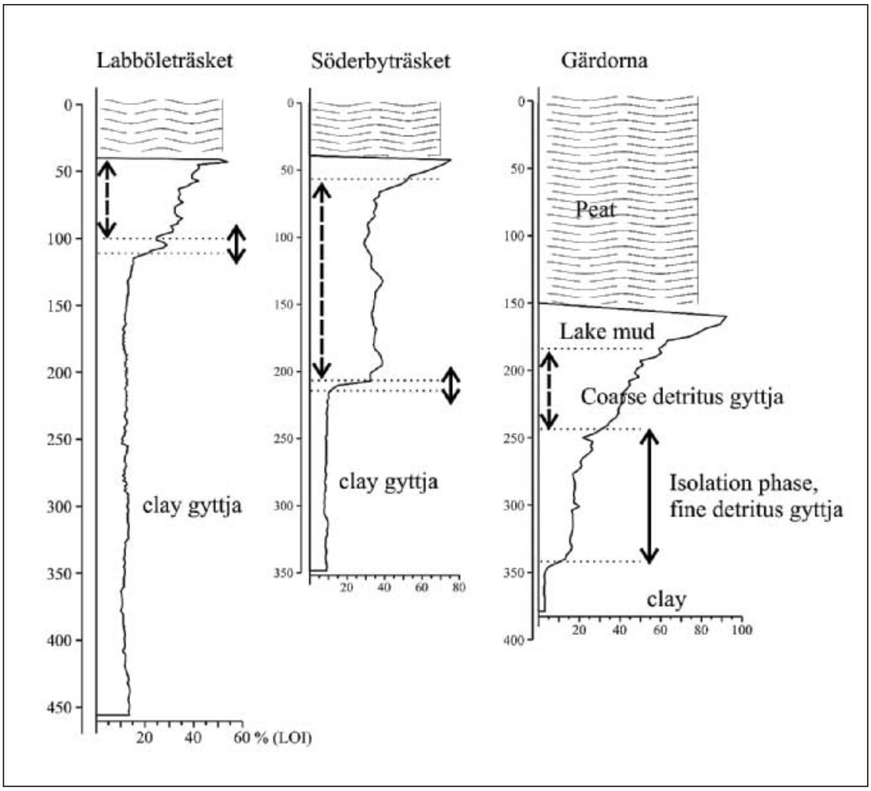


Fig. 3. Loss-on-ignition (LOI) of the study sites.

from the surface between 10-170 cm using a Russian peat sampler (profile B). From the mires of Gärdorna and Söderbyträsket sediment were cored during summer using a Russian peat sampler. Cores consisted of 50 cm long partially overlapping profiles. All the samples were stored in cold room +4º C temperature at the sediment laboratory of the Geological Survey of Finland.

The treatment for pollen samples followed standard procedures, with KOH, acetolysis and HF treatments (Berglund & Ranska-Jasiewiczowa 1986). The pollen samples were mounted with safranin-stained glycerol. Lycopodium spores (Stockmarr 1971) where added for concentration calculation of pollen and charcoal particles (Bennett & Willis 2001; Whitlock & Larsen 2001). About 500 arboreal pollen grains (AP) where counted from each subsample. Identification of the pollen was based on the literature: Faegri and Iversen (1989), Moore *et al*. (1991) and Reille (1992; 1995). The pollen percentages of land pollen are calculated from the basic sum of terrestrial pollen grains, P=AP (arboreal pollen) + NAP (non arboreal pollen). The aquatic pollen and spores are calculated from the sums P + Aquatics and P + Spores. Organic content of the sediment was measured by loss-on-ignition (LOI). LOI was determined from 1 to 3 cm resolution by burning dried (105º C) sediment samples in a furnace for 2 hours at 550º C (Bengtsson & Enell 1986). Dating of the

LABBÖLETRÄSKET, VÄSTANFJÄRD
profile B

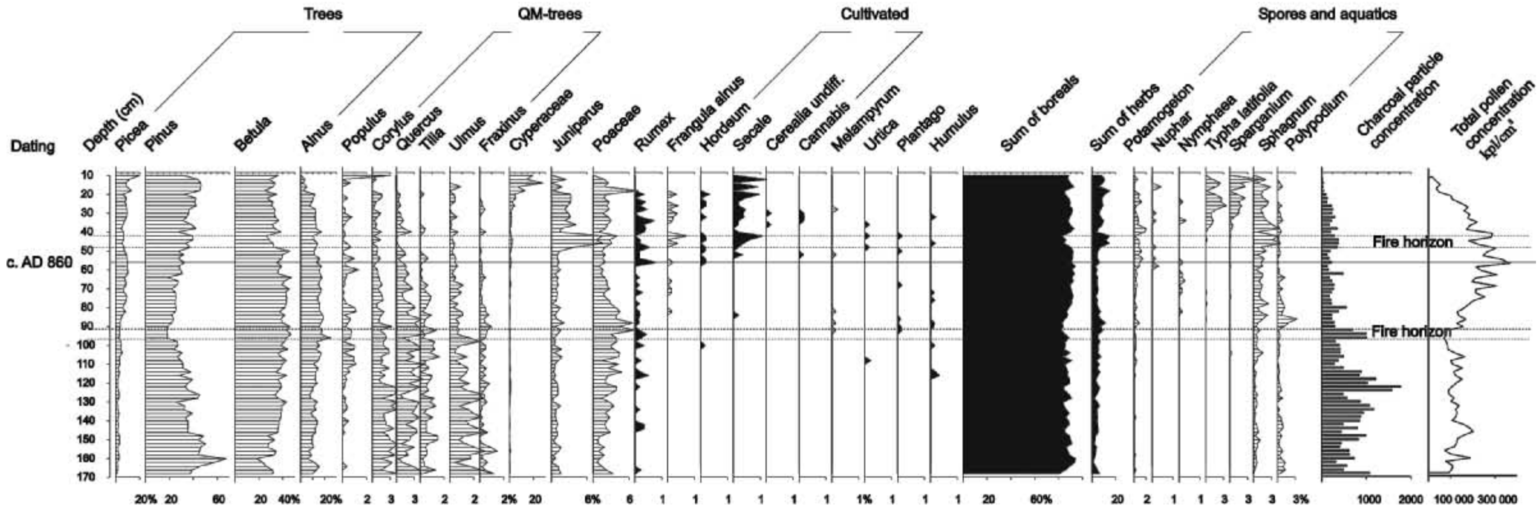


Fig. 4. Mire of Labböleträsket, profile B. Pollen percentages of selected taxa, charcoal particle concentrations and total pollen concentration values (grains cm-3).

LABBÖLETRÄSKET, VÄSTANFJÄRD
profile A and B

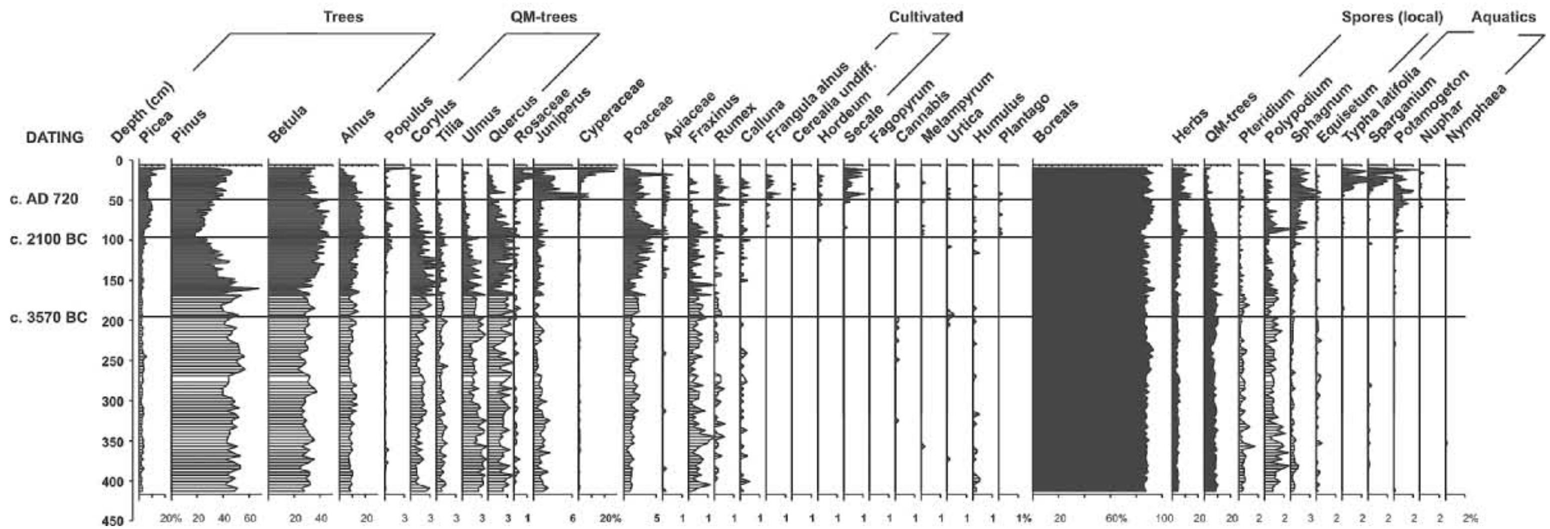


Fig. 5. Mire of Labböleträsket. Selected pollen and spore frequencies expressed as percentages. Pollen diagram constructed from profile A (420-169 cm) and profile B (10-170 cm).

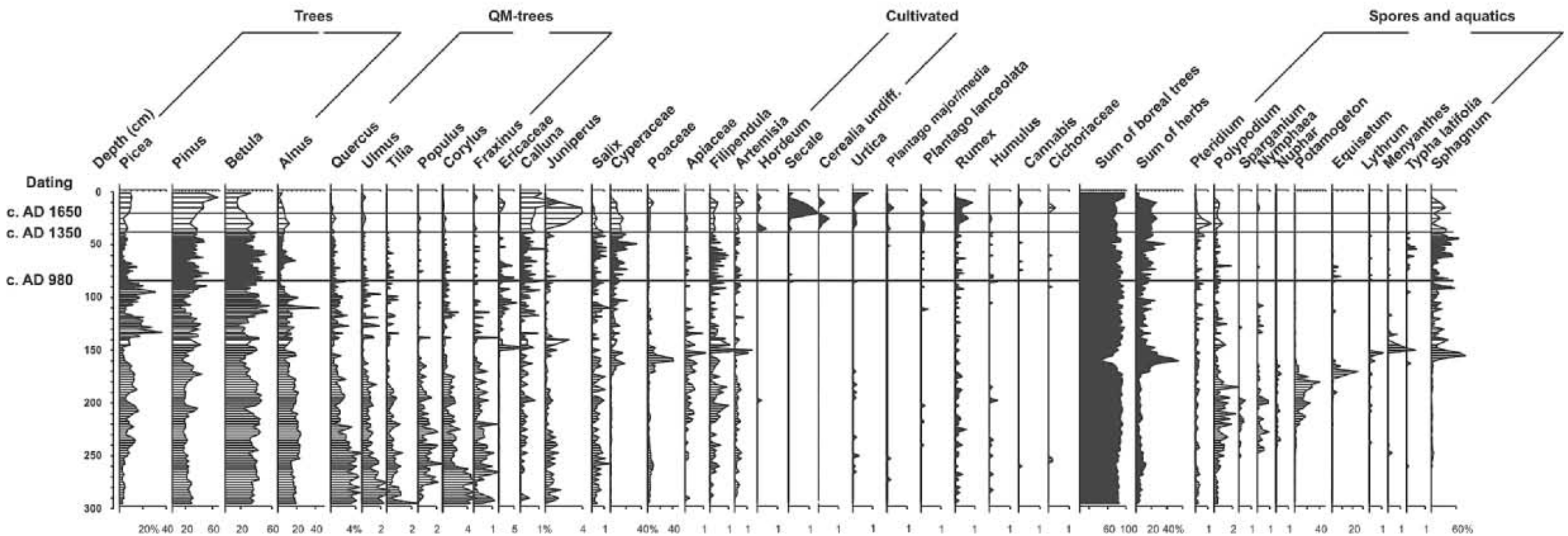


Fig. 6. Mire of Gärdorna. Selected pollen and spore frequencies expressed as percentages.

SÖDERBYTRÄSKET, DRAGSFJÄRD

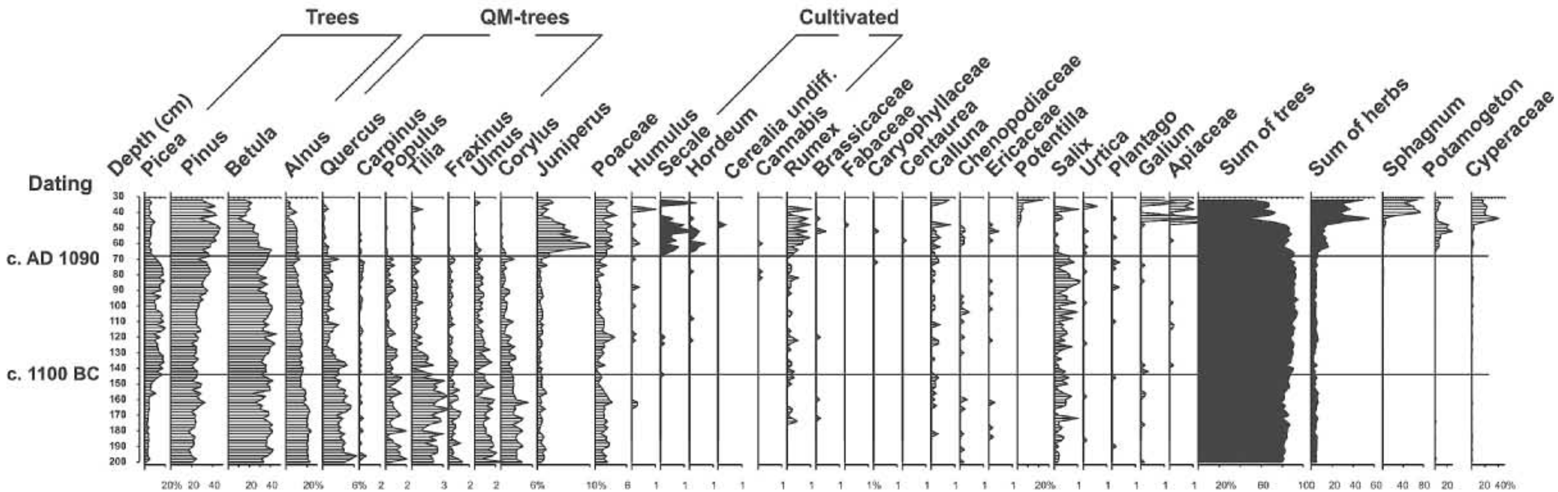


Fig. 7. Pollen percentages of selected pollen and spore taxa from the mire of Söderbyträsket.

pollen profiles was based on altogether nine AMS ^{14}C determinations performed on 1 cm thick sediment samples at the Poznań radiocarbon laboratory (Table 1). Calibration of the ^{14}C-data was carried out according to Calib Rev 5.0.1 (Stuiver & Reimer 1993) using the Intcal 04.14c calibration data set (Reimer *et al.* 2004). Linear interpolation was used to estimate dates between available calibrated dates. It must be emphasized that dates obtained by linear interpolation are only very robust time estimations and must be interpreted with caution.

In Labböleträsket pollen analysis was performed between 10-413 cm. When constructing the pollen diagram, profile B (Fig. 4) was used between 10-169 cm and profile A (Fig. 5) between 173-413 cm. In Gärdorna pollen analysis was performed from the 300 cm upwards when the sediment properties suggest the lagoon-like isolation phase (Fig. 6). Söderbyträsket (Fig. 7) was analysed between 30-200 cm which represent the phase after the area had emerged from the Litorina sea.

Results

Lithology and radiocarbon dates

The sediment profiles of the studied basins can be divided into five different lithostratigraphical units based on LOI (Fig. 3). Homogenous clay is only detected at Gärdorna in the bottom of the core between 380-346 cm. In the lithological record of Labböleträsket and Söderbyträsket, organic-rich clay-gyttja is detected in Labböleträsket between 456-119 cm and in Söderbyträsket between 349 cm and 211 cm, obviously representing the Litorina Sea.

The current rate of annual uplift in the Tammisaari – Perniö area is 4-5 mm/yr (Kääriäinen 1963). As a result of the rapid glacio-isostatic land uplift the relative sea level fell progressively. In the Gärdorna case Litorina fine detritus gyttja between the levels of 347-244 cm suggests that the sediment had still been deposited in relatively deep water. Apparently the isolation of Gärdorna was a gradual process and the basin was a shallow, brackish water lagoon-like basin with a shallow connection to the sea. In Labböleträsket and Söderbyträskert, isolation proceeded more rapidly. The change from clay gyttja to fine detritus gyttja is in Labböleträsket detected between 119-95 cm and in Söderbyträsket the change takes place even more rapidly at around 211 cm.

The final isolation is demonstrated as a change upward from fine detritus gyttja deposited during gradual lowering of water level to brownish coarse detritus gyttja deposited after emergence. This is visible in Gärdorna from 244 cm upward, in Labböleträsket 95 cm upward and in Söderby from 208 cm upward. According to the shoreline displacement curve of Eronen *et al*. (2001) from the Tammisaari – Perniö area the uplift rate was almost the same for the past 4000 years. According to the threshold elevations of the study sites, the isolation of Söderbyträsket at 17.1 m took place cal 3800 BP, Gärdorna at 15 m cal 3330 BP and Labböleträsket at 12.3 m at cal 2730 years BP.

After isolation LOI increases steadily and sediment changes in Gärdorna and in Söderbyträsket to lake mud in the uppermost part of the sediment. The peat formation as a result of the filling in of the lake is demonstrated in Gärdorna, Söderbyträsket and Labböleträsket in the topmost 160, 43 and 40 cm, respectively.

Lab.no.	Sample depth (cm)	14C age BP	Calc.age (BC/AD; 2 sigma)	Relative area under probability distribution
Gärdorna				
Poz-7476	20	245 ± 30	1630-1680 AD	0.582
			1763-1800 AD	0.270
Poz-7477	38	605 ± 30	1295-1405 AD	1.000
Poz-7478	84	1070 ± 30	935-1020 AD	0.780
			895-925 AD	0.220
Labböleträsket				
Poz-7466	49 (profile A)	1275 ± 25	670-780 AD	1.000
Poz-7467	96 (profile A)	3715 ± 30	2200-2030 BC	1.000
Poz-7468	195 (profile A)	4770 ± 35	3640-3515 BC	0.929
			3423-3400 BC	0.034
			3400-3380 BC	0.038
Poz-11247	56 (profile B)	1170 ± 30	775-900 AD	0.834
			915-965 AD	0.166
Söderbyträsket				
Poz-11232	68	955 ± 30	1025-1155 AD	1.000
Poz-11249	144	2910 ± 30	1210-1010 BC	0.990

Table 1. ^{14}C-data from the studied lakes.

Pollen diagrams

Labböleträsket

The lowermost two metres in the pollen diagram are characterised by a high proportion of arboreal taxa with *Pinus* (40 %), *Betula* (30 %) and *Alnus* (10 %) as most common pollen types. *Picea* is present in less than 5 % proportions and

Ulmus and *Quercus* in 3 % proportions. Non-arboreal pollen occurs in less than 5 % proportions (Fig. 4 and 5).

The lowermost radiocarbon dating at the level 195 cm gave the result 4770 ± 35 BP (Poz-7468), *i.e.* 3640-3515 cal BC (2 sigma). It is based on possible human activity, especially an increase in *Urtica* may be connected to human presence. Indications of human activity still remain weak.

From about 150 cm onwards, ca. 2900 BC as estimated from interpolating, clear changes in tree proportions are likely to be connected to the clearing of land. Clearest changes are detected in *Pinus* pollen percentages, which suddenly decrease coincidently with an increase in *Betula* and Poaceae. These changes are most probably connected to increasing open areas. This development culminates at the 100-84 cm level where the first cultivated pollen types *Hordeum* and *Secale* are detected. High values in charcoal particle concentration between 140-114 cm (about 2760-2380 BC) indicate the increased use of fire. A radiocarbon dating from the 96 cm level resulted in the date 2200-2030 cal BC (Poz-7467). Land clearance is further confirmed by an increase in charcoal concentration between the 100 and the 85 cm level.

No direct evidence of human impact was found after the short cultivation period that diminished from 84 cm upwards (ca. 1300 BC, as estimated from interpolation). On the contrary *Pinus* pollen show an increasing trend reflecting forest recovery. Forest recovery can further be detected in the increase in the total boreal tree pollen, and decrease in the herb pollen percentage. At around 82-78 cm (ca. 1080-785 BC as estimated from interpolation) *Picea* reaches permanently over 5 % of the total land pollen. This time estimate agrees well with Glückert (1976; 1996) who has recognized the general spread of spruce in Kemiönsaari from two sites in 1070 ± 120 BC and 1280 ± 70 BC in non-corrected radiocarbon ages.

Continuous cultivation starts around the mire of Labböleträsket from 56 cm upwards. From this point onwards *Hordeum* and *Secale* pollen are recorded continuously and the overall intensity of human activity starts to increase steadily. The radiocarbon dating from the 56 cm level resulted in 775-900 cal AD (Poz-11247). More remarkable increase in the land use is detected between 50-40 cm, from about 1300 AD onwards when a clear increase in charcoal particle concentration indicates increased fire intensity in the area. At the same time the *Picea* pollen percentage decreases considerably and *Juniperus* pollen increases remarkably, most probably as a result of grazing (Behre 1981; Hæggström 1990; Gaillard *et al.* 1992). At the same time the overall openness of the landscape increases as demonstrated on the increasing proportions of herb pollen. According to pollen data, intensity of land-use practices remain about the preceding level from around 800/900 AD until the topmost samples.

At the lowest levels, between 300 cm and 252 cm, pollen of mixed pine-deciduous forest dominate, *Pinus*, *Betula* and *Alnus* being the most common pollen types (Fig. 6). *Picea* is present in low, ca. 5 % proportions. *Populus*, *Corylus*, *Ulmus, Tilia,* and *Quercus* reach their maximum values, about 15 % of the total land pollen. An increase in *Picea* pollen percentages is detected from around the 250 cm level onwards. According to former radiocarbon dated time estimates for the invasion of *Picea* (Glückert 1976) and the interpolated date from Labböleträsket, the robust time estimate for the increase of *Picea* is most likely 1300-1000 BC.

From 252 cm until ca. 175 cm proportions of trees, *Picea*, *Pinus*, *Betula* and *Alnus* dominate and remain somewhat stable. QM-trees show a decreasing trend. Grasses and herbs consist 5-10 % of total pollen with *Calluna*, *Juniperus*, *Salix*, Cyperaceae, Poaceae, Apiaceae, *Filipendula* and *Artemisia* as most abundant species. The first weak cultivation activity is detected at the 197 cm level, where a single *Hordeum* pollen was found. Other pollen types likely to be connected to human activity include *Plantago lanceolata*, *Rumex*, *Humulus* and *Urtica* (Behre 1981; Hicks & Birks 1996; Maizer *et al.* 2006).

From 250 cm upwards (around 1150 BC) succession from lake to mire is clearly demonstrated. This is also a phase when isolation from the Litorina Sea ends and sediment changes from fine detritus gyttja to coarse detritus gyttja. Aquatic *Sparganium*, *Nymphaea*, *Nuphar* and *Potamogeton* increase steadily and from about 175 upwards also proportions of lakeshore vegetation, Poaceae, Cyperaceae and *Equisetum* increase reflecting the surrounding wetland pollen around the lake. The infilling of the lake, visible from 160 cm upwards, is demonstrated in high *Sphagnum* proportions. At this stage aquatic pollen types diminish rapidly and are replaced by lakeshore vegetation such as *Typha latifolia* and *Lythrum.*

From around 120 cm onwards a clear change in tree proportions is demonstrated. At this point *Picea* decreases dramatically at the same time as *Pinus* and these are replaced by broad-leaved deciduous trees *Betula* and *Alnus* that increase markedly. At the 110 cm level the values of conifers are lowest, and start to arise again. From 120 cm onwards fire indicating Ericaceae including *Calluna* show a marked increase, between 120-112 cm also a marked peak of *Melampyrum* was recorded. On the basis of conifers being replaced by younger successional phase broad-leaved trees and an increase in fire indicating *Melampyrum*, *Calluna* and Ericaceae (Vuorela 1986; Gaillard *et al.*1992), it is most likely that these changes are due to the deliberate burning of conifers. Further evidence is provided by single occurrences of Caryophyllaceae, *Humulus* and *Plantago lanceolata* between 120 and 110 cm. According to linear interpolation, it can be estimated that the changes in tree proportions started around 500 AD.

At about 95 cm (ca. 840 AD) conifers reach their preceding levels, but most remarkable changes are detected in *Betula* pollen percentages. It decreases very rapidly together with *Alnus*. At this stage *Juniperus*, *Artemisia* and *Filipendula* show a marked increase and single occurrences of *Plantago lanceolata*, Cichoriaceae and *Epilobium* are recorded prior to the actual signs of cultivation, i.e. *Secale* pollen at the 84 cm and 77 cm levels. This evidence from about 95 cm upwards can be interpreted indicating grazing and mowing (Behre 1981; Gaillard *et al.* 1992; Hicks & Birks 1996; Räsänen 2001).

Clear changes in the pollen composition caused by human activity take place from 84 cm upwards. At this stage a clear decrease in *Picea* pollen values can be seen. The first cultivated pollen type (*Secale*) appear in the 84 cm and 77 cm level. According to radiocarbon dating from the 84 cm level (Poz-7478), the onset of cultivation dates to 940-1020 cal AD. In this phase a general increase in non-arboreal pollen is demonstrated, pollen types likely to be connected to land-use include Cyperaceae, Cichoriaceae, *Filipendula*, *Galium*, *Humulus/Cannabis* -type and *Plantago lanceolata*.

Continuous and gradually increasing cultivation is recorded from the 38 cm level onwards, radiocarbon dated to 1300-1405 cal AD (Poz-7477). *Secale* and *Hordeum* are recorded continuously. Increase in Poaceae and gradual decrease in tree pollen is recorded indicating opening up of the landscape and grazing pressure. Other pollen types indicative of grazing and mowing include *Juniperus* and *Plantago lanceolata.* The occurrence of *Plantago major/media* and *Urtica* is probably connected to footpath and more or less nitrogen-rich ruderal communities. An increase in *Rumex, Pteridium*, *Calluna* and *Secale* is likely to be connected to slash-and-burn cultivation (Behre 1981; Vuorela 1986; Gaillard *et al.* 1992; 1994).

The highest values are recorded at about 1630-1681 cal AD (Poz-7476), when the pollen data show the strongest presence of apophyte and anthropochore including Poaceae, *Rumex*, *Secale*, and *Juniperus.*

Söderbyträsket

At the lowest part of the diagram, between 200 and 150 cm, arboreal trees – *Pinus*, *Betula* and *Alnus* – dominate in the area, reflecting the forested stage around the lake and no signs of human impact were recorded. High values of broad-leaved trees (*Quercus, Populus, Tilia, Fraxinus, Ulmus, Corylus)* were recorded, consisting altogether ca. 20 % of land pollen. *Picea* is recorded continuously with a small, about 5 % proportion. An increase of *Picea* pollen percentages is clearly visible from about 150 cm upwards, reaching about 15 % of the total land pollen at around 145 cm. As stated earlier, an increase in *Picea* takes place in Kemiönsaari around 1300-1000 BC. This agrees well with the radiocarbon dating from the mire of Söderbyträsket.

A concomitant decrease in percentages of deciduous trees is demonstrated. Non-arboreal land pollen (NAP) is present with ca. 5 % proportion with *Juniperus* and Poaceae as most abundant grasses and shrubs (Fig. 7).

The onset of the early stages of human activity with small-scale cultivation is detected at the 144 cm level, according to radiocarbon dating at the Early Bronze Age 1210-1010 cal BC (Poz-11249). At this level the first cultivated, surprisingly *Secale* pollen was detected. *Secale* and *Hordeum* pollen are then recorded at the level of 124, 122, 120, 108 and 78 cm levels, according to interpolation in the years 530 BC, 470 BC, 415 BC, 65 BC and 800 AD. Arboreal tree species however dominate, QM-trees are decreasing steady and non-arboreal land pollen is present with ca. 5 % proportion. Even though signs of human activity remain weak until from 1210-1010 cal BC until 68 cm, pollen types indicative of human activity such as Chenopodiaceae, Ericaceae, *Calluna*, *Urtica*, *Rumex*, and *Plantago* are present in low but constant values indicating some human influence from the Early Bronze Age (1210-1010 cal BC) onwards until the 68 cm level, where an increase in human impact is recorded.

The uppermost part of the diagram from 68 cm upwards is characterised by a rapidly increasing proportion of non-arboreal taxa. Increasing settlement indicators at this stage include *Juniperus*, *Rumex*, Poaceae, and Cerealia as most common non-arboreal pollen types. According to the radiocarbon dating result 1025-1155 cal AD (Poz-11232) from the 68 cm level, this phase dates to the turn of the Viking Age and the Crusade Period.

The local mire vegetation is strongly represented in the uppermost part of the diagram, from 50 cm to the top and the change of deposition environment leads to certain local pollen and spore types, such as *Sphagnum*, Apiaceae and Cyperaceae being over-represented.

Discussion and conclusions

At Labböleträsket the first indication of settlement are detected around 3600 BC. Settlement is reflected also in clear changes in tree proportions from 2900 BC onwards. From about 2700 and 2000 BC charcoal particles evidence increased fires in the area and a short-term cultivation period was found roughly between 2100-1300 BC. The short cultivation period found in Labböleträsket is similar with former pollen analytical results from the mire of Ilsokärret in the northern part of the island, where the earliest pollen of Cerealia indicated cultivation at the time of the late Kiukainen Culture around 1660 cal BC, i.e. the Late Neolithic or the Early Bronze Age. Further evidence of Bronze Age cultivation is from the southern part of the island from Söderbyträsket where small-scale human activity with signs of sporadic cultivation has been detected from around 1210-1010 cal BC onwards continuing until the Middle Ages. Pollen results indicate slight human activity also around Mossdalen – probably of grazing in the vicinity of the site from around 1380 cal BC onwards. According to this palaeoecological evidence, the general conclusion can be made that, on Kemiönsaari, the earliest cultivation attempts date to the Late Neolithic / Early Bronze Age.

In the northern part of the island, around the mire of Gärdorna, the earliest cultivation event (the single *Hordeum* pollen) at the level of 87 cm may be connected to settlement in the village of Makila in the Early Iron Age ca. 500-1 BC as indicated by the archaeological material. In a former study of the mire of Ilsokärret about 8 km to the northeast, a clear phase of opening up of the landscape is recorded from 445 cal BC onwards.

Continuous cultivation and intensifying human activity from the Viking Age onwards is well demonstrated around the mire of Labböleträsket from 775-900 cal AD onwards, and human activity increases sharply in Ilsokärret too with continuous rye cultivation from cal AD 920 onwards. Around Gärdorna signs of continuous land-use also date to the Viking Age 940-1020 cal AD, remaining, however, weak until 1300-1400 cal AD with only two rye occurrences recorded. According to several *Cannabis* pollen, apparently also hemp was grown for fibre. Even if cultivation events in the Gärdorna site in the Viking Age are weakly recorded, they are likely to be connected to the radiocarbon dated cairns from the Viking Age.

From the Middle Ages onward results in all three study sites – Gärdorna, Söderbyträsket and Labböleträsket – show increasing land-use. In Gärdorna this dates to 1300-1405 cal AD, with continuous *Secale* and *Hordeum* pollen. Around Söderbyträsket, land-use with sporadic cultivation was recorded as early as from 1200-1010 cal BC onwards, cultivation increases notably from 1025-1155 cal AD onwards. From about 1300 AD onwards increased fire intensity in the area around Labböleträsket is detected and at the same time the increase in *Juniperus* especially indicates the existence of grazing along with cultivation.

When interpreting the results, the effect of the pollen source area has to be considered. In general, the relationship between basin size and pollen source area is well known; larger sedimentary basins collect pollen from larger areas than smaller basins (Jacobson & Bradshaw 1981; Prentice 1985). In this study, the pollen samples were all taken from the basins between 11-14 ha in size, and therefore, the basins should be well suited for the construction of extra-local pollen, referring to pollen input from within 20 m and several hundred meters of the basin (Prentice 1985).

The pollen source area is, however, in all the basins affected by the peat formation as a result of the filling in of the lakes, demonstrated in Gärdorna, Söderbyträsket and Labböleträsket in the topmost 160, 43 and 40 cm respectively. Lake sediments and peat deposits differ as material for pollen analysis because substantially larger amount of pollen originates from the surrounding of the landscape. In the pollen profile of Gärdorna, the Early Iron Age settlement is only weakly reflected, even when the archaeological dwelling site is situated in the immediate vicinity of the mire of Gärdorna providing that the area has been in use. The weak reflection of the Early Iron Age settlement may be explained by the effect of basin isolation and the resulting change in deposition environment. In the mire of Gärdorna, the isolation from the Litorina lagoon was a gradual process and probably ended around 1000 BC. The succession from lake to mire increased mire vegetation such as grasses and Cyperaceae, which are likely to have caused a filtering effect together with trees, now situated closer to the sampling site. Geographical factors and selection of the sample site must also be considered. The dwelling site is situated east of Gärdorna, the hill in between reaching about 55 m a.s.l., which may have effectively obstructed the dispersion of pollen.

Defining the pollen source area is further complicated by the fact, that the deposition velocity for individual taxa varies (Prentice 1985). Source radius of the light pollen types could be 100 times larger than that of heavy pollen types (Sugita 1993). Pollen productivity estimates (Hjelle 1998; Broström *et al*. 2004) have shown that *Rumex acetose* –type, *Juniperus communis* and *Plantago lanceolata* and *Calluna vulgaris* have high pollen productivity estimates, suggesting that sporadic and low percentages of those species need not necessarily be indicative of local pastoral activity, but may indicate human activity on a regional scale. The interpretation of the cultivated pollen types, *Secale* and *Hordeum* are also likely to become distorted by the fact, that in relation to wind pollinated *Secale*, pollen of autogamous *Hordeum* releases very little pollen into the air (Faegri & Iversen 1989). It has been recognized, that pollen of *Hordeum* is poorly represented even in the vicinity of the fields (Bakels 2000, Alenius *et al*. 2008).

All in all, the general picture provided by the five pollen analyses from Kemiönsaari is the low intensity and irregularity of cultivation signals from the Bronze Age until the Viking Age when all five sites studied were settled and cultivated. The pollen analytical results from five mires do not support the theory of total lack of human presence between 1-1000 AD when the archaeological artefacts are rare or missing. According to pollen analytical results, the general conclusion can be drawn that the Kemiönsaari was not totally left unsettled after the Bronze Age and the Early Iron Age until the Viking Age. On the basis of the collected data it seems reasonable to assume that small-scale human activity continued in different parts of the island from the Bronze Age until the Viking Age. During this period pollen records provide evidence of grazing, use of fire and weak signs of cultivation.

Palaeoecological evidence from the five mires studied indicates that the role of cultivation was minor and, according to the use of fire, it could have been in a form of occasional slash-and-burn cultivation in the area with lengthy interruptions. The role of grazing also seems to have been of importance. On the basis of weak signs of cultivation and settlement, it seems reasonable to assume that the population size had remained low until the Viking Age. Cultivation seems to have gained importance only from the Viking Age, around 900 AD onwards as demonstrated by the rising numbers of cultivated pollen types and other anthropogenic indicators. One explanation for the lack of archaeological evidence until the Viking Age could be the sources of subsistence, which only have supported a small population size and in turn left little archaeological evidence difficult to trace compared to permanent and agriculturally based settlement from the Viking Age onwards.

Acknowledgements

This research was carried out at the Geological Survey of Finland and it was made possible by financial support from the Finnish Cultural Foundation. I wish to express my sincere thanks to Lic. Phil. Henrik Asplund for the fruitful co-operation on the project. I also wish to thank Mr. Markku Moisanen and Mr. Ale Grunström for assisting me with the fieldwork, Mrs. Erna Mäkeläinen for helping me with loss-on-ignitions and Professor Matti Saarnisto for the comments on the manuscript.

References

Alenius, T., Mikkola, E., Ojala A.E.K. 2008. History of agriculture in Mikkeli Orijärvi, eastern Finland as reflected by palynological and archaeological data. *Vegetation history and archaeobotany* 17 No. 2: 171-183.

Asplund, H. 1997. Kemiön suurpitäjän esihistoria. In: Suistoranta, Kari & Asplund, Henrik, *Kemiön suurpitäjän historia*. Tammisaari: 213-282.

Asplund, H. 2000. *Tid, människor och landskap. En bok om arkeologi i Pargas*. Pargas hembygdsförenings publikation nr 15.

Asplund, H. 2001. *Landscapes, power and coerced decisions. A study on Iron Age archipelago and mainland from the perspective of the Kemiönsaari area in SW Finland.* Lisensiaatintutkimus. Turun yliopisto. Kulttuurien tutkimuksen laitos / Arkeologia.

Asplund, H. & Vuorela, I. 1989. Settlement studies in Kemiö - archaeological problems and palynological evidence. *Fennoscandia archaeologica* IV: 67-79.

Bakels, C. C. 2000. Pollen diagrams and prehistoric fields: the case of Bronze Age Haarlem, the Netherlands. *Review of Palaeobotany & Palynology* 109: 205-218.

Behre, K.-E. 1981. Interpretation of anthropogenic indicators in pollen diagrams. *Pollen et Spores* 23:225-245.

Bengtsson, L. & Enell, M. 1986. Chemical analysis. In: Berglund, B. E. (ed.), *Handbook of Holocene Palaeoecology and Palaeohydrology.* Wiley, Chichester: 423-451.

Bennett, K. D., Willis, K. J. 2001. Pollen. In: Smol, J. P., Birks, H. J. B. & Last, W. M. (eds.), *Tracking Environmental Change Using Lake Sediments, Volume 3*. Kluwer Academic Publishers, Dordrecht: 5- 32.

Berglund, B. E., Ralska-Jasiewiczowa, M. 1986. Pollen analysis and pollen diagrams. In: Berglund, B. E. (ed.), *Handbook of Holocene Palaeoecology and Palaeohydrology*. Wiley, Chichester: 455-485.

Björck, S. 1995. A review of the history of the Baltic Sea, 13.0-8.0 ka BP. *Quaternary International.* 27: 19-40.

Brostöm, A., Sugita, S., Gaillard, M.-J. 2004. Pollen productivity estimates for the reconstruction of past vegetation cover in the cultural landscape of southern Sweden. *The Holocene* 14.3: 368-381.

Eronen, M., Glückert, G., Hatakka, L., van de Plassche, O., van der Plicht, J., Rantala, P. 2001. Rates of Holocene isostatic uplift and relative sea-level lowering of the Baltic in SW Finland based on studies of isolation contacts. *Boreas* 30: 17-30.

Fægri K. & Iversen, J. 1989. *Textbook of pollen analysis*, 4th edn, by Faegri, K., Kaland, P. E. & Krzywinski, K. Wiley, New York.

Gaillard, M.-J., Birks, H. J. B., Emanuelsson, U. & Berglund, B. E. 1992. Modern pollen/land-use relationships as an aid in the reconstruction of past land-uses and cultural landscapes: an example from south Sweden. *Vegetation History and Archaeobotany* 1: 3-17.

Gaillard, M.-J., Birks, H. J. B., Emanuelsson, U., Karlsson, S., Lagerås, P. & Olausson, D. 1994. Application of Modern Pollen/land-use Relationships to the Interpretation of Pollen Diagrams – Reconstructions of Land-use History in South Sweden, 3000-0 BP. *Review of Palaeobotany and Palynology* 82: 47-74.

Glückert, G. 1976. *Post-glacial shore-level displacement of the Baltic in SW Finland*. Annales Academiae Scientarum Fennicae Series A. III. Geologica-Geographica 118.

Glückert, G. 1996. Type region SF-b, coastal area of southwesten Finland. In: Berglund, B. E., Birks, H. J. B., Ralska-Jasiewiczowa, M. & Wright, H. E (eds), *Palaeoecological Events During the Last 15 000 Years: Regional syntheses of Palaeoecological Studies of Lakes and Mires in Europe*. Chichester. John Wiley & Sons Ltd.

Hicks, S. & Birks, H. J. B. 1996. Numerical analysis of modern and fossil pollen spectra as a tool for elucidating the nature of fine scale human activities in boreal areas. *Vegetation History and Archaeobotany* 5: 257-272.

Hjelle, K. L. 1998. Herb pollen representation in surface moss samples from mown meadows and pastures in western Norway. *Vegetation History and Archaeobotany* 7: 79-96.

Hæggström, C.-A. 1990. The influence of sheep and cattle grazing on wooded meadows in Åland, SW Finland. *Acta Botanica Fennica* 141: 1-28.

Jacobson, G. L. Jr., Bradshaw, R. H. W. 1981. The selection of sites for paleovegetational studies. *Quaternary Research* 16: 80-96.

Kääriäinen, E. 1963. Land uplift in Finland computed by the aid of precise levellings. *Fennia* 89.1.

Kielosto, S., Kukkonen, M., Stén, C.-G. & Backman, B. 1996. Hangon ja Perniön kartta-alueiden maaperä. Summary: Quaternary deposits in the Hanko and Perniö map-sheet areas. *Geological map of Finland* 1: 100 000. Explanation to the maps of quaternary deposits. Sheets 2011 and 2012. Geological survey of Finland. Espoo.

Mazier, F., Galop, D., Brun, C. & Buttler, A. 2006. Modern pollen assemblages from grazed vegetation in the western Pyrenees, France: a numerical tool for more precise reconstruction of past cultural landscapes. *The Holocene* 16.1: 91-103.

Moore, P. D., Webb, J. A. & Collinson, M. E. 1991. *Pollen analysis*. Oxford.

Prentice, C. 1985. Pollen Representation, Source Area, and Basin Size: Toward a Unified Theory of Pollen Analysis. *Quaternary Research* 23: 76-86.

Reille, M. 1992. *Pollen et spores d'Europe et d'Afrique du nord*. Laboratoire de botanique historique et palynologie, Marseille.

Reille, M. 1995. *Pollen et spores d'Europe et d'Afrique du nord. Supplement 1*. Laboratoire de botanique historique et palynologie, Marseille.

Reimer, P. J., Baillie, M. G. L., Bard, E., Bayliss, A., Beck, J. W., Bertrand, C., Blackwell, B. G., Buck, C. E., Burr, G., Cutler, K. P., Damon, P. E., Edwards, R. L., Fairbanks, R. G., Friedrich, M., Guilderson, T. P., Hughen, K. A., Kromer, B., McCormac, F. G., Manning, S., Bronk Ramsey, C., Reimer, R. W., Remmele, S., Southon, J. R., Stuiver, M., Talamo, S., Taylor, F. W., van der Plicht, J. & Weyhenmeyer, C. E. 2004. IntCal04 Terrestrial radiocarbon age calibration, 26-0 ka BP. *Radiocarbon* 46:1029-1058.

Räsänen, S. 2001. Tracing and interpreting fine-scale human impact in northern Fennoscandia with the aid of modern pollen analogues. *Vegetation History and Archaeobotany* 10: 211-218.

Saarnisto, M. & Saarinen, T. 2001. Deglaciation chronology of the Scandinavian Ice Sheet from the Lake Onega Basin to the Salpausselkä End Moraines. *Global and Planetary Change* 31: 387-405.

Stockmarr, J. 1971. Tablets with spores used in absolute pollen analysis. *Pollen et Spores* 13: 615-621.

Stuiver, M. & Reimer, P. J. 1993. Extended 14C data base and revised CALIB 3.0 14C age calibration program. *Radiocarbon* 35: 215-230.

Sugita, S. 1993. A Model of Pollen Source Area for an Entire Lake Surface. *Quaternary Research* 39: 249-244.

Vuorela, I. 1986. Palynological and historical evidence of slash-and-burn cultivation in South Finland. In: K.-E. Behre (ed.), *Anthropogenic indicators in pollen diagrams*. Rotterdam, Balkema: 53-64.

Vuorela, I. 1990. Pollenanalytiska studier. In: *"Finska skären". Studier i åboländsk kulturhistoria utgivna av Konstsamfundet till dess 50-årsjubileum 1990.* Helsingfors: 115-132.

Whitlock, C. & Larsen, C. 2001. Charcoal as a fire proxy. In: Smol, J. P., Birks, H. J. B. & Last, W. M. (eds.), *Tracking Environmental Change Using Lake Sediments, Volume 2*. Kluwer Academic Publishers, Dordrecht: 75-97.