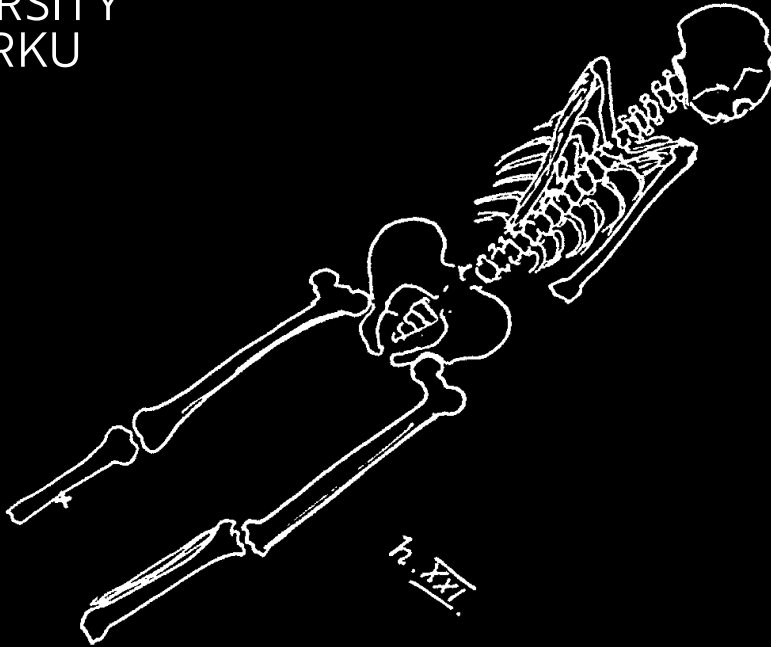




**TURUN  
YLIOPISTO**  
UNIVERSITY  
OF TURKU



# VARIATIONS IN INHUMATION BURIAL CUSTOMS IN SOUTHERN FINLAND (AD 900–1400)

Case studies from Häme and Upper Satakunta

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Ulla Moilanen





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*To my son – Keep learning*

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## ABSTRACT

This dissertation focuses on Early Medieval and Medieval (c. AD 900–1400) inhumation burial customs in Upper Satakunta and Häme regions in Finland. The aim is to clarify the find contexts of Early Medieval inhumation burials in Finland, and to explore the research potential of studying the variations in burial customs. The methodology is based on archaeoethanatomical analysis which aims at distinguishing the human and natural taphonomic processes in burials. Although some of the burials have been considered atypical in previous research, the studies on the contexts of all the graves in the area reveal that there has been significant variation in Early Medieval inhumation burial customs. This variation is likely explained by individual choices at different stages of the burial ritual. These choices may have been influenced by different social motives, beliefs, and local events. Therefore, the variations in burial practices emphasize the impact of individual agency. In addition to general variation, a possible slight increase in double and multiple burials around AD 1200 was observed. This is also a period when “antique” spearheads were occasionally struck into the coffin structures – a habit previously considered dramatic and unusual. Based on environmental studies and recent molecular studies in the Baltic countries and Scandinavia, it is possible that crop failure and epidemic outbreaks caused a mortality crisis at the time, leading to an increase in double and multiple burials. However, the political instability of the period could also have provoked local power struggles, which could have emphasized the ritual meaning of ancestors. This could explain the various usage of “antique” objects and older cremated bones in the inhumation burials. When the graves are studied in detail, it will become possible to raise new questions on gender roles and identities, local rituals, commemoration, and the meanings of objects and sites. In general, the contextualization of graves widens the possibilities to study and interpret Finnish archaeological material and help integrate this material in wider geographical, temporal, and theoretical discussion.

**KEYWORDS:** Atypical burials, burial positions, grave-goods, cremated remains, inhumation burials, Medieval Period, social microarchaeology, taphonomy, archaeoethanatology

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Lokakuu 2021

## TIIVISTELMÄ

Tämä työ käsittelee varhaiskeskiajan ja keskiajan (n. 900–1400 jaa.) ruumishautausapoja Ylä-Satakunnan ja Hämeen alueilla. Työn tarkoituksena on selventää aikakauden ruumishautauksen löytökonteksteja sekä tarkastella hautausapojen variaation tutkimuspotentiaalia. Menetelmä pohjautuu arkeotnologiseen analyysiin, jolla pyritään erottamaan ihmistoiminnan ja tafonomisten seikkojen vaikutus hautauksiin. Vaikka osa hautauksista on aikaisemmassa tutkimuksessa määritelty poikkeaviksi, osoittaa hautauskontekstien tutkimus hautausavoissa olleen aikakaudella runsaasti variaatiota. Tätä selittävät etenkin hautausrituaalien eri vaiheissa toteutetut yksilölliset ratkaisut. Näihin puolestaan ovat vaikuttaneet erilaiset sosiaaliset syyt, uskomukset sekä paikalliset tapahtumat. Hautausapojen variaatio korostaa yksilöllisen toimijuuden merkitystä. Yleisen variaation lisäksi vuoden 1200 tienoilla on mahdollisesti havaittavissa kaksois- ja joukkohautojen hienoista lisääntymistä. Samaan aikaan ajoittuvat hautaukset, joissa ajallisesti vanhempia keihäänkärkiä on isketty arkkurakenteisiin. Näitä hautauksia on toisinaan pidetty epätavallisina ja dramaattisina. Ympäristötutkimusten sekä lähialueilla (Baltiassa ja Skandinaviassa) tehtyjen molekulaaristen tutkimusten perusteella on mahdollista, että katovuodet ja epidemiat aiheuttivat ajanjaksolla poikkeuksellisesti kohonnutta kuolleisuutta, joka olisi saattanut johtaa kaksois- ja joukkohautojen lisääntymiseen. Toisaalta aikakauden poliittinen epätasapaino on myös saattanut aiheuttaa paikallisia valtataisteluita, joissa esivanhempien rituaalinen merkitys korostui. Tämä saattaisi selittää typologisesti vanhojen esineiden sekä palaneiden luiden asettamisen ruumishautoihin. Yleisesti ottaen hautojen kontekstualisointi avaa mahdollisuuksia tutkia ja tulkita arkeologista materiaalia uusin tavoin sekä auttaa integroimaan aineiston osaksi laajempaa maantieteellistä, ajallista ja teoreettista keskustelua.

ASIASANAT: Poikkeavat hautaustavat, hautausasennot, hauta-antimet, polttohautaukset, ruumishautaukset, rautakausi, keskiaika, sosiaalinen mikroarkeologia, tafonomia, arkeotologia

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Writing this dissertation has been a great adventure. Although it has sometimes felt like a lonely journey, I have actually been surrounded by a number of supportive, kind, and inspirational people through the years.

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I am probably forgetting someone whom I should mention, and I will likely remember them as soon as this manuscript is in print. Just in case: Thank you! Also, many thanks to all my other friends and family members who have offered their help and support in various ways in real life and in social media. I am sorry that I have not had enough time for you. Last, but not least, I want to thank my husband Lassi and my son Mikael for all the patience and support. I hope you know that you are the best part of my life.

On a beautiful autumn day in Nokia,

September 22nd, 2021

*Ulla Moilanen*

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# List of Original Publications and Author Contributions

The dissertation is based on the following publications:

- I Moilanen, Ulla (2020). Theoretical and Methodological Approaches to Non-Normative Burials in Finland in the Eleventh-Thirteenth Centuries AD. In: *The Odd, the Unusual, and the Strange. Bioarchaeological Explorations of Atypical Burials*, edited by T. K. Betsinger, A.B. Scott & A. Tsaliki, pp. 225–245. University Press of Florida, Gainesville.
- II Koski, Kaarina & Moilanen, Ulla (2019). Kuolema ja tuonpuoleinen (Death and afterlife). In: *Suomalaisen kuoleman historia* (History of Finnish death), edited by I. Pajari, J. Jalonen, R. Miettinen. & K. Kanerva, pp. 61–98. Gaudeamus, Helsinki.
- III Moilanen, Ulla (2018). Facing the Earth for Eternity? Prone Burials in Early Medieval and Medieval Finland (c. AD 900–1300). In: *The Others – Deviants, Outcasts and Outsiders in Archaeology*, edited by L. Damman & S. Leggett, pp. 19–36. *Archaeological Review from Cambridge* 33.2, Cambridge.
- IV Moilanen, Ulla, Kirkinen, Tuija, Saari, Nelli-Johanna, Rohrlach, Adam B., Krause, Johannes, Onkamo, Päivi & Salmela, Elina 2021. A Woman with a sword? Weapon grave at Suontaka Vesitorninmäki Finland. *European Journal of Archaeology*, 1–19. [doi:10.1017/eea.2021.30]
- V Moilanen, Ulla & Hiekkänen, Markus (2020). Atypical burials and variations in burial customs in the church of Renko. In: T. Äikäs & S. Lipkin (eds.) *Entangled beliefs and rituals. Religion in Finland and Sápmi from Stone Age to contemporary times*: 40–58. Monographs of the Archaeological Society of Finland 8.

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## Author contribution to publications II, IV, and V:

II: After presenting the subject of the dissertation at the Images of the Afterlife Conference in Turku in 2014, UM was asked to participate in a book about the history of death in Finland. UM suggested an archaeological chapter about burial customs and atypical burials in Finland, and the editors decided to combine it with the folklore chapter, which was to be authored by KK. The chapter was eventually written by KK and UM. UM wrote the parts describing archaeological examples and evidence of death traditions. KK and UM revised the final draft.

IV: UM initiated the study and wrote the manuscript together with ES and TK. The supplementary text about the ancient-DNA analysis methods was written by ES, NJS, and ABR. ES suggested the novel genetic sex determination approach, and ABR was responsible for the resampling simulations using the Approximate Bayesian Computation and multinomial linear regression model. The soil sample was taken by UM and TK, and the fibres and animal hairs were studied and identified by TK, who also wrote supplementary text 2 describing the methods. UM and ES revised the final draft. The work was supervised by ES, JK and PO. The analyses were funded and organized by JK and PO, who also commented on the drafts.

V: UM initiated and designed the study and wrote the manuscript with MH. MH wrote most of the research history and the results of the studies of Renko church buildings, the description of excavations in 1984, and the basic relative chronology of the graves. The methodology of the deeper study based on written source material (the church records) as well as the interpretations of the burials with the background on studies in other parts of Europe were written by UM. UM revised the final draft.



# 1 Introduction

Graves offer us glimpses into the lives of past individuals and the world they lived in. The importance of graves is emphasized in the study of Late Iron Age and Early Medieval Finland due to a lack of written sources. At the turn of the first millennium, the prevailing burial custom was slowly changing from cremation to inhumation – a development induced by the adoption of Christianity. For this reason, a significant number of Finnish studies on Early Medieval inhumation burials have concentrated on identifying the Christianization process (e.g., Cleve 1948; Hiekkanen 2010; Kivikoski 1955; Lehtosalo-Hilander 1987; Purhonen 1998; Ruohonen 2013, 2016; Shepherd 1999). Another common theme in Finnish mortuary archaeology has been social stratification, which has been seen as an explanation for differences in burial customs (Koivisto 1996; Lehtosalo-Hilander 1982c; 2000a; Kuusela 2008; Mäntylä 2005; Pihlman 1988; 1999). Although both religion and social status undoubtedly have an impact on burials and cannot be overlooked, the perspectives mentioned above have led to somewhat dichotomous views in which burial customs are divided either by cremation/inhumation, Pre-Christian/Christian, or poor/rich (see also Mikkola 2009: 184). The graves which do not seem to fit these binary categories have often been considered deviant, abnormal, or peculiar (Purhonen 1998: 163–165; Pälsi 1937; Sarkki-Isomaa 1986; Wessman 2010: 98–107; Wessman et al. 2018).

During the past decade, international research has begun to examine atypical burials from a holistic perspective and integrate them into a broader framework. These studies have combined traditional archaeological research with bioarchaeological analyses and scientific methods, and have thus produced more nuanced interpretations on burial practices (e.g., Alterauge et al. 2020; Gardela, L. & Duma 2013; Gregoricka et al. 2014; Scott et al. 2020; Toplak 2015; Toussaint 2019). This dissertation seeks to promote the same approach to studying inhumation burials in Finland, and to offer a Finnish perspective to the international discussion.

## 1.1 Aims and objectives

This dissertation aims to provide a detailed picture of the inhumation burial customs in Early Medieval Finland. The main aims and focuses can be divided into three categories:

**Aim 1:** To collect detailed information on the find contexts of Early Medieval inhumation burials in Finland and to provide a clear overview of the graves. (PAPERS I, III, IV, V, Appendix I).

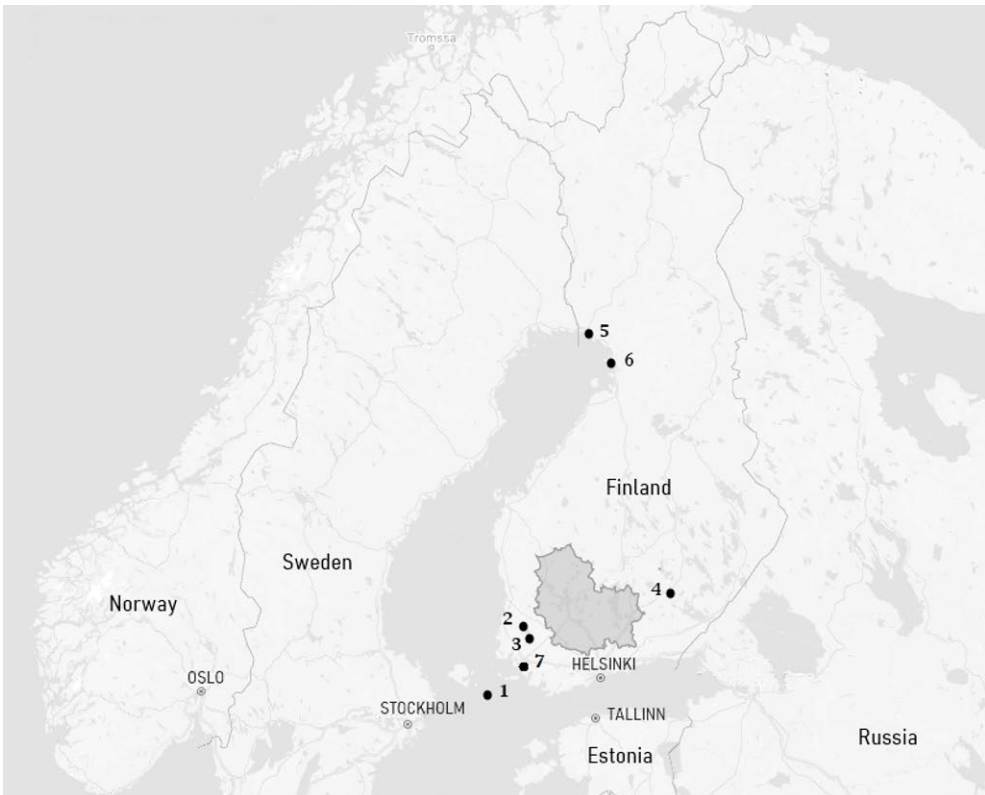
**Aim 2:** To study the possible motives behind the burials which may have been considered atypical in previous research (PAPERS I–V).

**Aim 3:** To explore the research potential of individual graves and study how they contribute to our knowledge of Early Medieval archaeology in a broader perspective. What is the relevance of paying attention to variation and studying individuals? What kind of new research questions will arise when focusing on aspects that have previously been overlooked? (PAPERS I–V).

## 1.2 Geographical area and chronology

The geographical scope of this dissertation covers parts of the historical provinces of (Upper) Satakunta and (Southern) Häme (also Tavastia) (Fig. 1). Historically, the inhabitants of these areas have been called “*hämäläiset*” (the inhabitants of Häme), and the area is linguistically characterised by the Häme dialects (Rapola 1947: 87; Voionmaa 1913). Although Häme (Tavastia) is an old name, mentioned in Medieval Swedish documents (Schalin 2014: 418), Russian chronicles in the 13th century (Ailio 1915: 339–340; Niitemaa 1955; Taavitsainen 1990: 162; Uino 1997: 88; 193) and possibly in some Viking Age rune stones from Sweden (Schalin 2014), it was not a politically, culturally or religiously uniform area in the Early Medieval Period. Taavitsainen (2001: 155–156; 2004: 27) describes the area as a transitional zone between the West and East, characterised by both typically western and eastern material culture. It is impossible to determine the exact borders of ancient Häme, but generally speaking, Häme covered the eastern section of the permanently settled area stretching from southwest Finland to inland during the Late Iron Age (Niitemaa 1955; Taavitsainen 1990; 2004: 27).

For later historical reasons, I refer to most of the study area as Häme. The area has been chosen for two main reasons. First, most of the previous references to atypical burials in Finland focus on graves from this region (PAPER I). Secondly, the theoretical framework of this study emphasizes a local approach (Chapter 2.1, PAPER I), thus justifying a clearly defined core area.



**Figure 1.** The study area. The area includes the modern regions of Pirkanmaa, Kanta-Häme and Päijät-Häme, and the Early Modern provinces of Satakunta and Häme (see Jutikkala 1959 and Niitemaa 1955). Sites from other regions mentioned in the text: 1) Kökar convent church, 2) Eura Kärjämäki-Osmanmäki, Eura Luistari, and Eura Pappilanmäki 3) Yläne Anivehmaanmäki, 4) Mikkeli Tuukkala and Mikkeli Visulahti, 5) Kemnmaa Valmarinniemi, 6) li Illinsaari, 7) Turku Kaarina Kirkkomäki. Map: Ulla Moilanen.

The chronological scope of this dissertation falls mainly between the 10th and 14th centuries AD. In traditional Finnish chronology, these centuries include the end of the Viking Age, the Crusade Period, and the beginning of the Middle Ages. The periods are somewhat artificial and flexible, and dated differently in western and eastern Finland. The periodization has also varied in different studies (e.g., Ahola & Frog 2014; Huurre 1995; Julku 1979; Kivikoski 1951a; 1973; Uino 1997). The periodisation or the names of time periods will not be problematized (see, e.g., Jaakkola 1938; Julku 1979) in this dissertation.

In papers I, II and III, the terms “Early Medieval” and “Late Iron Age” have been used somewhat inconsistently and are usually synonymous, meaning both Viking Age and Crusade Period. This has partly been a deliberate decision to make it easier for international audiences to understand the timeframe. In this dissertation summary, the following periodization is used (Fig. 2):

**Viking Age or Late Iron Age:** AD 800–1050 (after Raninen & Wessman 2015, for problematization of Viking Age chronology see Ahola & Frog 2014: 41).

**Early Medieval Period or Crusade Period<sup>1</sup>:** AD 1050–1250. I have chosen to use the mid-13th century as the boundary between the Early Medieval and Medieval Periods. In Finland, the Catholic religion was adopted slowly, starting at the end of the Viking Age in Southwestern Finland (Hiekkanen 2010; Laakso 2014: 110). The process continued during the Early Medieval Period when strong cultural integration with Sweden took place (e.g., Haggren 2015: 373; Kivikoski 1951a; 1955; Taavitsainen 2004). Despite the evident eastern influence in the Early Medieval Period, Häme was incorporated with Sweden and the Western church starting from the mid-13th century. This progress was preceded by the so-called Häme insurrection, described in a papal letter sent by Pope Gregory IX to the archbishop of Uppsala in December 1237. The (likely exaggerated) letter describes the inhabitants of Häme abandoning the Christian beliefs and returning to old pagan traditions. It may have been used as justification for a military expedition (also called the Second Swedish Crusade) in the mid-13th century, which consolidated Swedish power over the area (Olesen 2016: 260–261). These events can be seen as the basis for using the year AD 1250 as the transition from the Early Medieval Period to the Medieval Period in Häme.

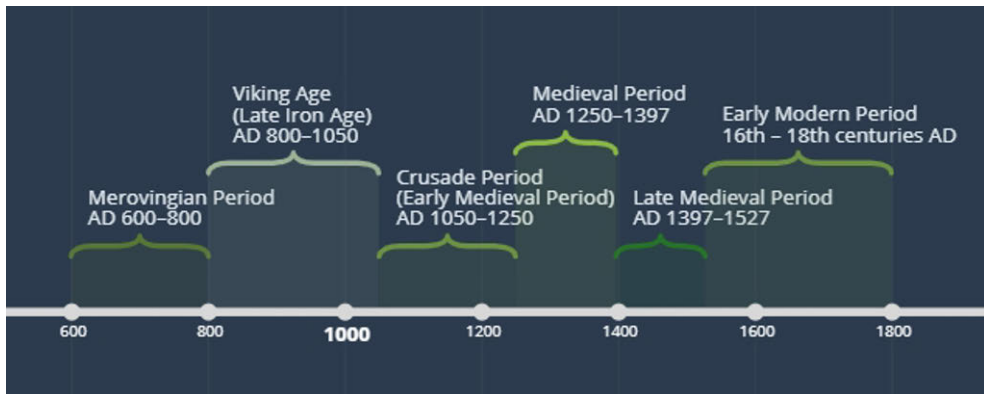
**Medieval Period:** AD 1250–1397. The period ends with the signing of the Treaty of Kalmar in 1397 (Lamberg et al. 2008: 16).

**Late Medieval Period:** AD 1397–1527. The period begins with the signing of the Treaty of Kalmar in 1397 and ends in 1527 when the Diet of Västerås declared the

<sup>1</sup> The dating of the Crusade Period is generally based on the distribution and usage of penannular brooch types in comparison with oval convex brooches (e.g., Taavitsainen 1990: 109–111). The oval brooches have usually been typologically dated to between the 11th – 12th centuries AD (Ailio 1922; Kivikoski 1973; Linturi 1980). Grave 4/1978 from Hollola Kirkkailanmäki containing oval brooches has been <sup>14</sup>C-dated to the 13th century (Taavitsainen 1990: 93). The <sup>14</sup>C-dates from Mikkeli Tuukkala cemetery, where these brooches have also been found, fall between the mid-13th century and the mid-15th century AD (Mikkola 2019: 65–75). In my opinion, the Early Medieval Period should not be extended to such a late date. Either the use of these brooches extends to the Late Medieval Period, or they have been heirlooms deliberately placed in the inhumation burials (Chapter 4.1.4). The <sup>14</sup>C dating from Hattula Vesitorninmäki grave, where convex brooches of so-called Hauho type have been found, falls between 1050–1150 AD, suggesting that the latter interpretation may occasionally have been correct.

beginning of the religious Reformation in Sweden and Finland (Groop 2018; Lamberg et al. 2008: 16).

**Early Modern Period:** Broadly the 16th–18th centuries AD.



**Figure 2.** Chronology used in this dissertation summary. Late Iron Age and Viking Age are used synonymously, as are Crusade Period and Early Medieval Period. Timeline: Ulla Moilanen (<https://time.graphics/>).

## 1.3 Terminology

Key terminology used in this dissertation summary is introduced in this chapter. These terms are: “individual”, “atypical burial”, and the terms describing the different burial positions and deposits.

### 1.3.1 Individual

In this dissertation, the term “individual” (Fin. *yksilö*) is used to refer to a single human being of the past, someone who understood and experienced themselves as a person. According to e.g., Knapp & van Dommelen (2010) and Meskell (1999), this experience is universal and common for all human beings. However, questions about how these individuals were defined in the era or how they felt in different circumstances will not be examined in greater detail. It is also important to note that the term does not refer to individualism as we understand it, as the notion of individual identity is arguably a modern, Western concept (Fowler 2004; Hodder 2000; Knapp & van Dommelen 2010). However, studies on individuals are considered important, as they acknowledge past persons as active beings, capable of making creative choices and performing intentional actions, thus influencing individual events within the social context they belong in (e.g., Hodder 2000; Knüsel 2006: 212–214; Meskell 1999; Rüpke 2015; Stodder & Palkovich 2012).

### 1.3.2 Atypical burial

Burials that have caught the attention of archaeologists have been called by many names, for example, “deviant”, “unusual”, “peculiar”, “odd”, “atypical”, and “non-normative” (e.g., Ahola et al. 2020; Aspöck 2015; Gardęła 2017; Murphy 2010; Reynolds 2009; Wessman 2010; Wessman et al. 2018). Although all these terms intend to describe graves that are somehow different from others, some of them carry negative connotations. Perhaps the most problematic – but still often used – term is “deviant”. The usage of the term in burial archaeology has been criticised (e.g., Aspöck 2008; Gardęła 2017), as it stems from the sociological concept of “deviance”, an action or behaviour that violates social norms (Forsyth 2014; Franzese 2009). Therefore, the term is easily used in a derogatory manner suggesting mistreatment and desecration. The usage may lead to interpretations in which the buried individuals are perceived as socially deviant individuals who were sanctioned or punished (e.g., Reynolds 2009; Sarkki-Isomaa 1986; Walsh et al. 2020; Wessman 2009; Wessman et al. 2018; for criticism, see also papers in Murphy 2008 and Scott et al. 2020; PAPER I).

The term “distinctive burial” could be described as the opposite of “deviant burial”. The term has been used by Hadley (2010), who explores the variations in burial customs at Anglo-Saxon churchyards between AD 700–1000. Hadley’s research includes burials of children, physically impaired individuals, and exceptionally elaborate burials. The term acknowledges that some burial customs may be different from others because of extremely positive reasons. This could be the case, for example, with the official Finnish war graves of the Second World War, often called the graves of “war heroes” (Fin. *sankarihauta*).<sup>2</sup> However, the extremely positive tone of the term “distinctive burial” may make it equally unneutral and thus problematic.

In order to avoid extremely negative or positive associations, the use of neutral terms “atypical”, “irregular” or “non-normative” has been recommended (Gardęła 2017: 22; Murphy 2020). However, even these terms may imply that some burials are abnormal when compared to others. The division of burial customs into two opposite categories, “typical/atypical”, may provoke an idea of one being positive and the other negative (Aspöck 2008). Similar categorisations are, for example, cremation/inhumation, Christian/pagan, and masculine/feminine, and they can all be criticised as neglecting the hybridity and variation outside the binary (c.f. Abramiuk 2012; Cornell & Fahlander 2000: 27; Fahlander 2001: 15; Shanks & McGuire 1998, PAPER IV).

<sup>2</sup> See Kemppainen 2006. Also connected with collective memory, see Williams & Wessman 2017.

The terminology has been used somewhat inconsistently in papers I–V, where the burials are called either “deviant” or “atypical”. In paper I, the problematic term “deviant” is used, but the simplistic notions of deviance in research history is discussed in the paper. In this dissertation summary, the neutral term “atypical” is used, even though these burials are considered as part of the normal funerary variation.

### 1.3.3 Burial positions

It is often difficult to determine the exact positions of Early Medieval burials in Finland due to the poor preservation of bones. When possible, the original burial positions and the deposits have been interpreted by using field notes and documentation materials such as drawings, sketches, photographs, and archaeoanatomological methods in the analyses (Chapter 2.2). In these interpretations, the position of artefacts, human remains, and burial structures, as well as stratigraphic information, has been considered. The determination of body positions is mainly based on Sprague’s (2005) classifications and categories.<sup>3</sup> Sprague presents categories based on the relationship between lower limbs and the body. Although Sprague (2005: 31) recommends the usage of simple terms “on back”, “on face”, and “on side” instead of “supine”, “prone”, and “lateral”, the anatomical terms were chosen to be used in the present summary. This is mainly because the terms derive from body positions and can therefore be considered detailed when describing the position of the corpse.

Occasionally more detailed description is needed, especially when determining the burial positions in multiple burials. The following lists also include the translations of the body positions in Finnish. The translations are based on the anatomical terms of the positions (Ullmann 2013). (For sketches, see Figs. 3–4.)

<sup>3</sup> For discussion on arm positions and their meanings, see paper V (c.f., Atzbach 2016; Gilchrist and Sloane 2005: 15–16, 156; Holbrook and Thomas 2005; Kieffer-Olsen 1993: 78).

## Basic positions

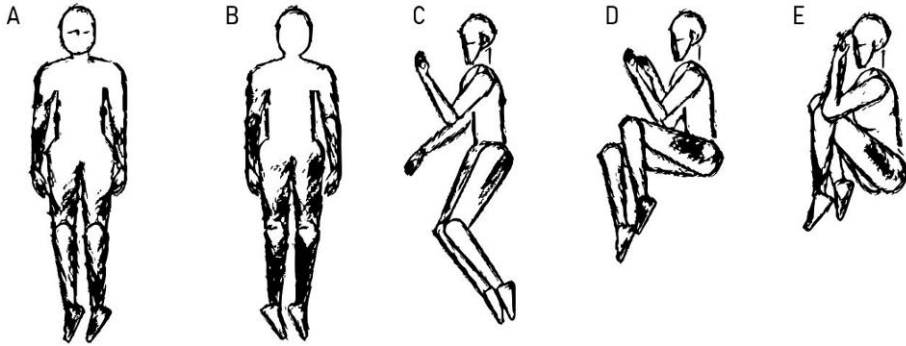
Supine (Fin. selinmakuu, anat. supiini)	Lying on the back
Prone (Fin. päinmakuu, vatsallaan)	Lying on the stomach
Lateral (Fin. kylkiasento, anat. lateraali)	Lying on the side

## Specifying descriptions:<sup>4</sup>

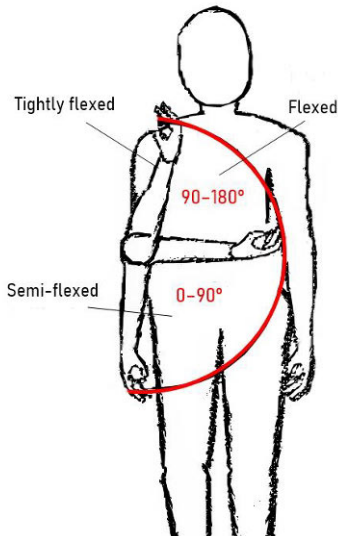
Extended (Fin. pitkittäin, anat. ekstensio)	Legs straight, both upper limbs straight or bent. The term “bent” can be used for any flexed position of limbs, and the degree can be determined as “semi-flexed”, “flexed” or “tightly flexed”.
Semi-flexed (Fin. puolikyry, anat. semifleksio)	The degree of flexure between femur and the trunk is between 0–90°.
Flexed (Fin. kyry, anat. fleksio)	The degree of flexure between femur and the trunk is between 90°–180°. In archaeological literature, “flexed” “contracted”, and “crouched” are sometimes used as synonymous, and sometimes the terms cover both “flexed” and “tightly flexed” positions (Sprague 2005: 91).
Tightly flexed (Fin. tiukka kyry, anat. äärifleksio)	The degree of flexure is close to 180°.

<sup>4</sup> These can be used to describe positions of upper and lower limbs.





**Figure 3.** (above). Basic positions and examples of different kinds of limb positions. A: Supine extended, arms extended by the sides. B: Prone extended, arms extended by the sides. C: Lateral (on the right side) semi-flexed, right arm semi-flexed, left arm flexed. D: Lateral (on the right side) flexed, arms flexed. E: Tightly flexed, arms flexed. Drawings: Ulla Moilanen.

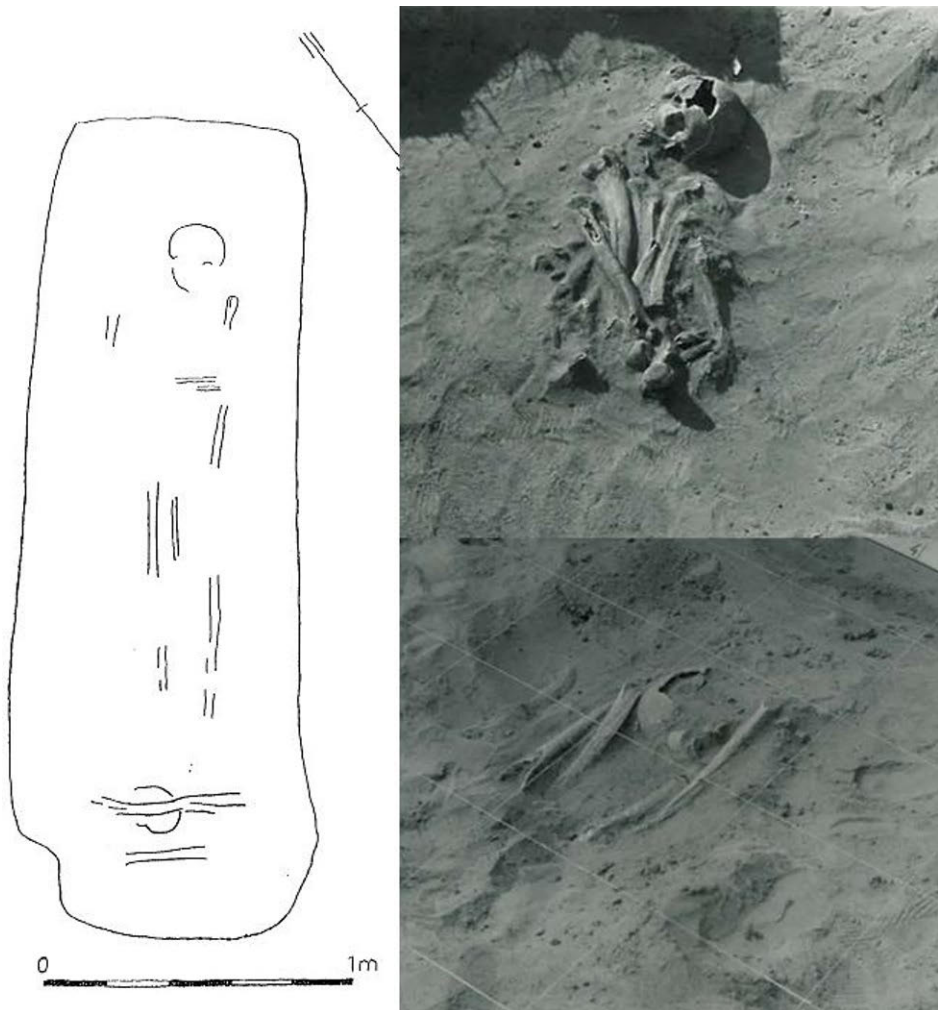


**Figure 4.** Arm positions based on the degree of flexure between the upper and lower arm. The terms can be used to describe the position of both upper and lower limbs. However, determining the positions of arms, hands, legs, and feet is often difficult from the poorly preserved bones, Drawing: Ulla Moilanen.

### 1.3.4 Burial deposits

Burial contexts can be described differently based on the timing and sequence of burials, and the number of individuals in the grave. The terminology for burial deposits used in this summary is mainly based on Sprague's literature review (2005) and Duda's (2006; 2009) descriptions.

Primary (Fin. primäärihaudaus)	The original burial deposit
Secondary (Fin. sekundaarihaudaus tai -käsittely)	Human remains have been manipulated after the initial burial and possibly moved to another location from the primary deposit (Fig. 5). The term “secondary” can be used even if it is impossible to know whether the treatment happened for a second, third, etc. time.
Single (Fin. yksilöhaudaus)	Deposit of one individual
Double (Fin. kaksoishaudaus)	Deposit of two individuals
Multiple (Fin. yhteishaudaus)	More than two individuals in the same deposit. The individuals can be buried in the same coffin or separate coffins, which are placed in the same pit at the same time. The term does not define the type of burial or the sequence in which the corpses were placed in the grave (see Schmitt & Déderix 2018: 197). Multiple burials can be mass graves or collective burials.
Mass grave (Fin. joukkohauta)	Simultaneous multiple burial, in which the corpses have been deposited at the same time. It is possible that the individuals died in a similar manner or for similar reasons.
Collective burial (Fin. kollektiivihaudaus)	Multiple burial in which the corpses have been deposited in the same grave at different times. The deaths of the individuals in collective graves are not necessarily related to each other. (see Réveillas 2019: 35; Schmitt & Déderix 2018). Finnish examples: Levänluhta water burial site in Isokyrö (see, e.g., Maijanen et al. 2021; Wessman et al. 2018), Early Modern row graves at Finnish churchyards, which often consist of large grave pits in which the coffins are placed in consecutive order, and which could sometimes resemble mass burials.



**Figure 5.** Examples of secondary burials in Finland. On the left: A sketch of Early Medieval grave 404 at Eura Luistari in Satakunta, Western Finland. The commingled remains of a male individual were found at the foot end of a female individual. Drawing Ulla Moilanen after Pirkko-Liisa Lehtosalo-Hilander 1982a. Similar placement of bones is known from two graves at the Medieval convent of Kökar. According to Gustavsson (1988: 151), the bones of previously buried individuals may have been removed from the same grave to accommodate a new corpse. On the right, Early Medieval or Medieval graves 8/1955 (on top) and 24/1955 (below) at Mikkeli Visulahti, Eastern Finland. The unburnt bones had been piled in a separate pit (Leppäaho 1955). Photos: Jorma Leppäaho/FHA. In all these cases, the anatomical connections have been lost due to the decomposition of soft tissues. This indicates that the secondary treatment took place at least ten years after the burial (c.f. Bass 1997; Mays 1998: 17).

## 1.4 Previous research on atypical burials in Finland

The general research history of atypical inhumation burials in Europe has been well summarised by Aspöck (2008) and Scott et al. (2020). Therefore, this chapter summarizes the Finnish research history and compares the previous interpretations to broader theoretical themes.

The Finnish research on Early Medieval inhumation burials has usually concentrated on religion and the questions regarding the Christianization process, and there has not been much room for the atypical burials in the discussion. Almost all the features in burials (such as grave orientation, arm positions, cremated bones in inhumation graves, coffin structures, and the presence or lack of artefacts) have for decades been explained by religious motives (e.g., Hirviluoto 1985; 1992; Kivikoski 1966; Purhonen 1998). The same interpretation has even been offered for multiple burials. According to Veneskoski (2008), a multiple burial (grave 2/1936) at Valkeakoski Toppolanmäki could have resulted from religion-induced violence during a conversion period. Similarly, the changes in the burial customs have been seen as evidence of the degree of Christianization (Hiekkanen 2010; Kivikoski 1966; Purhonen 1998), and the possible variation as an indication of some families insisting on staying with the pre-Christian traditions (e.g., Asplund & Riikonen 2007: 36; Lehtosalo-Hilander 1984b: 374). The earliest inhumation burials have been seen as evidence of Christianity's growing influence, which is why the idea of a typical Early Medieval burial likely reflects the researchers' assumptions of a typical modern Christian burial (c.f. Mui 2018: 65, 301). This idea is present in Kivikoski's (1966: 65) description of Early Medieval inhumation burials, which she describes as individuals being laid "in an earth pit in an extended supine position".

Variations from the somewhat subjective concept of the "norm" have been often presented as dramatic curiosities and interpreted from a negative perspective. The use of spearheads as coffin nails is the most often used example of atypical burial practices in Early Medieval Finland (PAPER I). The earliest notions of them were made in the 1930s by Jorma Leppäaho (1938) and Sakari Pälsi (1937), whose excavations at Valkeakoski Toppolanmäki revealed graves in which spearheads, a harpoon, and a sword tang were struck into the coffin structures. They compared the custom to folklore, in which sharp objects are considered powerful magical tools (PAPER II) and were among the first to interpret the tradition as a manifestation of fear of the dead and a method to prevent the corpse from rising from the grave. It has been assumed that the new worldview arriving with Christianity evoked a new kind of fear of the deceased, in contrast with the previous views that considered the dead as friendly ancestors (Keskitalo 1950; Pälsi 1938; Purhonen 1998: 168; Sarkki-Isomaa 1986, PAPER II). Interestingly, stones and stone settings over graves have sometimes been seen as similar evidence

of apotropaic practices, but as this tradition is less dramatic than spearheads as coffin nails, it has not usually been considered atypical in previous studies (c.f. Hirviluoto 1992; Kauhanen 2015).

The interpretations on inhumation burials at Hattula Ruskeenkärki, which had been made in a cairn instead of an earth pit, follow the traditional themes. According to Huurre (1976: 31–32), the burials are exceptional because of their location and structure. The corpses had been placed on the ground and covered with large stones. The site is located on a steep, stony slope, somewhat far from arable land and known settlement sites. Huurre (1976: 31–33) suggested that the site could be a temporary burial, a burial of crime victims, or a trader and his wife (i.e., a suggestion that the individuals were strangers in the community and thus buried differently). Keskitalo (1963: 36) also suggested that the individuals may not have been locals or that they had been buried in haste. The graves at Ruskeenkärki are among the oldest inhumation burials in Häme (10th–11th century). It is possible that the peculiarity of the burial may have been exaggerated because the unburnt skeletons may have automatically been compared with similar bone finds that are usually encountered in later Early Medieval cemeteries – even though the typological dating of the artefacts found from the cairn corresponds with the Viking Age and the burial form itself can be considered a “Lapp cairn”, a typical inland burial cairn in the Iron Age (c.f. Taavitsainen 2003a; 2003b).

The dramatization of atypical burials began in the 1970s and 1980s, with the rise of processual archaeology (Aspöck 2008). At the time, atypical burials were mostly considered uninteresting because they were seen to represent the bizarre: the burials were interpreted as direct reflections of the individuals’ deviant social status or persona, which caused them to be less valued members of the society and who were therefore shown less appreciation in funeral rituals (Aspöck 2008: 27; Binford 1971, Saxe 1970; Scott et al. 2020). According to Kokkonen (1993: 4), Finnish archaeological research was until the 1990s generally atheoretical, primarily concentrating on typologies and chronologies. Still, the processual tradition of interpretation is present, for example, in Lehtosalo-Hilander’s (1982a; 1982b; 1982c; 2000a, 2000b) work on the Luistari cemetery in Satakunta. Although her studies mainly follow the cultural-historical traditions in the sense that she too concentrates on typologies and seeks to identify Finnish artefact types, she also saw the cemetery as a direct reflection of a hierarchical society. Although she noticed atypical features such as double and multiple burials and prone positions in the material, she paid only little attention to them. Instead of thorough analysis, the peculiarity of these features and burials was mentioned in anecdotal notes. For example, the Early Medieval grave 404 containing a burial of a woman with disarticulated bones of a male at the foot-end of the grave was called “mysterious” and “macabre” and interpreted as evidence of human sacrifice or an accident in

which a wild animal had ripped the individual to pieces (Lehtosalo-Hilander 1984b: 327).<sup>5</sup>

Perhaps the most exaggerated example of sensationalism is Seija Sarkki-Isomaa's article (1986) about Ylöjärvi Mikkola grave 1/1976, which was titled "Paha mies Mikkolasta" ("An evil man from Mikkola"). Sarkki-Isomaa considered the individual, whose coffin had been nailed with spearheads and who was accompanied by a sword in an unusual position, tip pointing towards the head of the corpse (PAPER I), to have been an exceptionally unpleasant and challenging person, who had possibly been feared and despised because of these characteristics. She followed the earlier interpretations, stating that the spearheads were meant to keep the deceased in the grave. Purhonen (1998: 165) even suggested that the sword was a symbol of suicide, which could have sparked fear of the individual and led to an "abnormal" burial. Neither Sarkki nor Purhonen paid attention to the entire burial context (see PAPER I), nor to the fact that the Mikkola site also contains another burial in which a knife and an arrowhead had been struck into the coffin lid (grave 1a/1959, Appendix 1). This burial was overlooked, as it was partly destroyed before being properly examined, and apparently because the knife and the arrowhead were not considered as dramatic as the spearheads, although they had been used similarly.

These examples demonstrate how atypical burials have been considered "negative" in traditional Finnish research. They have been seen as stemming from fear or as indications of punishment or otherness, while "normal" burials represent the "good" and "positive". The dramatic features may even have become exaggerated as time has passed. For example, Mikko Moilanen (2015: 322) describes how the knife found from the Mikkola grave 1/1976 was found "on the throat" of the individual, although it was located by the pelvis. Similarly, grave 404 at Luistari containing disarticulated bones of a male at the foot end of a female grave has become "a curled-up man buried under [a woman's] feet" in literature (Manninen 1990: 10).

During the 1980s, the post-processualist school of thought began to widen the sphere of interpretations by considering the varied aspects of societies and acknowledging people's active role in the past (e.g., Hodder 1980; 1985; Shanks & Tilley 1987; the papers in Hodder 1982). The interest in marginal groups, identities,

<sup>5</sup> The bones at the foot-end of the grave 404 at Luistari are disarticulated, and no anatomical connections are present. This indicates that the soft tissues had entirely decayed already when the bones were piled in the grave. The decomposition rate is affected by environment, temperature, humidity, and insect activity, but according to estimates, the skeletonization may take decades (e.g., Adlam & Simmons 2007; Bass 1997; Mays 1998:17). Based on this, there has been a significant time period between the two burials. It is unknown if and how the individuals were connected with each other during their lives.

and symbolism rose in many levels (e.g., Parker Pearson 1999; Shanks 2008), giving way to more nuanced interpretations of atypical burials. In Finnish mortuary archaeology, Söyrinki-Harmo's (1992a; 1992b) studies on children's graves – which are rare in Early Medieval inhumation cemeteries and could therefore be considered atypical – can be mentioned as the earliest research, which was thematically inspired by post-processualism, although it did not yet theoretically embrace the school of thought.

Atypical features in burials have been addressed in several international studies during the last decade. The new studies emphasise the importance of contextualisation (e.g., Aspöck 2015; Gardela 2013; 2015; 2017; Murphy 2008; Toplak 2015; 2018; PAPERS I, III, IV, V). In Finland, a new kind of theoretical framework has been applied, for example, in the latest interpretations on the use of spearheads as coffin nails and the habit of placing stones on graves. The spearhead graves have been discussed as a possible manifestation of an ancestor cult (Wickholm 2006; Wessman 2010), and the latter as a custom motivated by various different reasons of which religion is only one possible explanation (Kauhanen 2015). Specific individual papers can also be considered as invitations for further discussion on the topic, such as Herva's (2001: 32) suggestion to interpret double burials from the perspective of queer archaeology (see also Kuokkanen 2008).

In recent years, several Finnish publications have dealt with varied inhumation burial customs from the Medieval Period (Harjula & Moilanen 2018) to the mass graves of Soviet terror during World War II (Taavitsainen 2014). In addition to diverse interpretations and a vast scope of time, the international research on atypical burials has emphasised the importance of interdisciplinary methods and theoretical approaches involving themes such as individuality and agency (Scott et al. 2020). A good Finnish example of this is the study of a decapitated individual at the Medieval church of Hailuoto, which combines osteological analysis and ethnographic analogies and discusses the attitudes towards disabled individuals and their social positions in a wider context (Núñez 2015).

## 2 Theory and methods

### 2.1 Social microarchaeology

The social microarchaeological<sup>6</sup> approach emphasizes the regular social practices behind diverse phenomena and promotes the identification of social discourse in detail instead of making broad generalisations. According to the approach, a local perspective is required to identify variations and details that would otherwise disappear in a larger general analysis (e.g., Cornell & Fahlander 2002; Fahlander 2003; Fahlander & Oestigaard 2008; Haughton 2018; PAPER I).

The approach seeks to establish a relational chronology of events to trace changes and variation (e.g., Gramsch 2007; Fahlander 2003: 64). According to Fahlander (2003: 66–67, 80), this process may include a distinction between single events (burials) and series of events (cemeteries). This idea can be taken even further. Instead of thinking of inhumation burials as single events, they too result from a series of individual events (c.f. Ekengren 2013: 174–175). Based on this idea, it is essential to consider the different phases and stages of a burial ritual, starting from preparing the corpse to the filling of the grave. These include, for example, washing, clothing, and wrapping the corpse, placing it in a container, lowering it into the grave pit, and furnishing and filling the grave. The examination of these phases includes the analysis of burial positions, which may shed light on the burial container, corpse treatment, and even the length of time from death to burial from the presence of rigor mortis (PAPER V). The analysis of objects and their placement in the grave may help distinguish differences in the burial ritual, for example, how and when the placement happened. The last phase includes filling the grave, but the burial ritual does not necessarily end here. Objects or stones may have been placed in the grave fill, and there may even be evidence of fires being burnt on the grave afterwards (Appendix 1). The grave may have been opened later and disturbed intentionally, including removing or adding bones or objects (PAPER IV; c.f. Klevnäs 2013; 2015). Equally important to note is the lack of certain phases or differences in them. Sequencing the whole burial ritual emphasizes the various human actions taking

<sup>6</sup> Term “microarchaeology” is occasionally also used as describing the microscopic analysis methods applied in archaeology (e.g., Weiner 2010).



place during the event. In this way, the burials can be seen as complex assemblages full of social communication and ritual meanings (c.f. Ekengren 2013).

Although the social microarchaeological framework offers an excellent way to integrate the information gained from individual graves to a wider social discourse, it has not yet been applied widely in mortuary studies (Nilsson Stutz 2016a: 17).

## 2.2 Archaeoethanatology

Archaeoethanatology (*anthropologie de terrain*) is a study of funerary deposits developed in France during the past three decades (e.g., Duday 2006; 2009; Duday et al. 2014). The term refers to the archaeological research of the social elements of death and dying (i.e., *thanatology*).<sup>7</sup> The primary focus is to distinguish human behaviour from natural processes in inhumation burial deposits. Therefore, the method relies strongly on taphonomy and an understanding of biological processes from death to skeletonization in different environments.

Soft tissues and ligaments decompose in approximately similar order and fashion depending on the burial environment. Their decay and disappearance will eventually affect the anatomical connections of the skeleton, as well as the positions of the artefacts touching the corpse (Duday 2009: 22–24). The decomposition processes create movement either within the volume of the body or outside of it, depending on the burial context. The movement is more “free” if the decomposition happens in an open space created by a coffin or another open structure.<sup>8</sup> On the other hand, the movement can be limited by wrappings, a narrow coffin, or soil mass around the corpse if buried without a coffin. The archaeoethanatomical method analyses the anatomical connections of the skeletons and traces the movement created by the decomposition processes. This leads, for example, to the identification of primary burials from secondary deposits, simultaneous multiple burials from collective burials (see terminology, Chapter 1.3), original burial position, corpse treatment (such as wrapping), and grave structures (such as fully decomposed organic furnishings). The benefit of archaeoethanatology is that it produces tangible data on burial practices instead of hypothesis and speculations (Nilsson Stutz 2018a: 331).

Although archaeoethanatology may seem like a magic tool for attaining new information on burials, the Finnish Early Medieval material causes serious limitations to the usage of the method. This is primarily because the acidic soil in

<sup>7</sup> Finnish translations: thanatology = tanatologia (kuolemantutkimus) archaeoethanatology = arkeotanatologia (arkeologinen kuolemantutkimus – the term refers to the particular methodology).

<sup>8</sup> The estimate for coffins to begin decomposition is c. 5–7 years or more (Neugebauer 1991), meaning that the initial decay of soft tissues happens in a void.

Finland leads to a fast decomposition of unburnt bones (PAPER I; Taavitsainen 1997: 53). However, bone preservation can vary significantly even within a site. For example, at Valkeakoski Toppolanmäki, some graves contained moderately, or well-preserved human remains (e.g., grave 3/1937), while adjacent graves (e.g., 2/1937) contained only a few bones inside finger-rings. There are also Viking Age <sup>14</sup>C dates from well-preserved bones in grave 3/1930 at Janakkala Kinnari (Appendix 1) and graves 7/1978, 13/1979 and 17/1979 at Hollola Kirkkailanmäki (Översti et al. 2019) indicating that soil acidity is not likely the only explaining factor in the preservation. Bone preservation is affected by, for example, soil micromorphology and chemistry, micro-organisms (e.g., Gordon & Buikstra 1981; Kibblewhite et al. 2015), the depth of the grave and the presence of a container or organic material in it (Dent et al. 2004; Nord et al. 2005; Stojanowski et al. 2002). The decomposition process may slow down when the corpse has been buried in colder and drier seasons (Mann et al. 1990; Roberts & Dabbs 2015), and bodies may also decompose more rapidly if sepsis or fever was present before death (Hayman & Oxenham 2016: 92). These factors could significantly influence differential preservation at the sites, and the Finnish burials should be studied in more detail with consideration of all these aspects.

Archaeoethanatology is primarily a field method, requiring detailed excavation and (preferably 3D, see Mickleburgh et al. 2020) documentation of exact positions of joints and anatomical connections (e.g., Duday 2006; 2009; Duday et al. 2014; Knüsel 2014; Nilsson Stutz 2003; 2018a). The Finnish material used in this study has mostly been excavated decades ago. Excavations have often been conducted without osteological and anatomical knowledge, which has affected the accuracy and detail of documentation. As mentioned, the organic material in Early Medieval inhumation burials in Finland is usually poorly preserved. Often the most important connections of labile joints<sup>9</sup> (see Duday 2009; Knüsel 2014; Knüsel & Robb 2016) have been fully decomposed and cannot be observed anymore. The exact properties of soil have not usually been documented, meaning that it is not always possible to consider the effect of the walls of the grave pit on the decomposition process. There is also a possibility that the skeletons have been “reconstructed” before documentation. This may be the case, for example, with the patellae that are important in distinguishing the presence of a container or wrapping (Duday 2009: 45–46). However, the displaced patellae may occasionally have been placed back on the knee before taking photographs (Williams 2015: 87–88).

Although the best results for archaeoethanatomical analysis are obtained with material consisting of well-documented and well-preserved skeletons, the method has previously been applied in studying graves with poorly preserved human remains

<sup>9</sup> For example, the small elements in hands, feet, and cervical column, which lose articulations rapidly compared to, for example, knees or ankles.

(Geller 2014; Wright 2007). Post-excavation analysis based on old documentation material, such as photos, written descriptions, and drawings, has also successfully been used as sources for archaeoanatomical interpretations (e.g., Green 2018; Harris & Tayles 2012; Nilsson Stutz 2003; Peyroteo Stjerna 2016; Törv 2015). Even though the method may not be applicable to all Early Medieval burials in Finland, it nevertheless provides an essential tool for a better understanding of the burial contexts (PAPERS III, IV, V). The significance is evident because this approach has never been applied to these burials before.

The main features sought to being identified from the burials are presented in the list below. It should be noted that the list is best suitable for analysing supine extended burials. The list is also highly simplified and should not be used as a reference without considering the detailed descriptions of the processes and analysis methods described in Duday 2006; 2009, Duday et. al 2014, Harris & Tayles 2012, Knüsel 2014, Nilsson Stutz 2003 and Roksandic 2002.

<b>Type</b>	<b>Basis of identification</b>
Primary burial	Anatomical connections (especially labile articulations) present, and if not, the position can be explained by natural, taphonomic changes.
Secondary burial	Anatomical connections are lost in a manner that cannot be explained by natural, taphonomic changes
Burial without coffin (earth burial)	Decomposition in a filled space. Soft tissues slowly replaced by the surrounding soil. Articulation of hand bones when hands are placed on the abdomen or pelvis. No flattening of the ribcage or pelvis. No constrictions (Fig. 6) unless the individual was wrapped tightly.
Presence of a wide container (coffin or chamber)	Decomposition in an open space. Fall of the ribcage and small bones of hands (if hands are placed on stomach). The patellae can be either in an anatomically correct position or fallen from their place (due to the rotation of the

femora during the decomposition process). Collapse/ flattening of the pelvis. No constrictions unless the individual was wrapped tightly. Sometimes similar positions result from covering the body loosely with a rigid material (leather, pelt), even if the individual was buried without a coffin. In these cases, the overall context should be considered carefully.

Narrow container

“Wall effect” delimiting and holding the skeleton, clavicles often in vertical position. The edges of the grave cut are not wider than the constriction. The position may be similar in wrapped burials, and therefore, the whole context with details on the size of the grave cut, coffin nails or contours of the coffin are important to observe.

Tight wrapping

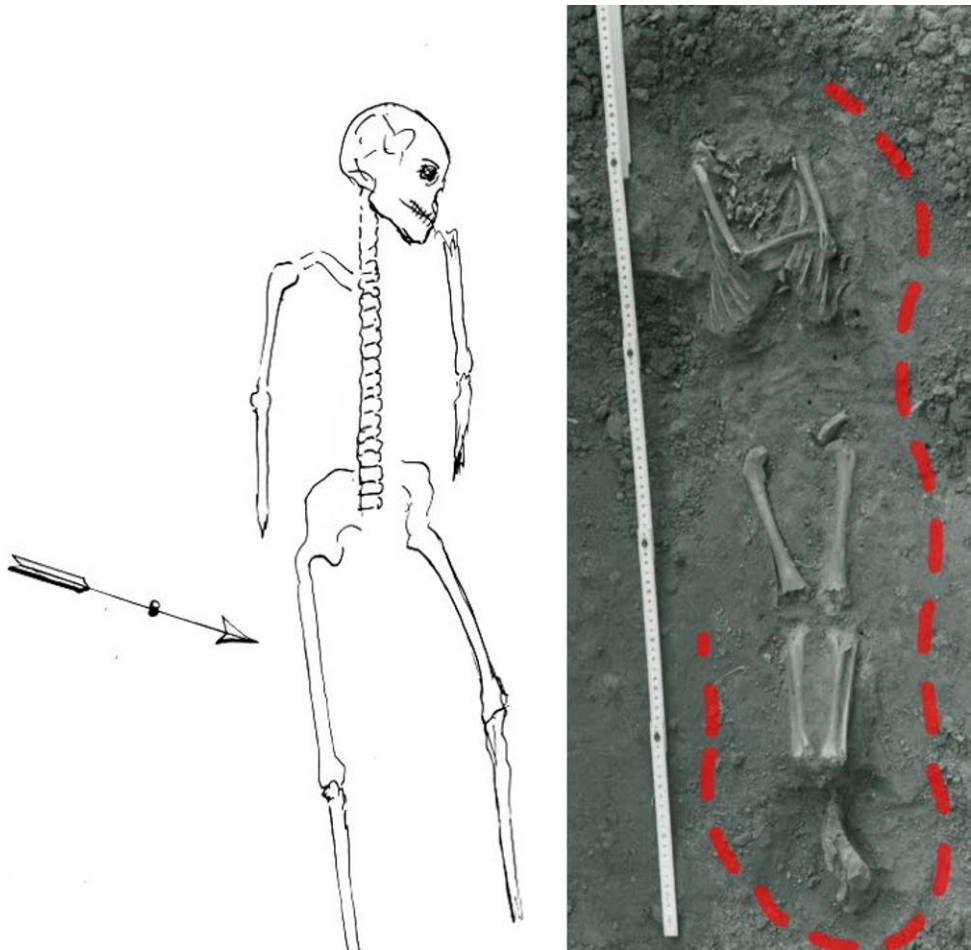
“Wall effect” delimiting and holding the skeleton, clavicles often in a vertical position. Compression of the thoracic cage, constriction of lower limbs (Fig. 6), disarticulation of patellae. The edges of the grave cut wider than the constriction. Adducted lower limbs.

Coffin with U- or V-shaped bottom (likely a tree-trunk coffin)

Upper limb bones under the torso, skeleton in an extremely compressed position, femora behind coxal bones.

Head in an elevated position compared to the body (e.g., on a pillow)

Movement of cranium, which has sometimes slipped or rotated towards the ribcage or the sides depending on the original position of the head. This may happen if the decomposition happens in an open space.



**Figure 6.** On the left: A sketch of a skeleton without constrictions (grave 2(area II)/1935, Hollola Kirkkailanmäki). Drawing after Jorma Leppäaho. On the right: An example of constriction of the ribcage and lower limbs (grave 2/1999, Hämeenkoski Pyhän Laurin kirkon raunio). The ribs are packed within the volume of the body, while the limbs are tight together below the knees. The grave pit (marked with a dashed line) seems larger than the volume of the corpse. According to the excavation report (Lompolo 2000), the skull and the pelvis had been removed later. Photo: Virva Lompolo, additions: Ulla Moilanen.

## 2.3 Interdisciplinary and scientific collaboration

Even though archaeothanatology can be considered a transdisciplinary method in itself (Nilsson Stutz 2018b: 49), the background work for this dissertation has also included collaboration and interaction with researchers from different disciplines and with various specialisations within archaeology. PAPER II, written with Docent Kaarina Koski (folklore studies, Universities of Helsinki and Turku), examines the ritual practices from prehistoric to Early Modern Finland and gives a framework for the possible mindsets and the changing worldviews of the individuals in this study. Paper V was written together with Prof. Markus Hiekkänen, who excavated the graves at the church of Renko. He has first-hand knowledge of the burials and their contexts, which allowed deeper analysis than only relying on the documentation materials and literature.

I have also collaborated with the SUGRIGE project on ancient human genomes of Northeastern Europe (Universities of Helsinki and Turku, PI Prof. Päivi Onkamo). I recommended bringing the individuals buried at Hattula Vesitorninmäki (PAPER IV), Valkeakoski Toppolanmäki (graves 2/1936 and 3/1937), Hollola Santahaudanmäki, Janakkala Makasiininmäki, and Ylöjärvi Mikkola into the project. The project has been responsible for performing ancient-DNA analysis on the individuals buried at these sites. The ancient-DNA analysis has aimed at, for example, determining the biological sex of the individuals, genetic relationships between them, and detecting the presence of ancient pathogens and parasites.<sup>10</sup> The analyses are still in progress (except for PAPER IV), and most of the results are, therefore, still unpublished. In total, 11 individuals have also been <sup>14</sup>C dated within the project (Table 1). The project also funded the osteological analyses (carried out by Dr Kati Salo) on the human remains found from the graves in the study area.

Soil samples were taken from the three graves that were excavated for the dissertation (see Chapter 3.2). The samples were analysed for microremains by Dr Tuija Kirkinen (University of Helsinki)<sup>11</sup>, pollen and spore remains by Docent Teija Alenius (Universities of Turku and Helsinki)<sup>12</sup> and Sanna Pätsi (University of Turku)<sup>13</sup>, and phytoliths by Tytti Juhola (University of Helsinki)<sup>14</sup>.

<sup>10</sup> For the potential of aDNA methods in archaeology and possible issues see e.g., Ion 2019; Frieman & Hoffman 2019; Orlando et al. 2021; Sedig 2019, Spyrou et al. 2019; Sykes et al. 2019; Vai et al. 2020; Wagner et al. 2020.

<sup>11</sup> Toppolanmäki graves 2/1936 and 3/1937, Santahaudanmäki 1/1985.

<sup>12</sup> Toppolanmäki grave 3/1937.

<sup>13</sup> Toppolanmäki grave 2/1936.

<sup>14</sup> The Toppolanmäki graves.

In sum, the interdisciplinary collaboration has aimed at maximising the detailed information on the burial contexts and producing an integrated, holistic understanding of them (c.f. Livet 2019; Oliver 2020).

**Table 1.** The new <sup>14</sup>C dates obtained in the SUGRIGE project.

Site	Grave	ID	Cal AD (Bronk Ramsey 2017; Reimer et al. 2020)
Hattula Ruskeenkärki	A/1955	Mannheim-34126	889–992 calAD (95,4%)
Hattula Ruskeenkärki	B/1955	Mannheim-34125	891–994 calAD (95,4%)
Hattula Vesitorninmäki	1/1968	Hela-4566	1040–1174 calAD (95,4%)
Hollola Santahaudanmäki	1/1985	Hela-4599	1161–1261 calAD (95,4%)
Hämeenlinna Männistönmäki	1/1999	Hela-4733	1036–1176 calAD (94,4%)
Janakkala Kinnari	2/1930	Hela-4734	991–1048 calAD (74,8%) 1082–1130 calAD (17,4%)
Janakkala Makasiininmäki	1/1948	Hela-4732	1156–1231 calAD (91,1%)
Valkeakoski Toppolanmäki	2/1936	Hela-4608 Hela-4609 Hela-4610	1165–1265 calAD (95,4%) 1126–1220 calAD (73%) 1036–1161 calAD (95,4%)
Valkeakoski Toppolanmäki	3/1937	Mannheim-35315	1045–1085 calAD (41,1%) 1121–1214 calAD (51,4%)

## 3 Material

### 3.1 Archived materials and artefact collections

The study material consists of 42 sites (Fig. 7) and c. 379 inhumation graves, which are presented in Appendix 1. The exact number of graves and buried individuals are unknown due to the poor preservation of organic material, the occasionally poor documentation, and the fact that some of the graves had been destroyed before archaeological examination (Appendix 1). Some of the graves were found in the late 19th and early 20th century. In Finland, archaeological cultural heritage and ancient monuments (including graves) are protected under the Antiquities Act (295/1963)<sup>15</sup> which was passed in 1963. After this, it became illegal to damage or even excavate ancient monuments without permission from the Archaeological Commission (later the National Board of Antiquities and Finnish Heritage Agency). Under the Criminal Code (39/1889)<sup>16</sup>, the sanctity of the grave is determined. According to the law, unlawful opening of a grave is prohibited, although this mostly applies to modern graves younger than 100 years. The Early Modern burials are usually treated according to the Antiquities Act (see also Lapinoja 2011; Niukkanen 2009). The Ministry of Education and Culture and the Finnish Heritage Agency are currently in the process of reforming the Antiquities Act, but it is still unknown if (and how) legislation concerning graves and human remains is going to change. The Finnish Heritage Agency has also compiled a document<sup>17</sup> on the ethical principles in curating human remains in the NM collections. According to the document, prehistoric (including Iron Age) human remains are catalogued in the collections, but human remains from Early Modern cemeteries are usually returned to the parishes and reburied – a policy which originally represented the personal views of the higher

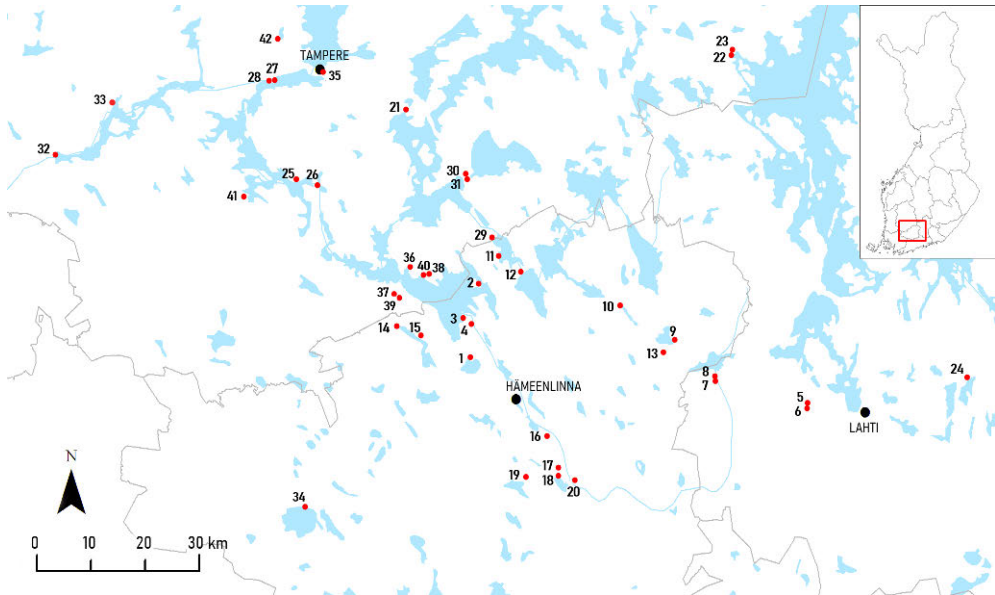
<sup>15</sup> Antiquities Act (295/1963), available at: [\[https://www.finlex.fi/fi/laki/ajantasa/1963/19630295\]](https://www.finlex.fi/fi/laki/ajantasa/1963/19630295) For the history of heritage management in Finland, see e.g., Lähdesmäki 2019; Taavitsainen & Immonen 2013.

<sup>16</sup> Criminal Code (39/1889), available at: [\[https://www.finlex.fi/fi/laki/ajantasa/1889/18890039001\]](https://www.finlex.fi/fi/laki/ajantasa/1889/18890039001)

<sup>17</sup> Museovirasto, Ihmisluuaineistot Museoviraston kokoelmatyössä, 27.10.2014 Available at: [\[https://www.museovirasto.fi/uploads/Arkeologiset\\_kokoelmat/Ihmisluuaineistot\\_Museoviraston\\_kokoelmatyossa\\_ohje.pdf\]](https://www.museovirasto.fi/uploads/Arkeologiset_kokoelmat/Ihmisluuaineistot_Museoviraston_kokoelmatyossa_ohje.pdf)



staff at the Office of Archaeology at the National Board of Antiquities (PAPER V). The division of human remains between “prehistoric” and “historical” is also often a division between “Pre-Christian” and “Christian” human remains (e.g., Moilanen 2014; Salo & Kivikero 2010: 24), which raises several ethical issues concerning Medieval burials. These will be discussed in more detail in Chapter 4.4.



**Figure 7.** The location of the sites. 1. Hattula Kirkkomäki 1, 2. Hattula Myllymäki, 3. Hattula Ruskeenkärki, 4. Hattula Vesitorinmäki, 5. Hollola Hälvälä, 6. Hollola Kirkkailanmäki, 7. Hollola (Hämeenkoski) Pyhän Laurin kirkon raunio, 8. Hollola Santahaudanmäki, 9. Hämeenlinna (Lammi) Honkaliini 1, 10. Hämeenlinna (Tuulos) Eerola 2, 11. Hämeenlinna (Hauho) Kalomäki 2, 12. Hämeenlinna (Hauho Alvetttula) Männistönmäki, 13. Hämeenlinna Nisula (Hannula), 14. Hämeenlinna (Kalvola) Pahnainmäki, 15. Hämeenlinna (Kalvola) Urheilukenttä, 16. Janakkala Kinnari 1, 17. Janakkala Kirkkomaa, 18. Janakkala Makasiininmäki, 19. Janakkala Tupala, 20. Janakkala Vähä-Kurki, 21. Kangasala Liuksialan kappeli, 22. Kuhmoinen Ala-Rantala, 23. Kuhmoinen Linden, 24. Lahti (Nastola) Ristimäki, 25. Lempäälä Aimalankangas, 26. Lempäälä Lempoinen, 27. Nokia Hakamäki, 28. Nokia Ketolanmäki, 29. Pälkäne Kokkostenkärki, 30. Pälkäne Rauniokirkko, 31. Pälkäne Ristiänmäki, 32. Sastamala Kaukola, 33. Sastamala Tulonen, 34. Tammela Näkämaan kumpu, 35. Tampere Vilusenharju, 36. Valkeakoski Kiiliä, 37. Valkeakoski Kokkomäki, 38. Valkeakoski Moijanen, 39. Valkeakoski Muuntajamäki, 40. Valkeakoski Toppolanmäki, 41. Vesilahti Rukoushuone, 42. Ylöjärvi Mikkola. Map: Ulla Moilanen & Timo Rantanen.

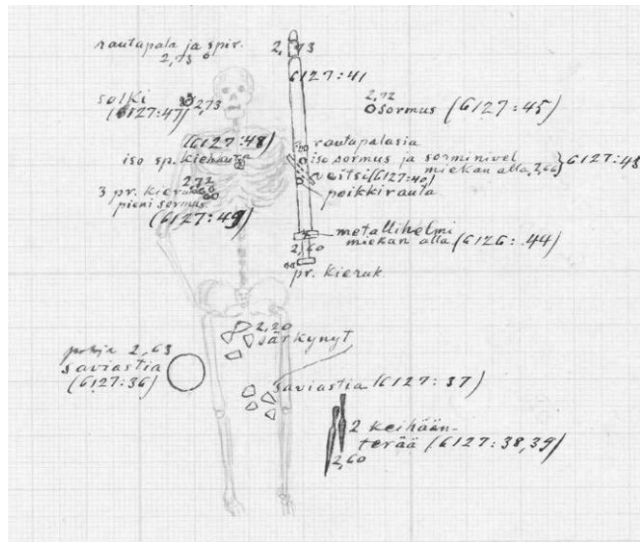
The information on the sites and the graves have been gathered from archived fieldwork reports, which may include written descriptions, site plans, photographs, and sketches and illustrations of excavated graves. Around 200 fieldwork reports and finds catalogues (NM) stored in the archives of the Finnish Heritage Agency were read. The reports have mostly been digitised and are available at [www.kyppi.fi](http://www.kyppi.fi), but

some of the undigitized material has been studied at the Finnish Heritage Agency in Helsinki. The material dates from the end of the 19th century to the recent years. For this reason, the material is very heterogeneous, and the amount of detail in them varies.

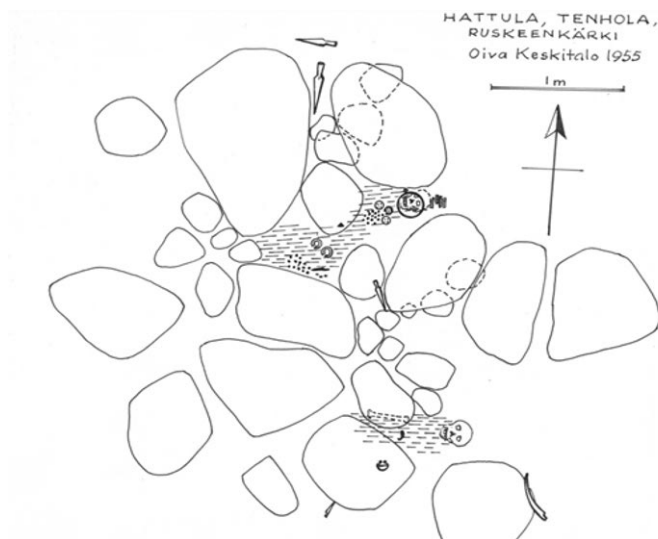
The grave illustrations from the late 19th and early 20th century are not entirely reliable since they may contain extensive interpretation and even artistic expression (Figs 8–9). On some occasions, the documentation is insufficient and difficult to interpret (Fig. 10). Therefore, the earliest drawings should be met with a certain amount of criticism. It should also be kept in mind that the interpretations of the graves – affecting both the drawings and the written descriptions – have likely been influenced by the excavator’s theoretical and methodological background (c.f. Aspöck 2020: 20) and their presumption of what a typical inhumation grave looks like.

One of the biggest problems for the study and often the explanation behind the insufficient documentation is the generally poor preservation of Late Iron Age and Early Medieval bones in Finland, as discussed in the previous chapter. Sometimes the bone material has been completely decayed, and the interpretation of graves may have been based entirely on the colouring of the soil and possibly the presence of coffin nails. Sometimes it has been challenging to distinguish graves with decomposed material from other features. For example, several sites have contained grave-like depressions visible on the ground, but in the excavations, they have been entirely findless. These features may have been interpreted as “empty” or “emptied” graves, or natural formations (see Appendix 1, sites 6, 31, 34 and 39: Hollola Kirkkailanmäki (grave 2b (area II)/ 1935), Pälkäne Ristiänmäki (excavation in 1951), Tampere Vilusenharju (graves 43–44/1962), Valkeakoski Toppolanmäki (excavation in 1951)).

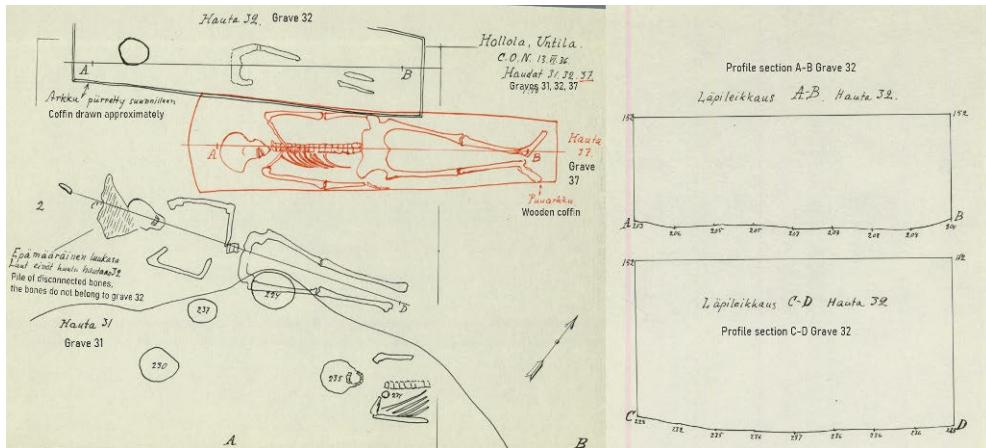
In addition to often sketchy illustrations and grave plans, photographs were rare for most of the 20th century. Even at the extensive excavation of Luistari cemetery in the 1970s, the photographic documentation was complicated. According to the excavation leader, Dr Pirkko-Liisa Lehtosalo-Hilander (Moilanen & Etu-Sihvola 2020), the coloured diapositive slides were developed in Sweden or Germany, and the slides only arrived weeks later. It was necessary to carry on with the excavations, and occasionally, when the slides arrived, they revealed details that had already been missed during the excavation.



**Figure 8.** Julius Ailio's documentation drawings from Eura Käräjämäki-Osmanmäki include reconstructed skeletons. According to Ailio (1912), the reconstructions are based on the location of artefacts in the grave. It is unknown whether any traces of human remains were visible and how imaginative the interpretation is. According to Jussi-Pekka Taavitsainen (pers. comm.), the oral tradition among archaeologists suggests that the grave illustrations published in Schvindt 1893 may have also been drawn at the Archaeological Commission long after the excavations.



**Figure 9.** Oiva Keskitalo's drawing of burials at Hattula Ruskeenkärki (the southern grave is grave A, the northern one grave B). This is not an accurate documentation plan since some find locations have been reconstructed in the drawing. For example, the convex brooches and the neck-ring visible in the drawing were found before the archaeological excavation. Drawing after Oiva Keskitalo.



**Figure 10.** The documentation plan of graves 31, 32 and 37 at Hollola Kirkkailanmäki during Helmer Salmo's excavation in 1936. It is somewhat unclear which individuals the numbers 31 and 32 refer to. The grave above seems to be number 32, and the grave drawn with red is clearly number 37. The third skeleton from above has the number 2 on the left side of it, but the text describing the commingled bones next to it says: "these bones do not belong in grave 32. The partial skeleton on the lower right corner is possibly number 31. Based on the profile section drawings (on the right), it is possible that Salmo might have considered grave 32 a double burial. In this interpretation, grave 32 would include skeletons A–B and C–D. However, these two burials seem to be c. 50 cm apart from each other horizontally, and according to the profile sections, their depth differs with c. 20–30 cm, making them unlikely to be a double burial. Salmo did not write any descriptions, which would help interpret the illustrations, but he mentions that there was a coffin in grave 32 (Salmo 1937). It is unlikely that A–B and C–D would depict the same individual at different levels, because of the great difference in depth.

When possible, I have combined the grave plans (and sometimes photographs) in MapInfo and Photoshop. The measurements (such as horizontal and vertical distances between artefacts, human remains, and other features in the graves) were also considered when analysing their positions and placements and possible movement during the decomposition process. In the course of the work, I understood that it was necessary to enlarge the photographs as much as possible to make accurate observations and interpretations on the anatomical connections and the exact positions of bones and other remains in the graves. I then printed the photographs and the grave plans in different sizes for further examination. I also compared the information on written descriptions, illustrations, and photographs, to establish as detailed an overview of the graves as possible.

During the process of analysing the photographs, it was also necessary to consider the distortions caused by the photographer's position in relation to the grave, as the photographs would have looked different if taken from above. Therefore, I also reconstructed some of the burial positions with live individuals and took a photo from the same angle. This method was especially helpful when

correcting the interpretation of the multiple burial 2/1936 at Valkeakoski, Toppolanmäki (Chapter 4.1.2).

For paper V, historical sources were also studied, namely church records of deaths and burials between the 17th and the 19th centuries. These documents have been digitised and are accessible at the Digital Archives of the National Archives of Finland.<sup>18</sup> Also, the archived 19th-century autopsy protocols were studied at the National Archives of Finland for the paper.

In addition to archived material, grave finds (objects and bones) were studied at the archaeological collections of the Finnish Heritage Agency in Helsinki. This examination aimed at establishing a more comprehensive understanding of the grave contexts and their dates. It was possible to clarify the relationships between artefacts, especially in cases when inhumation burials contained artefacts from cremation burials. It also complemented the information on the usage of objects, such as spearheads struck into the coffin structure (Fig. 25). Also, these materials were examined for possible substances that could be analysed. For example, the femur fragments from Hattula Vesitorninmäki were stored in a box with a small amount of soil taken from the grave. Dr Tuija Kirkinen analysed the soil for microscopic hair remains, and the analysis further complemented the information on the burial context (PAPER IV).

### 3.2 Graves excavated for the dissertation

Three excavations and one laboratory excavation were conducted for the dissertation. At Valkeakoski Toppolanmäki, two inhumation graves initially excavated in 1936 and 1937 – but in which the bones had been left in the ground – were reopened by the author in 2017 and 2018. Both graves have sometimes been considered unusual, as one (3/1937) contained large stones placed on the corpse, and the other (2/1936) was supposed to contain four individuals, who were assumed to have been tied together (Leppäaho 1938; Pälsi 1938). The graves and the human remains were studied with multidisciplinary methods, including osteological and ancient-DNA analysis. Several soil samples were taken to study macro-, and microfossil remains, pollen, microscopic fibres, and parasites (Moilanen 2018b; 2019). The excavation of grave 1/1936 was significant, as it helped clarify the context of the grave. Unfortunately, it was not possible to include the excavation results in PAPER I, which was already in the editorial phase at the time. For an updated interpretation on the grave, see Chapter 4.1.2.

<sup>18</sup> Digital Archives of the National Archives of Finland: [<http://digi.narc.fi/digi/>]

In 2016, amateur metal detectorists found an Early Medieval sword from Haukila Koirankivi, Valkeakoski. It was initially suspected that the sword originated from an inhumation burial. During the excavations in 2017, it turned out that there was a cremation cemetery at the site (Moilanen & Moilanen 2020). However, the excavation provided interesting comparative material for dating and analysis of variations of burial customs in Early Medieval Häme. The  $^{14}\text{C}$  dates for the Koirankivi cremation burial and Toppolanmäki inhumation burial 3/1937 are contemporaneous, suggesting that both cremations and inhumations may have been practised at the same time in the region.

A laboratory excavation of material from the Hollola Santahaudanmäki grave was conducted at the Finnish Heritage Agency in 2017. The material consisted of inhumation burial finds which had been lifted from the ground as a bulk in 1985 and transferred to the archaeological collections in a cardboard box. The cardboard box was filled with sandy soil, pieces of birch bark and disarticulated human bones likely originating from a double grave (Moilanen 2017). The bones were cleaned for osteological analysis (carried out by Dr Kati Salo) and ancient-DNA analysis (SUGRIGE project). The birch bark and several soil samples were collected in small plastic bags and left in the collections, and one sample was analysed for microremains by Dr Tuija Kirkinen from the University of Helsinki.

## 4 Results and Discussion

### 4.1 Variation in Early Medieval burials in Finland

To identify the different sequences in the burials and thus the variation in graves, each of the excavated graves from the study area was analysed (summarised in Appendix 1). Particular attention was paid to features that have either been overlooked in previous Finnish research, such as double and multiple burials (PAPER I) and varied body positions (PAPERS III, V), and features which have previously been considered atypical in Finnish research, such as the habit of striking sharp objects into the coffin structures (e.g. Purhonen 1998: 168; Wickholm 2006; Wessman 2010; PAPERS I, II), using old items in graves (Wessman 2009; 2010), and graves containing both “feminine” and “masculine” artefacts (PAPER IV).

In international research, decapitated burials are often considered atypical (e.g., Buckberry 2014: 132; Reynolds 2009; Tucker 2015). However, decapitated individuals have not been identified from the study area, most likely because of the generally poor preservation of bones. The possibility of decapitation at Valkeakoski Kokkomäki (Appendix 1, site 36) is briefly – although very cautiously – hinted at Haggrén et al. (2002: 7), who state that it is uncertain whether the remains of lower limbs and pieces of cranium, which were found above the limbs, belong to the same individual. They do not consider the possibility of later disturbance. The lack of decapitations in the region does not, however, mean that they have never existed. There is (possible) evidence of decapitations from Late Iron Age Southwestern Finland (Riikonen 1999; Asplund & Riikonen 2007: 24), Early Medieval/Medieval Eastern Finland (Lehtosalo-Hilander 1988: 196; Leppäaho 1955), and Medieval Northern Finland (Núñez 2015).

Most of the graves in the study area are primary burials (see Chapter 1.3), but occasionally the poor preservation of bones prevents studying the context in detail (e.g., Appendix 1, Hämeenlinna Männistönmäki, grave 1/1999). Secondary treatment of human bones can be observed at cemeteries which have been used for a long time. In these cases, older burials were disturbed when digging new graves. At Hollola Kirkkailanmäki and Lahti Ristimäki, the older bones are usually commingled, and not placed neatly in the new graves (see Leppäaho 1937; Salmo 1937; Sarvas & Sarkki 1973).

At Lahti Ristimäki, a secondary pile of unburnt bones of two individuals was found in 1973 (Sarvas & Sarkki 1973; Fig. 11). The bones have been dug into a separate pit

without a connection to a younger burial. There is a resemblance to the so-called “bone-pile burials”<sup>19</sup> known from Mikkeli Visulahti (Fig. 5) (Lehtosalo-Hilander 1988: 194; Leppäaho 1955). All anatomical connections have been lost in these burials, which indicates that the bones were buried after all soft tissues had decayed (c.f. Bass 1997; Mays 1998: 17). The jewellery found from Ristimäki includes “eastern” types (Appendix 1), which could indicate contacts with the Mikkeli area. If the bones were encountered in digging new graves, why were they neatly organized in a separately dug pit while others were left scattered in the ground when encountered?



**Figure 11.** A secondary pile of bones at Lahti Ristimäki. Two crania were found under the long bones. Photo: Seija Sarkki/FHA.

#### 4.1.1 Varied body positions

Burial positions and the placement of corpses in Late Iron Age and Early Medieval graves have not usually been considered important in Finnish archaeology (PAPER I). According to Mui (2018), burial positions are often overlooked in archaeological research in general, although the ways the corpses were represented in the funerary ay yld information relating to both individual and regional ritual practices, social identities, and bodily ideals. The positions may also help distinguish burial structures or wrappings (e.g., Dудay 2009; Dудay et al. 2014; Harris & Tayles 2012). For these reasons, interpreting the original burial positions has been one of the aims of this study (PAPERS I, III, V).

##### 4.1.1.1 Burials in a supine position

In many cases, the poor preservation of bones in Early Medieval burials prevents studying the exact burial positions. For the same reason, making assumptions about

<sup>19</sup> The same term has sometimes been used for cremation burials (e.g., Taavitsainen et al. 2009).

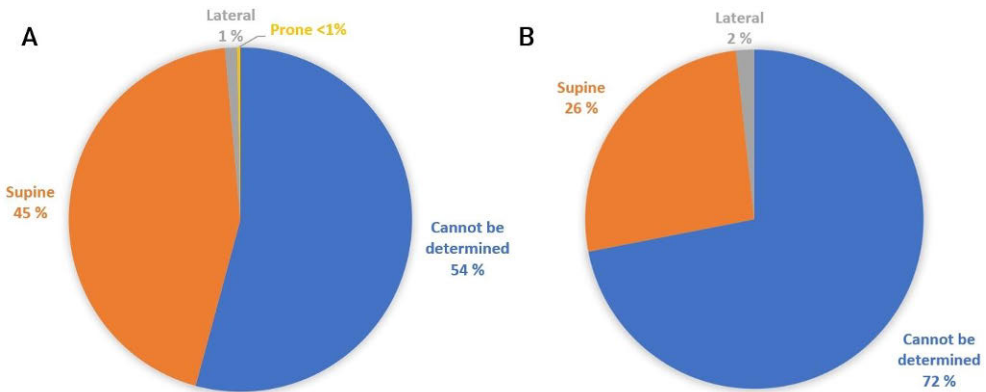


the burials, which are not well preserved, may lead to false interpretations and generalisations. The cemeteries with the best preservation of bones and other organic materials are often younger, and they include more graves than the older sites. The youngest sites used in this study, Hollola Kirkkailanmäki and Hämeenkoski Pyhän Laurin kirkon raunio, contain c. 50% of the graves collected for this study. If these sites (or even only Kirkkailanmäki with c. 140 graves) are included in making generalisations about burial customs, there is a strong bias towards Medieval burials. Therefore, the generalisations may not necessarily tell anything about the Early Medieval mortuary customs (c.f. Fig. 12).



**Figure 12.** The dates of the sites used in the study. The sites marked with \* have been  $^{14}\text{C}$  dated, while the dating of other sites is based on typology, coin dates, and the site's overall context. Some graves may contain older artefacts which may provide inaccurately old dates. The dating of Kangasala Liuksialan kappeli is an approximate estimate based on the history of the area. Likely, the columns would be placed differently if more accurate dating methods were available. (Hattula Rus. = Hattula Ruskeenkärki, Hollola Hämeenkoski PLK = Pyhän Laurin kirkon raunio.)

It seems that the supine extended position, which dominates especially the Modern Christian burial culture (Gould et al. 2021: 3; Mui 2018), was the most common burial position in Finland starting from the Late Iron Age. There is, however, some evidence that the position may have become more common during the Medieval Period (Fig. 13). However, the supine burials are not necessarily identical to each other. The constrictions, adductions, and head position might indicate different kinds of mortuary treatments or containers (see Chapter 2.2). Also, the placement of arms and legs have varied within the position. The arms may have been extended by the body, be semi-flexed or flexed over the pelvis, stomach, or chest in varied ways (Appendix 1). No geographical nor temporal patterns were observed within the arm positions (c.f. Atzbach 2016; Gilchrist and Sloane 2005: 15–16, 156; Holbrook and Thomas 2005; Jäkärä 2001; Kieffer-Olsen 1993: 78), nor age groups or sexes which would have had their limbs arranged in a certain way. At least in four cases, the legs had been crossed at ankles: in two Early Medieval burials at Valkeakoski Toppolanmäki (graves 3/1937 and possibly 6/1937), in a 16th-century burial at Hämeenkoski Pyhän Laurin kirkon raunio (grave 3/2002), and in an Early Modern burial at Renko church (PAPER V).



**Figure 13.** Burial positions and preservation of bones. A: The poor preservation of skeletal material prevents the determination of burial positions in 54% of the inhumation graves dating from the Late Iron Age to the Medieval Period. Lateral and prone positions are rare, but the undeterminable 54% likely contains a small proportion of other than supine burials. B: When Medieval burials (Hollola Kirkkailanmäki and Hämeenkoski Pyhän Laurin kirkon raunio) are removed from the analysis, the poor preservation in Late Iron Age and Early Medieval burials becomes evident. In these cases, burial positions are indeterminable in 72% of burials. It is also notable that the percentage for a lateral position is slightly higher in this chart. This could indicate that lateral position – and possibly variations in burial positions in general – was more common in the Late Iron Age and Early Medieval Period than later in the Middle Ages.

As mentioned before, the supine position is often considered the “normal” burial position, and any deviations may have been interpreted as unusual. At Hollola Kirkkailanmäki, two individuals buried in a supine position were initially interpreted as being “thrown into the ground” (Leppäaho 1937).<sup>20</sup> In these cases, the position of the skeleton has been slightly curved, and the lower limbs could have been slightly higher than the pelvis. It is possible that Leppäaho interpreted the “wide” appearance of the skeletons and their slight curvature as an indication of a hasty and uncared burial. The burials have been made without coffins, and the skeletons are therefore less constricted than the ones buried in coffins or narrow grave pits (c.f. Duday 2009). Because the decomposition has happened in a filled space, the surrounding soil has supported the positions. Therefore, the positions could be explained by uneven bottoms in the grave pits. This does not necessarily mean a hasty or uncared burial, as a similar Early Modern Period grave is known, for example, from the church of Renko (PAPER V).

#### 4.1.1.2 Burials in a lateral position

Lateral position could be determined only in a few cases. Two of the four skeletons found in 1933 at Hämeenlinna Männistönmäki were reportedly lying on their sides in a semi-flexed or flexed position (Pälsi 1933). These graves were not excavated or documented by archaeologists, so the positions cannot be verified. However, at Pälkäne Ristiänmäki, the only burial position which could be determined at all was lateral (Bergström 1986). Sometimes lateral position has been seen as a sign of otherness and a possible indication of the foreign origin of the buried individual (Asplund & Riikonen 2007). This emphasizes the simplified idea of the supine position being the normal and natural burial position. Because lateral positions are known from Late Iron Age graves all around Finland, for example, at Eura Luistari (Lehtosalo-Hilander 1982a: 37), Turku (Kaarina) Kirkkomäki (Asplund & Riikonen 2007: 23–24), and Mikkeli Tuukkala (Purhonen 1998: 163), the position may have been more common than the poor preservation indicates. Lateral or slightly lateral positions are rarer in Medieval contexts than in older sites (Fig. 13). They are, however, found from Hollola Kirkkailanmäki and from a 16th-century grave 3/2002 at Hämeenkoski Pyhän Laurin kirkon raunio (Appendix 1).

It seems that the side did not matter when placing the individual in a lateral position. The corpses were lying on the right side as often as on the left side. All individuals buried in the position were adults. Sex determination has been possible only in two cases (Pälkäne Ristiänmäki and Hämeenkoski Pyhän Laurin kirkon

<sup>20</sup> Graves 2 (area II)/1935 (Fig. 6) and 14 (area II)/1935.

raunio), both of which have been determined as males (Bergström 1986; Ratilainen 2002; Ratilainen & Tourunen 2003; Tourunen 2005).

In general, lateral positions have been more common in double and multiple burials. They are present in double graves at Hollola Kirkkailanmäki 50/1936 and in the multiple burial 2/1936 at Valkeakoski Toppolanmäki, in which at least one of the individuals was lying in a partly lateral position (Fig. 19). In these cases, the individuals may have been arranged in a way which expresses interaction between the individuals: the corpses may touch or look at each other.<sup>21</sup> The lateral position has often been compared to sleeping (e.g., Alekshin et al. 1983: 142; Mui 2018: 139; O'Brien 1996: 163), and sometimes it has been suggested that the individuals buried on their sides could have died in their sleep and been buried with rigor mortis present (Gargett 1989: 186; Gilchrist and Sloane 2005: 154–155; Jonsson 2009: 97; Wells et al. 2002: 176; PAPER V). Rigor mortis progresses and eventually disappears slowly after death. The stiffness is well-developed c. 9–12 hours after death and starts disappearing slowly until being gone c. 48 hours after death depending on temperature and environment (Vij 2014: 83, Warther et al. 2012). Rigor mortis would have been present if an individual was buried within a day or two after death. However, if the corpse was touched, handled, washed, and dressed soon after the death, it could be assumed that the corpse was arranged in a certain position before the burial. Burial in a position with rigor mortis present could, therefore, indicate that the corpse was not handled after death (c.f. PAPER V). Mui (2018: 139, 261, 206) has pointed out that the placement of corpses in sleeping positions – in which she includes the supine positions with one hand flexed over the stomach – may also have been intentional or even subconscious, and reflect the affection and care for the dead individual.

#### 4.1.1.3 Prone burials

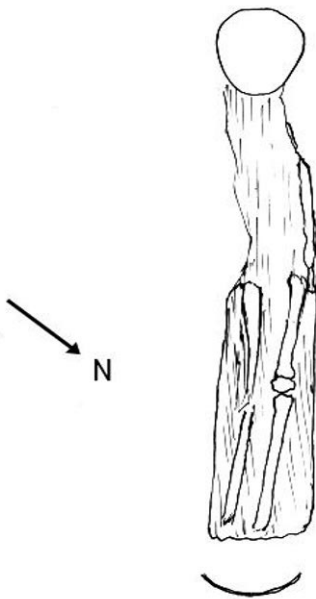
Burial in a prone position has prompted varied interpretations from an accidental burial to a symbol of punishment, humiliation, humility, or penitence, depending on the cultural and local context of the burial (e.g., Ahola et al. 2020; Alterauge et al. 2020; Arcini 2009; Gardela 2013; 2015; 2017; Gustavsson 1988; Reynolds 2009; Toplak 2015; 2018; PAPER III). The only prone burials from the study area have been found from Hollola Kirkkailanmäki (Leppäaho 1937; PAPER III), but this may be a result of poor preservation rather than actual absence of such burials. The prone burials at Kirkkailanmäki have been interpreted as Early Medieval in PAPER III, but this dating may be too old. Only a few graves at Kirkkailanmäki have been <sup>14</sup>C dated

<sup>21</sup> See also grave 281 at Eura Luistari (e.g., Herva 2001; Lehtosalo-Hilander 1982a).

to the Early Medieval Period, and only one grave (7/1978) to the Late Iron Age. Most of the graves at Kirkkailanmäki are possibly Medieval, and some are Late Medieval. A long usage period is indicated by a large number of overlapping graves and disturbed older burials. Medieval dates are evident for burials containing ring brooches (e.g., Taavitsainen 1990: 209), and the youngest coin and <sup>14</sup>C dates indicate that burials were still being made at the site at the end of the 14th or the beginning of the 15th century (Ehrnsten 2019: 144; 294; Sarvas 1969; 1971; Översti et al. 2019). A late burial could also be the one including a hexagonal coffin (grave 7/1936), in which the individual was placed unusually: head towards the narrow end. Although hexagonal coffins first appeared in the Middle Ages, they became more common in the Early Modern period (Mytum 2017: 162). Leppäaho claims that Tyyni Vahter has identified remains of “lace” on a brooch found from grave 3(area II)/1935 (Hirviluoto 1984: 376; Leppäaho 1937). This could be a misinterpretation, as lace would date the burial to the 16th century at the earliest (Sonnenschein 2020). The late usage of rural cemeteries is not entirely unusual since evidence from Espoo indicates that village cemeteries could have been used throughout the Medieval Period (Haggrén & Rosendahl 2016: 81–82; Salonen 2016). However, the possibility of Early Modern burials at the site is an interesting question since the use of village cemeteries should not extend until this time. According to Leppäaho (1937) and Salmo (1937), oral tradition locates a historical place of punishment at Kirkkailanmäki. Leppäaho found a large posthole during his excavation, and he interpreted it as the remains of a pillory (gallows in Salmo’s report). The possible connection with the adult prone burial (grave 21 (area II)/ 1935) is interesting, although the grave was not located close to the posthole (c. 10 meters from it). The habit of burying executed criminals and their remains on the execution sites is known from Early Modern England (Tarlow 2017; Tarlow & Battell Lowman 2018), Medieval Sweden (Karlsson 2009; Hansson 2012), and Medieval and Early Modern Estonia (Malve et al. 2012: 207–211; Malve et al. 2013: 198–199). According to legal documents and church records, the treatment of criminal corpses varied in Medieval and Early Modern Finland. These individuals could have been buried in both common cemeteries, execution sites, and remote locations in forests and marshes (Moilanen et al. 2018, PAPERS II, V). In Early Modern Sweden and Western Europe, criminal corpses were occasionally buried in Pre-Christian cemeteries and abandoned burial places (Coolen 2013: 773). In theory, this could have occasionally been possible also in Finland, although there is currently no conclusive evidence for it.

In grave 1 (area I)/1935 at Kirkkailanmäki, c. 2-year-old child was buried in a tree-trunk coffin (PAPER III). Leppäaho interpreted the position as prone, but the burial may have also been supine extended, especially if the patellae have been documented correctly (Fig. 14). If the burial was initially supine, the head could have

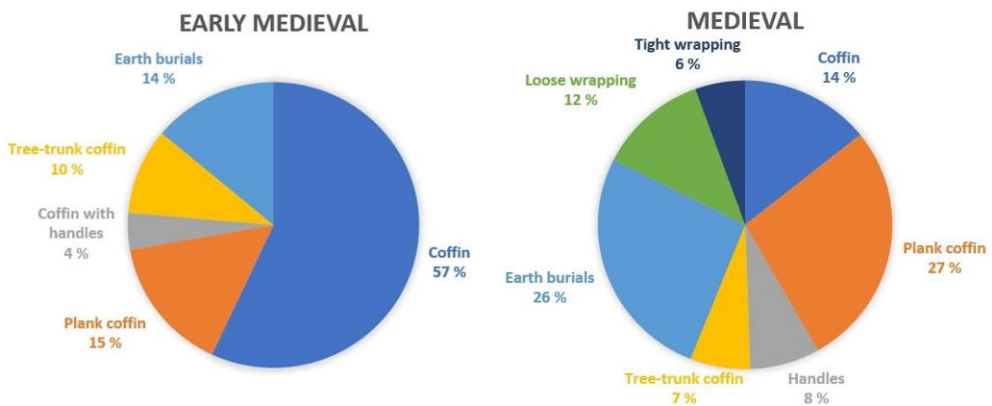
rested against the side of the coffin. When the ligaments decayed, the cranium could have rolled upside down. This would mean that there was a lid on the coffin, creating an open space inside. However, if there had been a rounded bottom in the coffin, the femurs would have rotated and moved closer to each other and dropped the patellae from their places (c.f. Duday 2009; Harris & Tayles 2012). If the skeleton has been drawn accurately, the femurs do not seem to be tightly constricted. There is, however, a possibility that the drawing is not entirely accurate and that the patellae were reconstructed in the drawing (c.f. Williams 2015). It is also possible that the tree-trunk coffin had a flat bottom inside and that the head rested on a pillow, which could have resulted in the observed situation. The child burial could have been supine, but because the documentation is undetailed, a prone position cannot be excluded entirely. In papers II and III, I have discussed the possibility that the grave could have had something to do with a period of elevated mortality. This is based on ethnographic accounts from Karelia, which state that a child should be buried face down to stop constant deaths (Paulaharju 1924: 143). According to Leppäaho (1937), the child's grave is surrounded by double burials, which could, in theory, support the interpretation since their numbers increase in times of epidemics (Castex et al. 2014; Chamberlain 2006). If this had been the case, the burial could have been a ritual aiming to take control of a challenging and stressful situation. However, as pointed out, another interpretation on the burial position is also possible.



**Figure 14.** Grave 1 (area I)/1935 at Hollola Kirkkailanmäki belonged to a child, who – according to Leppäaho (1937) – was buried face down. If the patellae have been documented correctly, their position could indicate that the burial was made in a supine position. The coffin's outer shape was curved, but since the lower limbs are not tightly together, the inner bottom of the coffin was likely even. Drawing: Ulla Moilanen after Jorma Leppäaho.

#### 4.1.1.4 Positions as indicators of containers and wrappings

The presence of coffins and other burial structures may be indicated by preserved wood remains, darker contours of the coffins, and coffin nails, although most of the Early Medieval and Medieval plank coffins were likely made by using wooden pegs instead of iron nails (Harjula & Moilanen 2018: 154; Jäkärä 1998: 3; Salonen 2016: 22). Also, the positions of skeletons may indicate the presence of containers or wrappings (Chapter 2.2). However, containers are indeterminable in 56% of all graves in the study area because of poor preservation or inadequate documentation by modern standards.<sup>22</sup> For the rest of the graves, the different types of containers and wrappings are presented in Fig. 15.



**Figure 15.** Containers and treatment of corpses in graves. The “Medieval” chart also includes the few Late Medieval graves found from Hollola Kirkkailanmäki and Hämeenkoski Pyhän Laurin kirkon raunio, because in many cases, the exact dates cannot be obtained. In both charts, the section for “coffin” means wooden containers in general, and as types have been impossible to determine, this section likely includes different kinds of wooden structures. The fact that plank coffins seem to have been more common in Medieval burials may result from better preservation in general. However, coffins were more common than earth burials in both the Early Medieval and Medieval Period, but earth burials seem to have become more common during the Middle Ages. They do not, however, seem to replace the coffin burials completely. Evidence of tight wrapping is only found from Medieval burials.

According to the present study, burials in coffins were in general more common than earth graves during both Early Medieval and Medieval periods. However, earth

<sup>22</sup> Purhonen (1998: 120) has considered all the burials in which containers cannot be determined as coffinless – an approach that can be criticized (for general criticism see Hiekkanen 2001a; 2001b). The evidence for the presence or the lack of a container requires detailed documentation, which is not available for most of the graves in the study area, and preferably also analyses of burial positions.

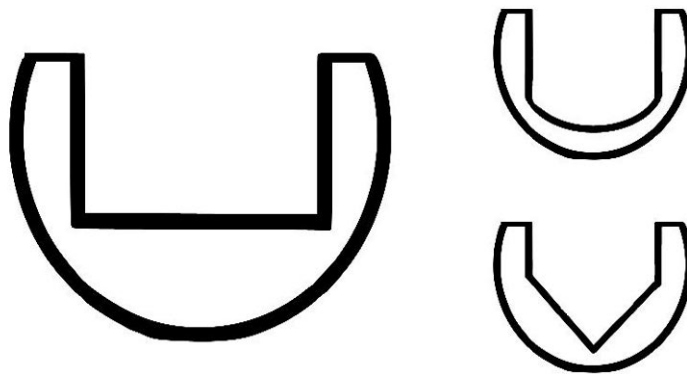
graves seem to have become more common during the Middle Ages. Most of the burial containers were rectangular, and they have likely been made of planks. Although plank coffins would seem to have been more common in the Medieval Period (Fig. 15), their higher number in these burials could be explained by their younger age and, therefore, better preservation. Trapezoid coffins narrowing towards the foot end have mostly been found from Medieval and Late Medieval sites, namely Hollola Kirkkailanmäki and Hämeenkoski Pyhän Laurin kirkon raunio, but also from Hämeenlinna Kalomäki. In Sweden, trapezoid coffins have been found from Early Medieval sites (Gräslund 1980: 19–20). Similar dates have been given to burials containing trapezoid coffins at Lieto Ristinpelto, Southwestern Finland (Cleve 1952: 167). The coffin shapes cannot, however, be used as an accurate dating method of the burials, as the trapezoid coffins have been used in Scandinavia and Europe throughout the Middle Ages until the Early Modern Period (Cinthio 1980: 115; O'Donnell 2015: 35; Veeckman 1997: 70). One grave (7/1936) at Hollola Kirkkailanmäki contained a hexagonal coffin, possibly indicating the late date of some graves at the site (c.f. Mytum 2017: 162). The wood used in the coffins has not been analysed from the study area, but in Southwestern and Northern Finland, coniferous trees, especially pine, have commonly been used as a coffin material throughout the Medieval Period (Jäkärä 1997; Lempiäinen-Avci 2018: 155; Vasko 2015: 41).

One specific container is a coffin with handles at the corners (Fig. 23). These structures have also been called funerary biers (Hirviluoto 1984; 1985; Vasko 2015: 41), as the handles indicate that two individuals carried them. If these structures were flat biers, they would have been placed at the bottom of the grave pit, and the corpse would have been surrounded by soil instead of open space. The bones have been poorly preserved in all the graves containing these structures. Therefore, it is impossible to analyse whether the bodies decomposed in an open or a filled space. As there is currently no definite answer to what these structures were like, they are called coffins in this dissertation. These structures seem to have been more common in Medieval burials. They have been found from Hollola Kirkkailanmäki, Hämeenlinna Kalomäki, Janakkala Tupala, Pälkäne Rauniokirkko, and Pälkäne Ristiänmäki. Two graves with these structures have been <sup>14</sup>C dated. The two <sup>14</sup>C dating results obtained from grave 1/1978 at Hollola Kirkkailanmäki are different and suggest dating to either the late 13th century (Taavitsainen 1990: 84) or early 12th century (Översti et al. 2019). Grave 1/2013 at Janakkala Tupala has been <sup>14</sup>C dated to the 14th century (Vanhatalo 2016: 95, 99). At Pälkäne Ristiänmäki, the individual buried in a coffin with handles was a c. 5–14-year-old child. The other individuals have been adults, and as often males as females.

The remains of tree-trunk coffins have been found from Hollola Kirkkailanmäki, Nokia Hakamäki, Tampere Vilusenharju, Kuhmoinen Linden, and Valkeakoski



Toppolanmäki. These coffins have often been identified from the preserved wood remains, wood bark and the curved exterior shape. In five cases (one from Kirkkailanmäki and Hakamäki, four from Vilusenharju), the shape of the coffins' inner structures has not been possible to determine. In four cases (three from Kirkkailanmäki and one from Linden), the floors of the tree-trunk coffins have been carved flat (Fig. 16). In these burials, the positions of corpses are similar to those buried in plank coffins. If decomposition happens in a coffin with a rounded or a v-shaped floor, the femurs rotate and move closer to each other and drop the patellae from their places (Duday 2009; Harris & Tayles 2012). Very tight adduction can be observed in three cases (two from Kirkkailanmäki and one from Toppolanmäki) in the study material, indicating that these individuals were buried in tree-trunk coffins with rounded or v-shaped floors.



**Figure 16.** Sketches illustrating the shape of the inner floor of the tree-trunk coffins. The drawings exaggerate the thickness of the walls, as their only purpose is to show the differences in the shapes. The flat-floored tree-trunk coffins (on the left) have been the most common, but at least three individuals have been buried in a tree-trunk coffin with a rounded or a v-shaped floor (on the right). Drawing: Ulla Moilanen.

Tree-trunk coffins may have been used more often during the Early Medieval Period, and the coffins with handles have possibly become more common in the Medieval Period. In the early 20th century, tree-trunk coffins were associated with women (Pälsi 1938: 31), but later research noticed that also men and children have been buried in them (Asplund & Riikonen 2007: 24; Purhonen 1998: 121). According to this study, there are no observable differences in ages and sexes buried in different kinds of containers (or without them), since males and females and adults and children have been buried in different kinds of containers equally often.

The most significant difference between the Early Medieval and Medieval graves is the use of wrappings, especially tight wrappings, which were identified only from Medieval (and possibly Late Medieval) burials (Appendix 1). None of the

Early Medieval burials included tightly constricted skeletons, which would indicate tight wrapping. However, not all Medieval or Late Medieval individuals were buried in shrouds. For example, graves 3/1999 and 10–11/1999 at Hämeenkoski Pyhän Laurin kirkon raunio were <sup>14</sup>C dated to the 16th century (Hiekkänen 2005). Based on the burial positions, all these individuals have been buried without a coffin, and none of them have been wrapped tightly (Fig. 17, Appendix 1). Also, loose wrappings were identified only from Medieval burials. However, most of the Early Medieval burials have not been preserved or documented well enough to distinguish loose wrappings from the presence of wide containers or rigid wrapping materials, such as birch bark (see Chapter 2.2).

Birch bark has been identified from twelve graves, from Hollola Kirkkailanmäki, Hollola Santahaudanmäki, Nokia Hakamäki, Pälkäne Ristiänmäki, Sastamala Kaukola, Tampere Vilusenharju, Valkeakoski Toppolanmäki, and Ylöjärvi Mikkola. Birch bark has been used in graves in the Iron Age and Early Medieval Fennoscandia, and again in Northern Fennoscandia in the Early Modern Period (Cleve 1978: 82; Gräslund 1980; Laakso & Belskiy 2018: 280–281; Lehtosalo-Hilander 1982a: 35; Lempiäinen-Avci et al. 2017; Schvindt 1893; Tranberg 2018: 42–43, 58). At least eight graves in the study area contained birch bark inside a coffin. This could indicate that birch bark was used as loose wrappings in earth burials and as padding material in coffins, or possibly as a cover or a lid for a coffin (c.f. Riikonen 1990: 28–29; Laakso & Belskiy 2018: 280). If the corpse were buried without a coffin but wrapped in birch bark, the rigid bark would create an open space around the corpse. In this environment, the skeleton will likely end up resembling a coffin burial rather than burial in a tight wrapping. Two graves containing birch bark have been <sup>14</sup>C dated. Grave 20/1979 at Hollola Kirkkailanmäki dates to the 13th century (Översti et al. 2019), and grave 1/1985 at Hollola Santahaudanmäki to the late 12th or early 13th century (Appendix 1). At Pälkäne Ristiänmäki, birch bark had been placed on a corpse buried in a coffin with handles at the corners.

The identification of wrappings and the manner of wrapping is an important detail since textile fragments preserved on top of bronze jewellery have often been interpreted as evidence of wrapping the body or even as the presence of shrouds (Riikonen 1990:107; Laakso & Belskiy 2018: 281). Also, animal hairs found from graves may have been interpreted as a sign of wrapping the corpse in pelts (Kirkinen 2015; 2019). The graves 1/1972 and 2/1972 at Ylöjärvi Mikkola contained remains of animal hair (Kirkinen 2015: 120), which could be interpreted as the remains of wrapping material. However, neither of these burials are constricted, which means that the individuals had not been wrapped tightly. It is possible that furs were used as linings or even as beddings in the grave pits since no evidence of coffins were found (Appendix 1; Lehtosalo-Hilander 1972). Placing the individual on a soft and warm surface when burying without a coffin may have been common, as indicated

by feather fragments (c.f. Berglund & Rosvold 2021; Kirkinen et al. 2020) from grave 1/1968 at Hattula Vesitorinmäki (PAPER IV) and Hollola Santahaudanmäki grave 1/1985, and the moss remains, which have been found from several graves around Finland (Jäkärä 1998: 5; Lempiäinen 2009: 129–130; Lempiäinen-Avci et al. 2017; Tranberg 2018: 43). The latter also includes grave 3/1937 at Valkeakoski Toppolanmäki (Appendix 1).

#### 4.1.2 Double and multiple burials

Double and multiple burials have been found from at least ten<sup>23</sup> of the studied 42 sites (Table 2), but it is likely that they were even more common since c. 20 of the 42 sites consist of only individual graves which have often been partially or fully destroyed before archaeological excavations (Appendix 1). Most of the multiple graves are double graves or graves with three individuals in them. There may be more than one multiple burial per site.

The poor preservation of bones at most sites complicates and often prevents the identification of multiple burials. The identification of double and multiple burials requires a meticulous study on the grave context and the analysis of the relationship between the individuals in them (Fig. 17; Duday 2009; Schmitt & Déderix 2018). This, in turn, requires good photographs and drawings, and detailed descriptions of the grave, its content and the extent of the grave pit. Because these details have not always been documented, double and multiple burials may be difficult to identify from older archived materials. It has been suggested that the depth of the grave pit can also be an indicator of multiple burials, as deeper graves could have been dug to accommodate more than one individual (Duday 2009: 69). The Finnish cases do not support this, as the depths of the double and multiple burials do not generally differ from the single burials (Appendix 1). It is crucial to reanalyse the old excavation materials because some of the initial interpretations may have been the result of a vivid imagination. This is, for example, the case with grave 3 (area II)/1935 at Hollola Kirkkailanmäki, which Leppäaho (1937) considered a superimposed double burial of a female and a male in a “coital position”. The grave was poorly preserved, and the documentation shows only bones from lower limbs on top of another burial (Fig. 18).

If detailed documentation is not available, it may be difficult to distinguish double burials from closely dug individual graves and from graves that have been

<sup>23</sup> Hattula Ruskeenkärki, Hollola Kirkkailanmäki, Hämeenkoski Pyhän Laurin kirkon raunio, Hollola Santahaudanmäki, Janakkala Makasiininmäki, Pälkäne Ristiänmäki, Valkeakoski Kiiliä, Valkeakoski Toppolanmäki, Vesilahti Rukoushuone, Ylöjärvi Mikkola.

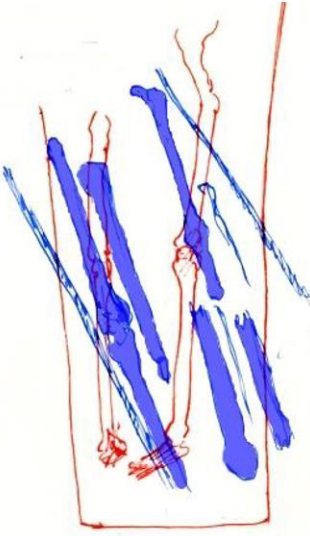
dug at the same location separately at different times (c.f. Duday 2009: 26, 73–76). In some cases, for example grave 1/1985 at Hollola Santahaudanmäki (Appendix 1), the grave has not initially been documented in detail. However, the overall context may suggest that the bones were found together and originate from the same grave (c.f. Moilanen 2017). If the site has been used only for a short time and there is no evidence of graves overlapping each other at the site, it is possible that the bones originate from the same burial and not from older, disturbed burials. However, a thorough analysis of the burial and the site is required to understand the context.

**Table 2.** The sites and types of double and multiple burials. At Hollola Kirkkailanmäki, there are several double and multiple burials, but some of them are difficult to confirm due to undetailed documentation in the early 20th century. The presumed double burials of adults at Tampere Vilusenharju (Nallinmaa-Luoto 1978) are hard to confirm due to the poor preservation of organic materials at the site. The multiple burials of adults at Kirkkailanmäki, Ristiänmäki and Toppolanmäki (two graves) have contained both men and women. Males have been buried together at Hämeenkoski Pyhän Laurin kirkon raunio and Ylöjärvi Mikkola. All the listed multiple burials of adults and children have been only identified when bones from presumed single graves have been analysed. In two cases, Ruskeenkärki and Rukoushuone, the adults buried with children have been female. The sex of the other adults buried with children is unknown. From Tampere Vilusenharju, Salo (2021a) has identified bones of a mature adult from grave 24/1962. According to an earlier analysis, the finds also include teeth of a child under 12 years of age (Lahtiperä 1978: 4).

Site	Adults + Adults	Adults + Children	Children + Children
Hattula Ruskeenkärki		X (Female + child)	
Hollola Kirkkailanmäki	X	X (At least two graves)	X
Hollola Hämeenkoski Pyhän Laurin kirkon raunio	X		
Hollola Santahaudanmäki	X		
Janakkala Makasiininmäki		X	
Pälkäne Ristiänmäki	X		
Tampere Vilusenharju	X	X	
Valkeakoski Kiiliä		X	
Valkeakoski Toppolanmäki	X		
Vesilahti Rukoushuone		X (Female + child)	
Ylöjärvi Mikkola	X		



**Figure 17.** Graves 10–11/1999 at Hämeenkoski Pyhän Laurin kirkon raunio. The grave has been dated to the 16th century, and both individuals have been osteologically determined as males (Hiekkänen 2005; Lompolo 2000). The radiiuses and the ulnae are overlapping, and based on their position, the individual on the right has been placed in the ground first. The hand bones between the individuals seem articulated. Because these bones lose their articulations quickly (Duday 2009: 76), it can be concluded that the individuals were interred simultaneously. The decomposition happened in a filled space, i.e. the burial was made without a coffin. This is indicated by the articulated finger bones and the left individual's pelvis and rib cage, which have not been flattened (c.f. Harris & Tayles 2012). The individual on the right has, however, a flattened rib cage and a partially flattened pelvis. Also, the clavicles have moved into a vertical position. The upper body of this individual was likely covered with rigid material – possibly thick fabric or leather – that created a void around the torso (c.f. Duday 2009; Harris & Tayles 2012). There are no constrictions, which means that the individuals have not been wrapped. It is possible that the men were buried in their clothes. Photo: Virva Lompolo.



**Figure 18.** According to Leppäaho (1937), grave 3 (area II)/1935 at Hollola Kirkkailanmäki was a superimposed burial of a female and a male, who had been placed in a “coital” position (the blue bones) above a single grave (the red line). The documentation is sketchy, and only one of the blue limbs seems to have been articulated, while the lower individual was preserved well (this individual appears in Appendix 1, photo 27). Drawing: Jorma Leppäaho, additions Ulla Moilanen.

Jorma Leppäaho excavated grave 2/1936 at Valkeakoski Toppolanmäki in 1936, and I reopened the grave in 2018 after a suspicion that the bones had been left in the ground. Leppäaho (1938) had noted that the burial was made in a rectangular coffin, in which a sharp iron artefact resembling a sword tang was struck through the lid. According to Leppäaho, the grave included four individuals placed on top of each other, even though he found only three skulls. The grave located close to a sand pit, and Leppäaho suggested that one of the skulls might have “rolled into the pit”. The heads of the buried individuals had been placed in opposite directions. The bones seemed to be very tightly together, leading Leppäaho to think that the individuals had been tied together. For this reason, the grave has since been referred to as a “bunch grave” in the literature and considered a peculiar case (e.g., Purhonen 1998: 165; Veneskoski 2008; Wessman 2010: 101–102).

During the excavation in 2018, it turned out that Leppäaho had commingled the bones, likely when searching for artefacts that were never found. The bones had been piled in the middle of the grave. Although it was not possible to re-analyse the positions of the skeletons in situ, it was possible to carry out an osteological analysis. According to it, the bones belonged to only three individuals (Salo 2019h). Because only one photograph was taken from the grave in 1936, analysis of the grave's original context had to rely on it.

My initial interpretation presented in paper I relied too heavily on Leppäaho's description of the grave, and my analysis of the photograph was insufficient and turned out to be incorrect. For a new analysis, the photograph taken by Leppäaho was enlarged, and the anatomical articulations and the relationships of bones were marked on it (Fig. 19). For comparison, another photo was taken of living individuals

who were placed in an almost similar position to make sense of the depth and spatial relationships of the arrangement and to see the effect of perspective distortion in the original photograph.

With these methods, the grave started to make sense. The tallest individual had possibly been placed at the bottom of the coffin, in a supine extended position. Only the skull and the lower limbs of the individual are visible in the photograph because they are under the other individuals. The head was slightly rotated to the left, and the jaw was wide open. The lower limbs were wide apart from each other, but the knee joints were possibly still articulated, indicating a simultaneous burial with the other individuals.

The next individual had been placed in the coffin with their head in the opposite direction. The head and the torso were partly between the lower limbs of the first individual. The lower limbs of the second individual were lying on the right side of the chest of the first individual. The lower limbs of the first individual may have been pushed slightly to the sides during the decomposing of the second individual in between them. However, the coffin walls have prevented extensive movement to the sides, and possibly at this time, the limbs had been pushed slightly downwards to the open space in the coffin.

The third individual had been placed in the coffin head next to the first individual. The upper body was lying on the right side so that the front side was turned towards the first individual. The back of the individual had been lying against the wall of the coffin. The proximal femur had possibly maintained the anatomical position, but bones of the lower limbs lying over the second individual's ribcage were slightly displaced. Because the individuals had been decomposing in a void created by the coffin, the bones of the upper individuals had fallen into the spaces left by the decaying soft tissues of the individuals beneath (Duday 2009: 100). This explains Leppäaho's notion of the individuals being tightly together in the grave, and the misinterpretation of them being tied together.



**Figure 19.** The multiple burial 2/1936 at Valkeakoski Toppolanmäki. The original photograph was enlarged, and the relationships between bones were examined in detail. Photograph: Jorma Leppäaho/FHA. Illustrated reconstruction is based on my analysis in which the perspective distortion of the photograph is taken into account. Drawing: Veronika Paschenko.

There has likely been a biased view towards single graves in the traditional research history since most of the bones have not been collected and cannot be analysed. This is especially the case with multiple burials of children and adults. The Early Medieval burials of children have been considered rare in Finland. The identification of children has usually concentrated on small objects, or the size of the grave pit or the coffin (Purhonen 1998; Söyrinki-Harmo 1992a; 1992b; Ylönen 1999). Inadequate research on the actual find contexts has even led to misinterpretations. Purhonen (1998: 154; 258) considered some of the features at Valkeakoski Toppolanmäki as three child burials and used the interpretation to discuss the roles



of women and children in Early Medieval Finnish societies. The interpretation of children's graves at Toppolanmäki is based only on dark, irregularly shaped colourings of soil encountered in the excavation of 1951. These features were visible immediately after the removal of topsoil, and they disappeared completely at the depth of three centimetres (Erä-Esko 1952).<sup>24</sup> It is unlikely that these features could have been the remains of corpses – even those of children. Although there is no evidence of children's burials at Toppolanmäki<sup>25</sup>, the possibility for children to have been buried with adults cannot be excluded completely (c.f. Korpi & Kallio-Seppä 2011: 58–59). Some of the graves at the site have been destroyed before archaeological excavations, and most of the bones have not been preserved or collected for the archaeological collections.

In general, children decompose more rapidly than adults because of their smaller body mass and lower bone mineral content (e.g., Boddington 1987: 31; Halcrow & Tayles 2011: 345). Therefore, children may be underrepresented in areas with acidic soils (Gordon & Buikstra 1981: 581). In addition to preservation, the lack of children's graves in Early Medieval Finland may be explained by theoretical and methodological shortcomings. The possibility of a double burial may not even have been considered during the excavation, meaning that the excavators were not prepared to find smaller bones. The rough excavation methods used in the early decades of the 20th century (Appendix 1, Fig. 27) may have caused damage to small bones. Small bones may also have been missed because the excavators had no osteological or anatomical training. Children's bones could even have been misinterpreted as animal bones (Ylönen 1999: 18). In recent osteological analyses, bones from both adults and children have been identified from six graves previously considered single internments (Salo 2011; 2019a; 2019b; 2019d; 2019g; 2019i). The newly found double/multiple burials of adults and children are located at Hattula Ruskeenkärki, Janakkala Makasiininmäki (two adults and a child), Valkeakoski Kiiliä, Vesilahti Rukoushuone, and two graves at Hollola Kirkkailanmäki. Based on Salo's analyses, none of the children has been an infant, but instead c. 5–10+ years

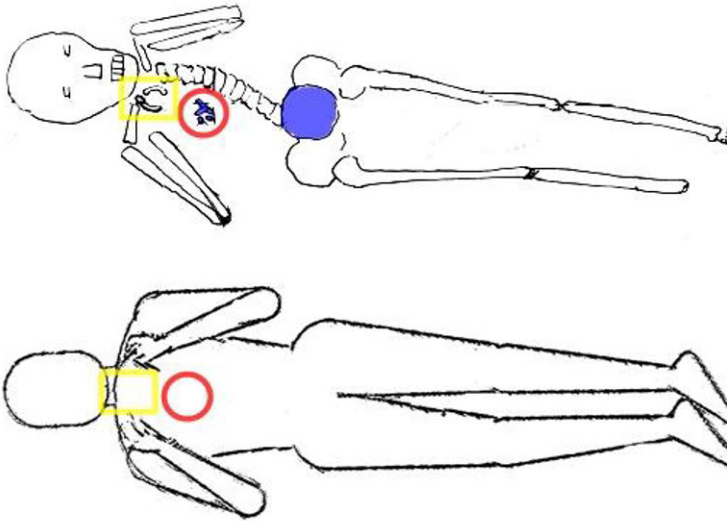
<sup>24</sup> At Hämeenkoski Pyhän Laurin kirkon raunio, some of the presumed burials of infants consisted of very shallow grave cuts. However, these had a clear form, and they were encountered much deeper than the features at Toppolanmäki. At Hämeenkoski, consecutive burials have been made for centuries, and older burials have been destroyed in the process. The same does not apply to Toppolanmäki, where there are no signs of disturbance to the graves.

<sup>25</sup> Evidence of possibly non-burial related activities (a hearth) was found at Toppolanmäki in 1936 by Leppäaho, and secondary activities have also been conducted at several other cemeteries, for example, Ylöjärvi Mikkola and Hollola Kirkkailanmäki. With a detailed evaluation of the evidence, the chronology and nature of these activities could be explored further.

old. The  $^{14}\text{C}$  and coin dates of these graves range from the Viking Age to the 14th century AD (Appendix 1).

It may also be possible to identify double burials of adults and children by contextualization, providing there are enough supporting finds. At Hollola Kirkkailanmäki, grave 4/1936 contained a moderately well-preserved skeleton with arms tightly flexed at the elbows. Based on the arm position, the hands have been somewhere near the shoulders. According to Salmo (1937), very small bones were found at the chest and near the chin of the adult skeleton. If the individual was buried in a coffin, the finger bones could have fallen within the rib cage (Duday 2009). In this case, no evidence of a coffin was observed. Therefore, the finger bones should not have been located in a wide area reasonably far from the distal end of the ulna and the radius. The grave illustration (Salmo 1937) includes a remark “tiny bones”, suggesting that the excavators may have considered them different from the finger bones they encountered in the other graves. The bones have not been stored, and osteological analysis cannot be carried out, but it could be possible that the bones belonged to an infant. The tightly flexed arms of the adult, with the hands near the small bones, could indicate a holding position (Fig. 20). This kind of placement of infants and adults is typical in Anglo-Saxon burials, in which the arrangement possibly displays physical intimacy between the individuals (Mui 2018: 167–168).

There is a similar case from Southwest Finland, at Yläne Anivehmaanmäki cemetery. The Viking Age grave at the site is, based on the stratigraphic relationship of the finds, a double burial of an adult and an infant. The preservation of bones at the site is extremely poor, and they – along with the textile fragments – have been preserved only as fragments in contact with bronze objects. The grave has a large grave pit, enough to accommodate an adult individual – and based on the dark soil coloured by the decomposition fluids, it belonged to an adult. The burial had been made without a coffin, which means that soil slowly replaced the decaying tissues. The movement of the artefacts had not been extensive, so based on their locations, some assumptions on their original places can be made. The artefacts in the grave are considered typically female (c.f. Lehtosalo-Hilander 2000a). Near the head-end of the grave, 28 glass beads were found (Hirviluoto 1958). They had likely been hanging on the neck of the adult individual. A little further below them, two spiral bracelets (NM 14196: 17 and :21) were found. The location is approximately at the chest of the adult individual, but both bracelets are small. Their diameter is only 39 mm, making them too small for an adult to wear (Fig. 21). The bracelets were found close to each other, almost in a vertical position. Remains of a thick woollen textile were preserved on top of the bracelets, and the textile was covered with birch bark. When the excavation continued, an animal pendant was found a little further from the bracelets (Hirviluoto 1958).



**Figure 20.** The grave 4/1936 at Hollola Kirkkailanmäki. Small bones were separately marked at the chest of the individual (red circle in the upper picture). If these were infant's bones, they could have been mixed with the adult's hand bones (yellow circle in the upper picture). The lower picture shows where the infant would have been located. The grave can be dated to the 14th century based on a bracteate (AD 1360–1363) (Ehrnsten 2019: 144; 294) found between the femurs of the adult skeleton. Drawings: Jorma Leppäaho & Ulla Moilanen.



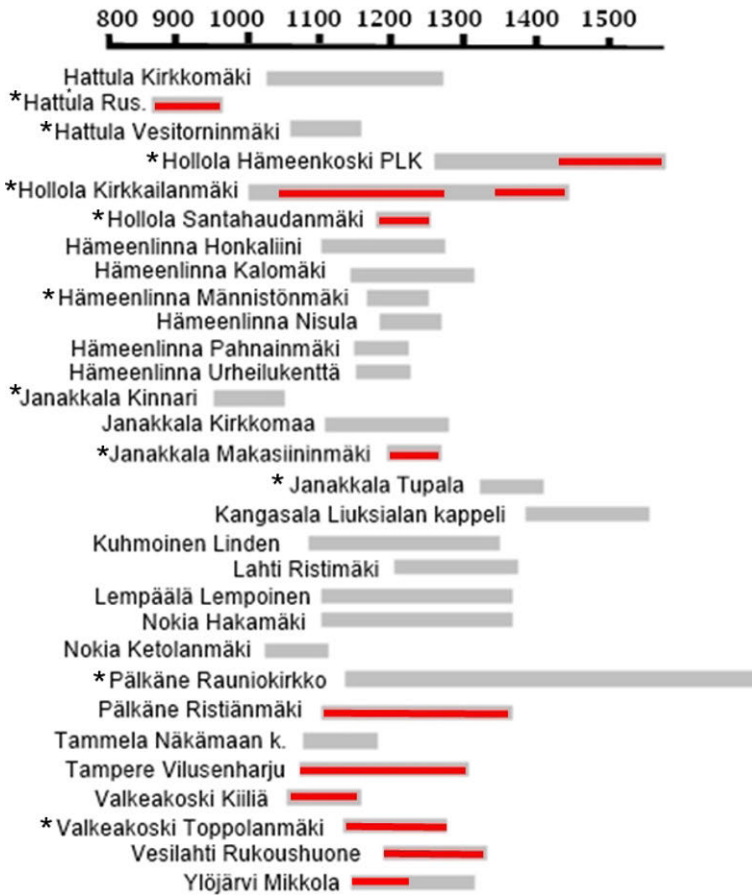
**Figure 21.** The small bracelets from Anivehmaanmäki grave XLVII. Arm bones of an infant were found inside the bracelets. The naturally flexed arm position of a newborn could explain the vertical position of the bracelets when found. Photo: Ulla Moilanen.

Based on the organic remains and the artefacts, it seems likely that the textile on the lower side of the animal pendant originates from the clothes the adult individual was wearing. There has possibly been an infant equipped with small bracelets at the chest of the individual. The fabric on top of the animal pendant and the small bracelets would originate from the woollen cloth in which the infant was wrapped in. In the end, both corpses were covered with birch bark before filling the grave. This would explain the find locations of textile and birch bark. Birch bark was on top of the fabric covering the child, but not on the jewellery covered by the child.

This analysis based on the objects and the organic remains is supported by the only bone fragments found from the grave. They are poorly preserved remains inside the small spiral bracelets described above and a finger ring found at the mid-section of the grave. The bones inside the bracelets are arm bones, and they indeed belong to an infant (Kati Salo, pers. comm. 27.10.2020 at the FHA). The almost vertical position of the bracelets could be explained by the position of a newborn infant's arms: they are naturally flexed and bent at the elbows (Fig. 21).

In two cases, Ruskeenkärki and Rukoushuone, the adults buried with children have been determined as female (Table 2). There are no sex determinations on the other adults buried with children, so it is unknown whether children were placed in graves with women more often than with males.

Although double and multiple burials have been made in all periods from the Late Iron Age (Hattula Ruskeenkärki) to the 16th century (Hämeenkoski Pyhän Laurin kirkon raunio), and there may have been numerous different motives behind them (e.g., Hadley 2001: 118; Murphy & Donnelly 2018), it seems that their number increased around AD 1200 (Fig. 22). The increasing number of double and multiple burials has often been linked with mortality crises such as famines, war, and epidemics (e.g., Castex et al. 2014; Morrone et al. 2021). According to Morrone et al. (2021), a similar increase in multiple burials can be observed in the Baltic countries starting from the 13th century. They consider it possible that the increased numbers result from epidemic outbreaks mentioned in the Chronicles of Henry of Livonia (1180–1227), famines, and political instability of the era (Morrone et al. 2021). The period around AD 1200 is characterized by the end of the Medieval Warm Period, which was generally a favourable period for agriculture and population growth in Southern Finland (Helama et al. 2009a). There was, however, a short period of colder winters and summers between AD 1110–1150, followed by poor harvests (Helama et al., 2009b; Huhtamaa & Helama 2017). This could have caused a (local) crisis.



**Figure 22.** The dates of all sites and the approximate dates of double burials within the sites marked with red lines. The red lines are longer in cases where an accurate dating is not available (Pälkäne Ristiänmäki, Tampere Vilusenharju and Hollola Kirkkailanmäki). Although double and multiple burials have been made in all periods from the Late Iron Age (Hattula Ruskeenkärki) to the 16th century (Hämeenkoski Pyhän Laurin kirkon raunio), it seems that their number increases around AD 1200.

There is also a possibility that at least some of the multiple burials result from violence. There were likely hostilities between Karelians and the inhabitants of Häme at the time, and pressure from Sweden escalating into a military expedition around AD 1250 (Taavitsainen 1990: 164–165; Olesen 2016: 260–261; Uino 1997: 88, 19). The poorly preserved bone finds from the era rarely show trauma, except for a possible unhealed fracture observed in the back of the skull found from a double grave (1/1985) at Hollola Santahaudanmäki (Salo 2019c: 8). The median date for the find is AD 1195. It should also be noted that not all violent actions leave traces on the bones, and it is hard to prove whether traumas resulted from an interregional

skirmish, interpersonal violence within the community, or an accident. Battle damage has, however, been observed on contemporaneous sword finds from the region, serving as indirect evidence of violence (Moilanen 2010; Moilanen & Moilanen 2020). There is also a find from Hollola Kirkkailanmäki contributing to the topic. Salmo (1937) considered grave 56/1936 a mass grave of at least three individuals, of which one had an arrowhead plunged deep into the skull behind the ear. According to the sketchy illustration from the excavation, the skeletons are partially commingled, and no anatomical connections can be observed. Therefore, the original context and the dating of the grave is unknown. The exact locations of graves from the excavation of 1936 at Kirkkailanmäki were not documented, and therefore it is unknown if grave 58/1936 with three children was contemporaneous to grave 56/1936. If the bones from all these graves had been collected and catalogued, it could be possible to date and analyse the bones and study the possible relationship between the graves. In the best case, they could tell about the nature and practice of violence in Early Medieval and Medieval Finland.

The third possible motive for multiple burials is an epidemic illness (Castex et al. 2014, Chamberlain 2006; Seger 1982). This may be supported by the demographic profile of the multiple burials from around AD 1200 – although the number of burials may be too small for a convincing argumentation. The burials contain both men and women as well as adults and children. For example, grave 1/1948 at Janakkala Makasiininmäki contained two adults and a five-year-old child (Salo 2019d), grave 3/1935 at Valkeakoski Kiiliä an adult and a juvenile, and grave 2/1936 at Valkeakoski Toppolanmäki two adult women and an adult male. These examples indicate that the cause of mortality affected all age groups.

As mentioned earlier, the osteological analyses from Estonia and Medieval chronicles suggest a period of consecutive epidemics around the Baltic Sea in the 13th century (Morrone et al. 2021). Kati Salo's (2021b) osteological analysis on a contemporaneous Ylöjärvi Mikkola cemetery also points out that several individuals have signs of infections in the bones. In recent molecular studies, bacteria *Salmonella enterica* Paratyphi C was identified from a Norwegian grave dating to c. AD 1200 (Zhou et al. 2018). The bacteria often causes fatal paratyphoid fever, which has been known to cause epidemics throughout the centuries and also in Early Modern Finland (Vuorinen 2006). It is unknown which pathogens could have been present in Early Medieval Finland, but the increase in population size at the end of the Medieval Warm Period could have created a favourable environment for the spread of contagious diseases. Therefore, it will be interesting to sample the bone finds from the era for ancient pathogens and examine the possibility of contagious diseases in detail.

### 4.1.3 Cremated bones in inhumations and unburnt bones in cremations

Late Iron Age and Early Medieval inhumation graves in Häme occasionally contain cremated human bones and typologically older artefacts than the grave itself (e.g., Wessman 2010: 98–103, 114). Since some of the inhumation graves are located in cremation cemeteries<sup>26</sup>, the usual interpretation is that the cremated objects and bones were encountered when digging the grave (e.g., Keskitalo 1950; Sarasmo 1967). However, some objects and cremated bones have been found from inhumation graves that do not show evidence of having been located in an older cremation cemetery (e.g., Riikonen 2005).

The most well-known examples of cremated bones in inhumation burials in the study area are from Hollola Kirkkailanmäki and Valkeakoski Toppolanmäki. At Kirkkailanmäki, cremated bones were placed in the vicinity or even on top of the corpses in bags or containers (Leppäaho 1937; Puolakka 2020; Purhonen 1998; Salmo 1937). At Toppolanmäki, the cremated bones were placed by the head of a corpse in a wooden cup (Leppäaho 1938). In addition to these two sites, cremated human bones have also been found from Pälkäne Rauniokirkko (Vuoristo 2010: 46) and Janakkala Tupala grave 1/2013 (Vanhatalo 2016). In grave 7/1983 at Pälkäne Ristiänmäki, a charred human femur had been placed directly on the skull of the buried individual (Bergström 1986). None of these graves has evidence that they would have been dug in an older cremation cemetery. Cremated bones and objects were also found from the grave fills at Ylöjärvi Mikkola in 1959 (Salmo 1959). Since similar finds were not encountered at areas between the graves, it seems that they were placed in the graves deliberately, possibly during the infilling. Later, a cremation cemetery was found c. 50 meters north from the inhumation graves at Mikkola (Lehtosalo-Hilander 1970), indicating that the possible origin of the bones and objects was not far away.

The cremated remains in inhumations have usually been explained from a religious perspective. This likely results from the deeply-rooted modern thought about cremations and inhumation representing different belief systems (PAPER II). According to Purhonen (1998: 130–131), they indicate a “pagan reaction”, a period when people returned to the old burial customs (e.g., Cleve 1948: 79; Hirviluoto 1984: 376–378; 1985; Purhonen 1998: 130–131). Lehtosalo-Hilander has considered the custom a “Christian reaction”: a transfer of cremated ancestors to a Christian burial ground (Lehtosalo-Hilander 1984b: 377; 1988: 197–198). Some researchers have suggested that the combination of two burial customs within sites represents a

<sup>26</sup> Hämeenlinna Männistönmäki, Hämeenlinna Pahnainmäki, Janakkala Makasiininmäki, Lempäälä Lempainen, Sastamala Kaukola, Sastamala Tulonen, and Tampere Vilusenharju.

hybridized belief system during a conversion period (Ikäheimo et al. 2020; Puolakka 2020).

Janakkala Tupala is the only site in Häme where both unburnt and cremated bones found from the same grave have been dated. A cremated bone fragment has been dated to the Viking Age, making it several hundred years older than the 14th-century inhumation burial (Vanhatalo 2016). Although this suggests that at least some of the cremated remains could be interpreted as secondary deposits of older bones in more recent inhumation graves (c.f. Taavitsainen et al. 2009: 209), the overall picture may be even more complex. The <sup>14</sup>C dates obtained from inhumation burials at Toppolanmäki (Appendix 1) and cremated human bones at Valkeakoski Haukila Koirankivi (Moilanen & Moilanen 2020) suggest an Early Medieval dating for both. This could indicate that cremations and inhumations were practised simultaneously in certain areas of Early Medieval Häme (c.f. Wessman 2010: 78). At Valmarinniemi Keminmaa and Illinsaari Ii in Northern Finland, similar cremations have been made within inhumations. At Valmarinniemi, the cremations date between the 11th and 14th centuries (Ikäheimo et al. 2020; Taavitsainen et al. 2009), making them contemporaneous to the inhumation burials at the site (Ikäheimo et al. 2020). At Illinsaari, the inhumation burials date to the 14th century, while the cremation burials are slightly older and date between the 11th and 13th centuries (Hakamäki 2018: 64).

The possible motives behind the custom may have been diverse, and the heterogeneity of the custom is also indicated by the different ways the cremated bones have been handled. In some graves, the bones have been sooty, while in the others, they have been washed (Lehtosalo-Hilander 1984b: 375). In some cases, the cremated bones may have been placed in the grave without a container and in some other cases, in bags or wooden vessels. The bones may have been placed directly on the corpses or near them, or even in the grave fills. Even the amount of bones and the size of them varies. In some cases, the bones have possibly been crushed, while at Ristiänmäki, a single large cremated bone had been placed on the corpse. The overall complexity is supplemented by the fact that the cremated bones from Kirkkailanmäki contain not only human bones but also sheep and fish.<sup>27</sup>

The burial at Pälkäne Kokkostenkärki could be a contrasting case of an inhumation burial in an older cairn with cremations. The Kokkostenkärki site consists of three earth-mixed cairns, from where cremated bones and several Late Roman Iron Age (AD 200–400) and Migration Period (AD 400–600) artefacts, including jewellery, spearheads, and an axe, have been found. In 1930, unburnt human bones were also found in one of the cairns. The bones have not been

<sup>27</sup> Find catalogue NM 10137, analysis possibly by Tarja Formisto, according to a remark in the find catalogue. The catalogue has been updated in 2013 by Katariina Nurminen.



professionally excavated or documented, and it is unknown whether they can be associated with the artefacts (see Hackman 1930). Given the generally poor preservation of unburnt human bones in Finland, it seems unlikely that the bones would date to the Early Iron Age. If the inhumations are younger than the cremations, they could represent the reuse of the cairn as a burial place. At Valkeakoski Muuntajamäki, unburnt human bones were also found from a cairn containing Merovingian Period artefacts (Hirviluoto & Miettinen 1980). A similar inhumation burial has possibly been made in a cairn at Hämeenlinna Eerola 2 (Appendix 1). The possibility for older dating for these burials should also be considered. It is often stated that the first inhumation burials appear in older cremation cemeteries (e.g. Cleve 1948; Hiekkänen 2010; Kivikoski 1966: 65), but in Häme, the oldest inhumation burials (Fig. 22) are not located in cremation cemeteries. The oldest unburnt skeletons <sup>14</sup>C dated to the Late Iron Age have been found in a cairn at Hattula Ruskeenkärki. At least three inhumation graves from Janakkala Kinnari and Hollola Kirkkailanmäki have been <sup>14</sup>C dated to the Late Iron Age (Table 1; Appendix 1). Neither Kinnari nor Kirkkailanmäki has evidence of Iron Age cremations at the site. If the objects found from Nokia Ketolanmäki and Pälkäne Ristiänmäki grave 1/1934 are contemporaneous to the burials and not older objects placed in the graves, the graves could date to the Late Iron Age. From the Nokia Ketolanmäki grave, two spearheads of type Petersen E have been found, but the bracelet possibly found from the same grave could be dated either to the Viking Age or the Early Medieval Period (Appendix 1, Fig. 39; Kivikoski 1973: Abb. 750 and Abb. 1086). Unfortunately, both graves were destroyed before documentation, so a detailed overview cannot be established.

#### 4.1.4 Varied use of objects in graves

Early Medieval burial archaeology in Finland has often focused on objects – or the lack of them – in graves. Although the sole focus on grave goods can be criticized as being simplified (PAPER I, II), objects are not irrelevant. Grave-goods were likely specifically and carefully chosen (Parker-Pearson 1991: 11). The whole burial ritual can be regarded as a performance and a display in which objects may have played a part. Arguably objects and the way they were used convey varied meanings (c.f. Ekengren 2013; Härke 2014; King 2004; Miller 2002; PAPERS I, IV). In this chapter I discuss the varied ways objects were placed in graves and used in the burial ritual.

##### 4.1.4.1 Placing objects (in unusual places)

There are also cases in which the objects seem to have been deposited in a seemingly unusual way. According to Tallgren's (1916) report, remains of a belt were found

directly on the head of an individual in grave 2/1916 at Lahti Ristimäki. The corrosion of the sheathed knife was attached to the skull, and the belt's bronze mount had preserved some hair fragments (NM 7088), indicating that the belt had initially been placed directly on the head. The hair fragments have never been analysed; thus, detailed information on the context is lacking – a reason enough for me to avoid making further interpretations. In some cases, the atypical placement of objects has prompted dramatic interpretations about their possible meaning. The position of the sword (tip pointing towards the head) in grave 1/1976 at Ylöjärvi Mikkola has been considered a symbolic obstacle preventing the corpse from rising from the grave (Sarkki-Isomaa 1986), or an object representing an unnatural way of dying (Purhonen 1998; see also PAPER I). In grave 1/1969 at Hattula Vesitorninmäki, a sickle was placed on the chest of the individual, but this has not received attention in previous literature. Similar placement of sharp objects is known from Eura Luistari and Eura Pappilanmäki (PAPER II). In grave 95 at Luistari, a knife was placed horizontally on the throat (Lehtosalo-Hilander 1982a: 111), and in grave 4/1939 at Pappilanmäki, shears were placed on the face of the corpse (Salmo 1952: 42). It is common to interpret this kind of placement as a dramatic, apotropaic act (e.g., Gregoricka et al. 2014; Polcyn & Gajda 2015), although the meanings may have been varied (e.g., Gardęła 2017; Gardęła & Kajkowski 2013).

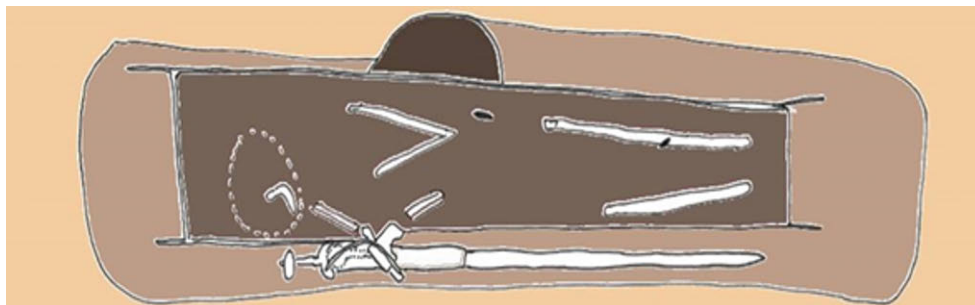
The Hattula Vesitorninmäki grave has often been interpreted to contain two swords, one hiltless and one bronze-hilted. Because of its impressive appearance (compared to the hiltless sword), the bronze-hilted sword has become a symbol of the grave – even though the analysis on the burial context indicates that the individual was buried with the hiltless sword and the bronze-hilted sword was possibly hidden in the grave after the initial burial (PAPER IV).

Sometimes burnt objects likely originating from cremations have been placed within the grave but outside the coffin, as in Vilusenhärju grave 12/1961 and Janakkala Tupala grave 1/2013. The grave find from Tupala has been given the nickname “Swordsman of Janakkala”, and Vanhatalo (2016: 100) has suggested – based on the swords – that the individual buried in the grave could have participated in the skirmishes between Sweden and Novgorod. The photographs taken from the Tupala grave and the grave plans show the remains of a rectangular coffin in a slightly lighter-coloured grave pit. The swords have clearly been placed in the grave pit, but outside the coffin. The initial assemblage also included an axe and a kettle handle, which metal-detectorists had removed before the archaeological excavation (Fig. 23). In the cases of Tupala objects and the Vesitorninmäki bronze-hilted sword, there has been some distance between the objects and the buried individual. The objects and the corpses have not been in direct contact with each other, and they have been separated by soil and coffin structures. Sometimes objects deposited outside the coffin have automatically been associated with the buried individual (e.g., Sarvas

1972; Schvindt 1893; Vanhatalo 2016), and according to a contrasting view, these objects can be interpreted as gifts instead of personal belongings (King 2004: 223–224; Uino 1997: 44; Wessman 2010: 82; c.f. Mäntylä-Asplund 2011: 229). I am inclined to think that physical proximity could have had specific meanings (c.f. Sayer et al. 2019), as in the case of Hämeenlinna Pahnainmäki grave 2/1913. However, it is important to consider the whole context of the grave when making interpretations in order to avoid overly dramatic conclusions. For this reason, one should be careful when interpreting the placement of single artefacts in graves, such as the sword in grave 1/1976 at Ylöjärvi Mikkola or the sickle/sword in the Hattula Vesitorninmäki grave (PAPER IV).

The Pahnainmäki grave 2/1913 is distinctively different from cases in which old objects originating from a cremation cemetery have been placed in the grave but not in the proximity of the corpse. In this grave, cremated bones were found from a circular area on the stomach of the corpse. The cremated remains included objects that had been in a fire: a penannular brooch with rolled terminals, an iron lock, a piece of a melted bronze chain, and two melted beads. The corpse itself seemed to have a typically feminine outfit with jewellery including a chain-distributor and a neck-ring (c.f. Lehtosalo-Hilander 2000a). This picture becomes complicated when the grave's context is studied more carefully.

The round convex brooch found at the individual's chest is of type Appelgren F, which can be dated to c. AD 950–1050 (Kivikoski 1973; Lehtosalo-Hilander 1982b). There are currently no <sup>14</sup>C dates for the burial, but if the grave dates to the 12th century, like grave 1/1911 from the same site (Taavitsainen 1990: 88–90), the brooch is possibly at least a century older than the burial. The brooch is also broken and missing its needle, making it impossible to have been attached to any garments. The chain-distributor was found near the right side of the chest or the stomach – a typical location if it had belonged to the jewellery set. The object is a Permian type used typically in the Merovingian and Viking Periods (Kivikoski 1973: 71, tfl. 473), making it possibly several hundred years older than the burial. There were also three fragments of a neck-ring placed on the individual's neck (Appendix 1, Fig. 31). The neck-ring had been already broken when placing the parts around the neck. This means that the placement must have happened after the corpse had been lowered into the ground. Appelgren-Kivalo (1913) had also noted that the neck-ring was broken and missing its fastening mechanism. It is possible that the knife, which was found from the pelvis, was the only object contemporaneous to the burial itself. In this case, the older artefacts (possibly originating from the cremation cemetery) have clearly been part of an intriguing display, in which the older artefacts were re-used on the corpse imitating actual dress accessories.



**Figure 23.** The remains of a coffin with handles and the position of swords, kettle handle, and axe in Janakkala Tupala grave. U. Moilanen after Vanhatalo 2014.

#### 4.1.4.2 Sharp objects struck into coffins

Striking sharp objects, especially spearheads, into the coffin structures has been seen as a dramatic burial custom specific to the Häme area (PAPER I, II). There are ten such graves from seven sites: Hollola Santahaudanmäki, Hämeenlinna Kalomäki 2,<sup>28</sup> Janakkala Makasiininmäki, Tampere Vilusenharju, Valkeakoski Toppolanmäki, Ylöjärvi Mikkola, and possibly Nokia Hakamäki. In most cases, the graves are single cases within a cemetery, but at Santahaudanmäki, Toppolanmäki, and Mikkola, there have been at least two such graves per site. Most of the sharp objects struck into the coffins are typologically older than the graves (c.f. Wickholm 2006; Wessman 2010: 100–102). Some of these objects may have originated from cremation cemeteries, but not all of the objects bear evidence of having been in a fire.

The common interpretations include the ideas that only spearheads have been struck into the coffins and that they have been used as coffin nails (e.g., Keskitalo 1950; Purhonen 1998; Pälsi 1938; Sarkki-Isomaa 1986; Wickholm 2006). However, the investigation of the grave contexts (Appendix 1; PAPER I) reveals that although spearheads have been used most often, knives, arrowheads, fragmentary sword blades, and other fragmentary iron artefacts have also been struck into the coffin structures. The idea of using these objects as coffin nails is also slightly simplified (c.f. PAPER I).

The straight spearheads found from Toppolanmäki and Mikkola have been struck vertically through the coffin lids but not in places where they would actually attach the lid to the coffin planks. In these cases, the function of the spearheads is not comparable to nails. On the other hand, the analysis of the Makasiininmäki grave indicates that the bent spearheads have been struck into the side planks of the coffin, near the edges, and after placing the lid in place, bent above it (Fig. 24). These

<sup>28</sup> In paper I, the list mistakenly includes Hämeenlinna Pahnainmäki instead of Hämeenlinna Kalomäki 2.

spearheads have not been used for nailing the coffin lid either, but they do fix the coffin lid in place in a similar manner as frame fasteners in a modern picture frame. In some cases (Toppolanmäki, Mikkola), sharp objects have been struck inside the coffin. In these cases, the striking has taken place before closing the coffin lid, possibly even before placing the corpse in the coffin. At Vilusenharju, some of the items have been struck in the grave pit outside the coffin (PAPER I). It may also be important to note that in all cases where spearheads have been struck through coffin lids, they have been struck in places where they do not touch the corpse: on both sides of the waist at Toppolanmäki, and at the foot end and the head end at Mikkola.

Keskitalo (1950: 45) noted that the sockets of the spearheads had flattened when striking them into the coffin structures, and similar flattening can be seen in one of the Santahaudanmäki spearheads (Fig. 25). This indicates that the shafts were not present when the objects were used in the funerary ritual. At Ylöjärvi Mikkola graves 2a–b/1976 and 3/1976, the grave pit had possibly been dug simultaneously, but at a depth of 70 cm, separated into two sections (Appendix 1). At this time, two harpoons or barbed arrowheads/small spearheads were struck into the earth between the pits. Remains of wood from the shafts had been preserved on the objects. This could indicate that, in this case, the shafts were still present when striking the objects into the ground.



**Figure 24.** Grave 1/1950 at Janakkala Makasiininmäki. The photograph shows the upper layers of the grave with a stone and spearheads on the coffin lid. In addition to taking photographs, Keskitalo drew plans (including a profile plan) of the grave. Photo: Oiva Keskitalo/FHA.



**Figure 25.** The spearhead NM 22079: 2 from Hollola Santahaudanmäki has remains of wood at the bend and marks of hammering on the socket, which has flattened. This indicates that the spearhead did not have a shaft when it was struck into the coffin structure. Photo: Ulla Moilanen.

Most of the graves with spearheads struck into them have belonged to males, and in only three cases, there were women in the grave. Three of the burials have been double or multiple burials, and they include the Santahaudanmäki grave (1/1985) from which a skull with a possible unhealed trauma (Salo 2019c: 8) was found. The typological and the  $^{14}\text{C}$  dates suggest that most of the graves date to a very short period around AD 1200, just like most of the double and multiple burials discussed in Chapter 4.1.2. This could indicate that the graves represent individual reactions to the same events that caused elevated mortality at the time. The spearhead burials do not, however, seem to have been hasty. The individuals have been placed in coffins and dressed and equipped with knives, beads, and axes. The graves may also have been elaborately furnished. Dr Tuija Kirkinen (analysis done for this dissertation) has identified a bird feather fragment and animal hairs from the soil sample taken from the Santahaudanmäki grave. The hairs from Mustelidae species, possibly marten or badger, and a possible hair of a seal (Phocidae) were identified. Similar hair finds have been found, for example, from Kaarina Kirkkomäki, Tampere Vilusenharju, and Mikkeli Tuukkala, where they likely originate from knife sheaths, pouches, and clothes (Kirkinen 2019). The bird feather fragments could indicate a pillow or bedding in the grave (Berglund & Rosvold 2021; Juhola et al. 2019; Kirkinen 2019; Kirkinen et al. 2020; c.f. PAPER IV).

#### 4.1.4.3 Gender-bending burials

Graves in which the biological sex of the buried individual does not correspond with the grave goods may cause confusion, and evoke thoughts about double graves of males and females (e.g., Androschuk 2018; Price et al. 2019). The most problematic of all are possibly the burials containing both “feminine” garments and jewellery and “ultra-masculine” weapons, swords (PAPER IV). In Finland, two Early Medieval inhumation graves have been interpreted as females buried with swords, but there has been debate whether they represent double burials of males and females (Nylén 1973; Taavitsainen 1990: 91). One of the graves was found at Hämeenlinna Pahnainmäki and the other at Hattula (Suontaka) Vesitorninmäki (Appendix 1). In both cases, the interpretation of females has been based on the dress accessories and jewellery, which indicate that the individuals were dressed in typically feminine clothes (Appelgren-Kivalo 1913; Keskitalo 1969a). For decades, these graves have been considered as evidence of powerful women in Early Medieval Finland (Lehtosalo-Hilander 1984b: 304; 402–403; Ojanen 2002: 47; PAPER IV).

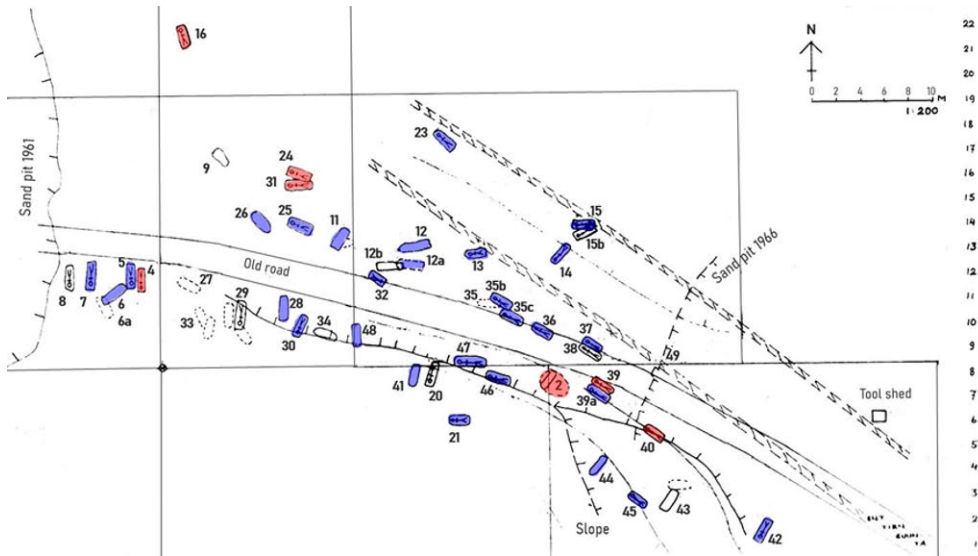
The Pahnainmäki grave was found in 1911 during an excavation of a cremation cemetery (Appelgren-Kivalo 1913). The excavation finds included Late Iron Age objects, cremated bones, and two Early Medieval inhumation graves, which were dug through the cremation layers. Grave 1/1911 with typically feminine jewellery and dress accessories seemed to include two swords at the foot-end of the grave. However, Appelgren-Kivalo’s (1913) documentation records show that the swords were not found in connection with the skeletal remains nor were clearly from the grave pit. Instead, they were scattered around the grave and partly in the grave filling. One of the swords was broken in three fragments, and one of the fragments was found over a meter away from the skeleton. Appelgren-Kivalo describes another fragment being in a half-upright position in the grave. The swords are patinated by fire, and they possibly originate from the cremation cemetery (Moilanen, M. 2015: 376, 445; Wessman 2010: 103). As the swords cannot be directly associated with the buried individual in the inhumation burial, the Pahnainmäki grave should not be considered a “sword grave”. However, this does not mean that weapon graves with female-bodied individuals cannot exist at all (c.f. Price et al. 2019).

The Hattula Vesitorninmäki individual was also buried in clothes that have been considered typically feminine and a hiltless sword that had been placed directly on the corpse. In paper IV we discuss the ancient-DNA analysis carried out on the individual. The sample gave a low yield of DNA, and it was necessary to model four possible scenarios that could have produced the observed result. According to the calculations and the modelling, the individual seems to have been an XXY male with Klinefelter syndrome (PAPER IV). This result questions the binary assumptions of sexes and gender roles in Early Medieval Finland, but on the other hand, also highlights the significance of individuals and individual contexts in the

interpretations. The grave is also a reminder that modern binary ideas of sex and gender do not necessarily reflect the thoughts and understanding of previous generations or eras. Gender structures may not be constant and rigid, and they can change quickly, even in a generation (Fausto-Sterling 1992: 138). The Vesitorninmäki grave suggests that gender identities and structures could have also varied on a local and individual level.

Basing the sexing of buried individuals on objects is generally problematic. This approach underlines the belief in binary sexes and gender roles, which would have depended on the physical appearance of the individual (e.g., Berg & Lie 1995; Gilchrist 1999; Hjørungdal 1994; Moen 2019; Stratton 2016; PAPER IV). In Finland, it has been common to associate certain jewellery, such as equal-armed brooches, small penannular brooches, convex brooches, sickles, and ceramic vessels with females (e.g., Kivikoski 1973; Lehtosalo-Hilander 2000a), while scythes, firesteels, and weapons have been considered masculine (e.g., Lehtosalo-Hilander 1982b; 2000a Mäntylä 2007). Many of the sex determinations presented in Appendix 1 are taken from the excavation reports, and they are likely based on these assumptions. If large penannular brooches, axes and arrowheads are considered masculine, Tampere Vilusenharju cemetery would contain almost only males (Fig. 26; c.f. Nallinmaa-Luoto 1978: 247; 1993: 45). However, grave 8/1961 at Vilusenharju contained an axe and a firesteel which are usually considered masculine artefacts, and an eared tubular ornament usually considered feminine. Tomanterä (1978: 17), who has identified remains of silk fabric and brocade band in silk and silver wire from the vicinity of the silver brooch notes that determining the sex of the buried individual based on the finds is impossible. The preservation of skeletal material at Vilusenharju is poor, and it is currently not possible to carry out even an ancient-DNA analysis on the individuals. Similarly, graves 2a-b/1976 at Ylöjärvi Mikkola have been considered male based on the arrowheads, knives, and firesteels found from them (e.g., Sarkki 1976). However, the individual 2b who was buried with two knives and two firesteels has been determined as a possible female in an osteological analysis (Salo 2021b). Both graves have been sampled for aDNA analysis in the SUGRIGE project, so the inference of genetic sex will be possible in future.





**Figure 26.** If all graves containing axes, arrowheads, swords, and only one large brooch at Tampere Vilusenharju are considered male (blue graves), females (red graves) are under-represented in the cemetery. Although graves with two “typically” feminine brooches were never found together with axes and arrowheads, I consider it possible that some graves with axes and/or arrowheads have belonged to females (c.f. Lund & Moen 2019; Mägi 2002: 77–79). Because of the poorly preserved skeletal material, it is not currently possible to verify this. It is also interesting that grave 42 with a bronze kettle, scythe, arrowheads, weights, and scales was interpreted as masculine, probably based on the arrowheads and the scythe, even though scales and weights have occasionally been found in graves of women (Lehtosalo-Hilander 1982a: 249-250; Stalsberg 2001) and although Sarasmo (1967: 10) noted that the grave contained a similar bronze spiral ornament to the presumed female grave 31. It could be noted that bronze spiral ornaments were considered strictly feminine until the excavations at Luistari revealed them to have also been used in male outfits (Pirkko-Liisa Lehtosalo-Hilander, pers comm. 21.8.2021 at Eura) Map: Esko Sarasmo, additions Ulla Moilanen.

## 4.2 What causes funerary variation?

The funerary variation in Early Medieval Finland has often been simplified as a division between cremation and inhumation (e.g., Cleve 1948; Hirviluoto 1985; Kivikoski 1966; Purhonen 1998; PAPER I). A similar dualistic notion is often associated with normativity and non-normativity, which may have been paralleled with Christianity and non-Christianity. From this perspective, atypical burials have been perceived as representations of otherness (c.f. Huurre 1976; Riisøy 2015). The seemingly atypical features may have also been interpreted as different kinds of religious reactions (e.g., Hirviluoto 1985; Kivikoski 1966; Pälsi 1938; Sarkki-

Isomaa 1986; Purhonen 1998). When examining the contexts of Early Medieval graves in detail, it becomes evident that the degree of variability was very high (PAPERS I–V). It also seems evident that the variation cannot be explained only by belief systems since atypical burials have also been encountered from thoroughly Christian contexts (e.g., Carelli 2000; Cessford 2015; Hadley 2010; Jonsson 2009; Gilchrist & Sloane 2005; PAPER V).

In Nordic ethnographic accounts and folklore, distinctive burial rituals are often reserved for individuals who died in a peculiar or socially unacceptable way, for example, violently, by drowning, suicide, or in a childbed (e.g., Hagberg 1937: 507–515; Pentikäinen 1990: 92; PAPER II). These accounts can often be dated to the recent centuries, where they have been part of Early Modern Western Christian culture. Although some beliefs and traditions have likely persisted through centuries (PAPER II), it is difficult to say how well these accounts represent the mentalities and mindsets of the Late Iron Age or even the Early Medieval inhabitants of Finland.

In this dissertation it has been argued that contextualization and the use of social microarchaeology may provide some explanations (PAPERS I, III–V). Although social microarchaeology intends not to concentrate only on strange phenomena (Cornell & Fahlander 2007: 7), the approach provides a good framework for studying atypical burials (PAPER I). Instead of considering burials simply as direct reflections of religious ideology, gender, or social status, they can be understood as complex social dialogue (c.f. Cornell & Fahlander 2002; 2007; Fahlander 2001; 2003; 2004; 2013; Fahlander & Oestigaard 2008). A burial ritual consists of several phases, including the preparation and clothing of the corpse, placing it in a container, transferring it to the burial site, placing it in the grave, furnishing and filling the grave, and possible commemorations on the grave. Each of these phases can be performed differently, depending on individual choices and actions. These actions were likely influenced by varied beliefs, feelings, and emotions, in which local events and social relationships played a part (PAPERS II, III, IV, V). Therefore, the seemingly similar practices, whether placing cremated bones or older objects in the inhumation graves, striking sharp objects into the coffin structures, or arranging the corpse in various positions, could be interpreted differently at different sites.

The motives for atypical burials have depended on cultural and social contexts, which could have been demonstrated in different ways at different times. This is why general definitions and explanations are difficult to establish. There are numerous examples from different cultures worldwide about how exceptional circumstances or individual characteristics could have affected the burial of an individual, not only in a negative way. The Nivkh people of Siberia have considered individuals killed by bears so exceptional that they must be buried in a distinctive way (Shay 1985: 227). In Western Caucasus, lightning-strike victims were honoured (Tuite 2004), and in Ancient Greece, suicide was considered a heroic and courageous act (Zavalij

2020: 223–230). In some Native American cultures, twins held a socially distinct position (Corney 1975). It could be impossible to identify similar associations, circumstances and cultural contexts in the Early Medieval Finnish material, and even though similar circumstances would have contributed to the burial customs, it is unlikely that all distinctive events would automatically be reflected in the burials (c.f. Tarlow & Battell Lowman 2018: 49). For example, if an individual killed by lightning was buried in a distinctive way, there is no way of knowing if the next case was treated similarly, and what the burial would have been like, for example, in the neighbouring village.

Although I consider the atypical burials part of normal variation, and that individual choices and actions can explain them, there have likely been broader themes around the individual events. The use of older objects and also older cremated remains in inhumation burials can possibly be connected with “past in the past” thematics, the ritual significance of memory and commemoration, as Wessman (2010) has discussed (c.f. Costello & Williams 2019; Wickholm 2006; Williams 2004). She has demonstrated how complex rituals aimed to maintain a relationship with the ancestors during a conversion period. The case from Pahnainmäki presented in this dissertation, in which fragmentary and burnt cremation cemetery finds were rearranged directly on the corpse as imitating actual dress accessories, is a striking example of how the past could have been negotiated and integrated into the burial rituals.

I have identified a possible period of elevated mortality around AD 1200 in Häme. The period was characterized by the increase of multiple burials and the distinctive habit of striking sharp objects into the coffin structures. The period is preceded by environmental changes, possibly resulting in a brief period of crop failure (Helama et al. 2009a; Helama et al., 2009b; Huhtamaa & Helama 2017). As discussed, there is also some evidence of violence and possibly an epidemic outbreak from the period. All these events could have contributed to a (local) crisis, which could have been reflected perhaps briefly in beliefs, actions, and social relationships between groups, families, and individuals (c.f. Helama et al. 2018; Sołtysiak 2006). These, in turn, could have been manifested in some burials (PAPERS I–V). Lund and Arwill-Nordbladh (2016: 431) have argued that the Late Iron Age Scandinavians could have interpreted their own past in distinctive ways and used these interpretations in establishing identities and demonstrating power. The instability observed in the Early Medieval Häme region could have provoked a struggle for power in the local communities. This, in turn, could have emphasized the ritual meaning of ancestors who could have been used as instruments and a basis for claiming the land for specific households or families.

### 4.3 Implications of the study

This dissertation emphasizes the importance of thorough background work for burial research. This means detailed documentation of graves and the understanding of context. The context of the grave works as the basis for creating hypotheses, meanings, and interpretations, and it is crucial to understand what the interpretations are based on. The information on the contexts can be supplemented and clarified with different analyses, which add layers of information and enable new interpretations. It has been demonstrated that it is possible to gain new information from the archived materials by applying new methods in the study (c.f. Aspöck 2020). It has also become evident that the archaeothanatological method should be applied to Finnish field archaeology as well, as it influences how archaeological documentation data is produced. The best application is likely in the excavations of Medieval and Early Modern burials, which generally have better preservation of skeletal material than the older burials. However, understanding the basic processes of decomposition in different environments will also help in understanding Late Iron Age and Early Medieval burials.

The work with the archived materials has also raised certain issues concerning the documentation of burials. It is evident that illustrations and drawings cannot replace good photographs. There may also be a need for standardized documentation requirements for burials, which could be included in the fieldwork quality instructions of the Finnish Heritage Agency. There may also be a need for the development and standardization of grave documentation methods in cases where the preservation of skeletal material is poor.

I have argued that the variations in the burial customs result from individual choices and actions. According to this approach, every grave can be understood as a complex display and expression of relationships between individuals (c.f. Hodder 2000; Rüpke 2015). This theoretical focus has clear social implications. There is a growing need to communicate research results to the general public, and past individuals may provide a good starting point as their stories could be applied in varied ways, e.g., museum exhibitions and public outreach (Hodder 2000). The questions surrounding atypical burials and individuals may also bring invisible and overlooked subjects into the discussion. They also enable discussions on diversity, the attitudes towards disabled individuals (Núñez 2015), varied gender roles (PAPER IV), or different cultures and beliefs. In paper V, Markus Hiekkänen and I discussed the possibility of how Lutheran revivalists could be visible in Early Modern cemeteries. What we did not consider was the possibility of burials of Romani individuals. The official attitude towards the Romani was very strict in Early Modern Finland. In principle, they were not allowed to be buried in the churchyards, and their children could not be baptized. However, in practice, this depended on the local vicars (Rekola 2012: 21–22). Indeed, notes on baptized, married, and buried

Romani can be found in the church records at least by the end of the 18th century. It may, however, be unlikely that marginal groups could be represented in prominent burial places, and the explanation behind diverse burial customs could be linked with the burial place itself, as pointed out by Williams (2020: 256).

To summarize this research, by taking the buried individual into focus and extending the approach to a microscopic and molecular level, it is possible to gather more details about the grave contexts and the buried individuals and their life histories. With this new information, it will become possible to discuss how the individuals interacted and navigated through different situations and practices, and possibly, what kind of world they lived in.

## 4.4 Ethical considerations

Archaeologists have several responsibilities and obligations for the discipline, general public, and the individuals of the past (e.g., Masterton 2010; McGill 2014; Moshenska 2009; Paljärvi 2002; Sellevold 2013; Tarlow 2006; Wagner et al. 2020). The first two include, for example, the following of professional standards and policies, as well as reporting, publishing, and communicating research results. I have studied and handled human remains for this dissertation. All my excavations have been conducted with the permissions granted by the Finnish Heritage Agency, whose quality instructions on archaeological fieldwork I have followed.<sup>29</sup> I have written the excavation reports according to the instructions, and the reports have been stored at the FHA archives, where they are available for future researchers.

The obligations to individuals of the past is a debated issue. The general rule, following common human rights, is to treat archaeological human remains with dignity and respect – an aspect specifically stated in several codes of ethics on the treatment of human remains.<sup>30</sup> However, according to Scarre (2013: 667–669), the term “respect” has become a buzzword in ethical discussions, and researchers can seldom define what respectful treatment means in practice. The most respectful treatment would undoubtedly involve ideas and practices valued by the past individuals themselves (e.g., Brooks & Rumsey 2008: 265; Scarre 2013: 669, Tarlow

<sup>29</sup> Available at: [<https://www.museovirasto.fi/en/cultural-environment/archaeological-cultural-heritage/studying-archaeological-cultural-heritage/quality-instructions-on-archaeological-fieldwork/>].

<sup>30</sup> E.g., British Association of Biological Anthropology (BABAO) Code of Ethics 2019 [<https://www.babao.org.uk/publications/ethics-and-standards/>].

The Norwegian National Research Ethics Committees: Guidelines for research ethics on human remains 2018: [<https://www.forskningsetikk.no/en/guidelines/social-sciences-humanities-law-and-theology/guidelines-for-research-ethics-on-human-remains/>].

2006), but these ideas are impossible to reach when we are dealing with Early Medieval individuals of Finland. I agree with Moshenska (2009: 818) that “scientific study serves humanity as a whole”. It can also be argued that research is a way to maintain the memory and identity of the individuals (c.f. Leighton 2010: 97; Masterton 2010: 10). Therefore, research may be the closest we can get to the original values of the individuals, since mortuary rituals have generally focused on memory and remembrance that are common themes across cultures and times (e.g., Booth & Tingle 2020; Wessman 2010, Williams 2003).

During the course of my work, I have constantly tried to evaluate and stay aware of the possible implications of my research and the basis of my own interpretations. In many cases, the atypical burials in Finland have been considered dramatic, and their possible meanings may have been exaggerated. Is it possible to impose disgraceful ideas on past individuals and is it acceptable? In paper IV we discuss the implications of an atypical genetic result. Because of the poor preservation of ancient-DNA in the sample, the genetic determination was not reliable as such and needed applied statistical modelling. However, if the basis for the models had not been correct, and the obtained result turned out to be wrong, could our interpretation be considered as sensationalism which I have criticized in this dissertation? On the other hand, who defines what is an acceptable interpretation and what is not? Walsh et al. (2020: 3) have pointed out that researchers may be too cautious about making interpretations that could be considered grim and gruesome by modern standards – which our interpretation on the Vesitorninmäki grave, in my opinion, is not. Some burials likely convey negative feelings: fear, despidal, hatred, and envy (c.f. Nilsson Stutz 2016b). If these emotions are difficult (or impossible) to identify from the burial, how should they be considered when making interpretations and how should these interpretations be presented to the general public? To ensure that the individuals are not treated as curiosities, a profound theoretical and methodological framework should always be applied in research. It is also important to remember that the individuals should be presented truthfully but in a mindful manner (Masterton 2010:10; Tarlow 2006).

Another ethical issue raised by this dissertation is the different treatment of Early Medieval and Early Modern human remains. In Finland, skeletons presumed as “pre-Christian” have often been stored in the collections, while the bones from “Christian” burials have often been reburied. What constitutes a Christian burial or individual is a difficult question in an Early Medieval context. The contemporaneous Medieval graves at Hollola Kirkkailanmäki and Hämeenkoski Pyhän Laurin kirkon raunio provide an interesting example of how the modern context of the site can be reflected into the past. Both sites contain graves from the c. 13th–15th century, but the Hämeenkoski site has been considered a churchyard (e.g., Hiekkänen 2005), while the possibility of a chapel locating at Kirkkailanmäki has only been discussed but

not verified (e.g., Hirviluoto 1985; Purhonen 1998). Yet, the youngest of Kirkkailanmäki graves have clearly been Christian burials. The bones found in 1978–79 from Kirkkailanmäki have been taken in the NM collections, while at Hämeenkoski, the bones have been reburied after the osteological analyses. Numerous animal bones were also found from Hämeenkoski, and even the small bones with no certainty whether human or animal were reburied to ensure that the maximum number of human bones would be reburied (Liesivuori & Kumpulainen 1997).

In the church of Renko, the Early Modern skeletons were otherwise left in situ, but their clavicles were removed and catalogued in the archaeological collections of the Finnish Heritage Agency (PAPER V). There may be different opinions on whether taking the bones to the collections has been the right thing to do. In Finland, many Early Modern skeletons have been removed from their graves and later reburied. The reburial of Early Modern individuals is not a straightforward question either (e.g., Moilanen 2014; Sellevoid 2013; Salo & Kivikero 2010), but I think that excavation and curating human remains at museum collections should not be automatically considered as disrespectful treatment. An excavation that does not produce information about the past can be considered looting (Hollowell-Zimmer 2003).<sup>31</sup> Therefore, leaving the skeletons in the graves and taking only a small fraction of them into the collections could be understood as a compromise between the right of the individuals to stay undisturbed in their graves and the responsibility of archaeologists as producers of information. But do archaeologists have a right or a duty to preserve information that can possibly be obtained in the future? The bone samples from Renko could, in theory, be useful in future when new kinds of techniques are available to study the bones.

The differential treatment of pre-Christian/Christian bones is a major ethical dilemma. Kaliff and Oestigaard (2008: 56) have compared it to colonialism, in which graves that are considered “ours” are being protected while the others are possibly considered as less “valued”. On the other hand, if “protection” automatically means reburial and hiding the remains so that nobody – researchers, general public, descendants – will never have access to them under any circumstances, the measures taken may become a way of silencing the voice of the individuals themselves and erasing their memory (c.f., discussions in Clegg 2020; Haber & Shepherd 2015).

Another issue is the treatment of past individuals whose names are known. Paper V discusses the excavations of Early Modern period graves at the church of Renko in 1984. Some of the individuals were suspected crime victims, and I used the historical records in trying to identify them by name. I have not considered this

<sup>31</sup> This also emphasizes the need for good and illustrative photographs in reports and publications.

identification problematic, as it has been a way to increase the understanding of these individuals and the motives behind their treatment in death. According to Blau & Fondebrider (2014), the identity of individuals should not be forgotten after death. Also, excluding possible crime victims from studies could lead to the oblivion of past crimes and atrocities (c.f. Masterton 2010: 53). Both the identified and the unidentified individuals of the past should have a similar right to be remembered and understood, and to be treated in an equal way. These are, in my opinion, strong arguments for conducting research on past individuals – including those that can be identified by name.



## 5 Conclusions

At the beginning of this summary, I presented three main aims for this study. Based on my research, I draw the following conclusions.

*Aim 1: To collect detailed information on the find contexts of the Early Medieval inhumation burials in the regions of Häme and Upper Satakunta and to provide a clear overview of the find contexts.*

**Result:** Information on all sites containing unburnt human remains have been collected and analysed in this dissertation. The results are summarised in Appendix 1. The detailed studies on the contexts of the graves reveal significant variations in Early Medieval inhumation burials. Individuals have been buried in varied body positions, in different kinds of containers or without them. By analysing the grave contexts, it was possible to distinguish the inner structures of tree-trunk coffins, which have in most cases been carved with a flat bottom inside. Only in two cases, the coffin bottom has been rounded or even close to a v-shape. Corpses may have been loosely wrapped or covered with different materials, such as birch bark, furs, or fabrics, but tight wrappings appear only during the Medieval Period – a clear indication of the usage of shrouds. Some earth burials have been padded with soft materials, such as moss or feathers. Also, objects have been used in varied ways, e.g., to furnish the graves and to close coffins. The combination of analyses on grave contexts and osteological analyses also suggest that the multiple burials of adults and children were possibly more common than previously thought.

*Aim 2: To study the possible motives behind the burials, which may have been considered atypical in previous research (PAPERS I–V)*

**Result:** I have considered that the motives behind the burials are diverse, and I think that in most cases, a single reason cannot be identified. Instead, there may be different possibilities. I have identified a possible period of elevated mortality around AD 1200 in Häme, which is suggested by the growing number of double burials at the time. The possibilities of crop failure and famine, violence, and disease have been discussed in the dissertation. It was also possible to narrow down the period when spearheads were struck into the coffin structures – a habit previously

considered dramatic and unusual – to the same period with the multiple burials. It seems possible that they could have been local reactions to the same events that caused the elevated mortality. However, it must be noted that the overall data is scarce, and this hypothesis should also be tested with other methods. It is also possible that the political instability provoked power struggles in the local communities. This could have emphasized the ritual meaning of ancestors who could have been used as instruments and a basis for claiming the land for specific households or families, thus explaining the various usage of “antique” objects and older cremated bones in the inhumation burials.

*Aim 3: To explore the research potential of individual graves and study how they contribute to our knowledge of Early Medieval archaeology in a broader perspective. What is the relevance of paying attention to variation and studying individuals? What kind of new research potential will be obtained when focusing on aspects that have previously been overlooked (PAPERS I–V)?*

**Result:** I have hopefully pointed out that when making wide generalisations, nuances and details are lost. We need individuals and small-scale studies to get a rich and multidimensional view of the past. Local events and rituals are not meaningless since together they contribute to the bigger picture. It is possible that the identification of a possible mortality crisis in Early Medieval Finland would not have happened without focusing on atypical burials and the possible motives behind them. The results also open up new possibilities to examine the social conditions and relationships in Early Medieval Häme because even a small-scale crisis could have affected demography and household compositions and thus impacted the settlement history. It could also be possible to sample the individuals and search for pathogens, and the possible period(s) of epidemic outbreaks could be studied by establishing detailed in-site chronologies within cemeteries. This should be done by obtaining several radiocarbon and AMS dates on the burials. Based on paper IV, it is also possible to raise new questions on how gender roles and identities were understood and negotiated. The detailed analysis of graves also enables the examination of local rituals, commemoration, and the meanings of objects and sites. All these approaches and questions widen the possibilities to study and interpret the Finnish archaeological material and help integrate this material in wider geographical, temporal, and theoretical discussion.

# Abbreviations and glossary

AC	Archaeological Commission (Muinaistieteellinen toimikunta), the predecessor of NBA and FHA
ACP	anatomically correct position
aDNA	ancient-DNA
c.	circa
CB	Cremation burial
c.f.	confer
etc.	et cetera
e.g.	exempli gratia
GPR	Ground-penetrating radar
i.e.	id est
in situ	in position/place
AMS	Accelerator Mass Spectrometry
FHA	Finnish Heritage Agency (Museovirasto)
NBA	National Board of Antiquities (Museovirasto), the previous name of FHA
NM	Finnish Heritage Agency find catalogue
NM-Hist	The historical collections at the National Museum of Finland
perimortem	At or near the time of death
rigor mortis	Stiffening of the muscles after death

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# Appendices

## Appendix 1: Inhumation cemeteries and graves in Upper Satakunta and Häme

In this appendix I have listed all the excavated and/or documented inhumation cemeteries and graves in the study area. The aim of the appendix is to summarize the contexts of these graves. The information in the tables has been gathered from the original reports, documentation illustrations and photographs, find catalogues, and literature. Archaeothanatological analysis has been applied, when possible, to determine the position and treatment of the corpse, or the presence of containers. The names of the sites are the names used in the Ancient Relics Register (*Muinaisjäännösrekisteri*) managed by the Finnish Heritage Agency. The numbers following the names in brackets are the identification numbers used in the register.

### Descriptions of columns in the tables

**Grave numbers** are mostly based on numbers given in reports. In cases where the graves have not been numbered, I have given them a number in the order they have been presented in the reports and/or the find catalogues. The numbers also include the excavation year, which should always be included when describing the graves in publications. This is to avoid misunderstandings and confusion, since in several cases, when excavations have been continued at a certain site, the numbering of graves has started from number 1 every time. This means that the same cemetery may have several graves with the same numbers. For example, the Ylöjärvi Mikkola cemetery has four graves numbered 1: 1a/1959 (unnumbered in the original report), 1/1959, 1/1972, and 1/1976.

The **depth** of the grave in centimetres is based on information in the excavation reports. If the cell is empty, it means this information has not been written in the report. The depths are not necessarily comparable with each other, because most of the reports do not mention where the measurements have been taken from (e.g., the surface of the ground or under the topsoil). Respectively, there is seldom information on secondary fills or secondary removal of soil on top of the graves.

**Preservation of bones** is an approximate estimate based on the presence of certain skeletal elements, described in the reports or find catalogues, or shown in the illustrations and photographs. The criteria is presented in the image below:

POOR	MODERATE	GOOD
No skeletal elements	Large bones (femurs, some pelvic bones preserved)	
Bones soft mass	Vertebrae/sacrum/ribs preserved	
Large bones partially preserved	General condition hard and strong	
Single bones or teeth		Small bones (phalanges, metatarsals, metacarpals)

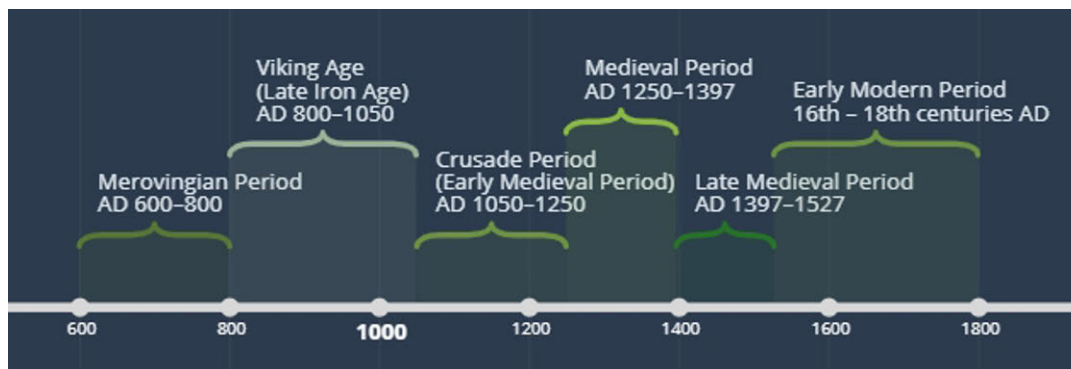
**Container** column shows the presence of coffins and the types of them (plank or tree trunk). Usually, the plank coffins are rectangular in shape. In some cases, there were wood remains and/or nails in their original places, and sometimes the contours of the coffins were visible in the soil. When possible, I have considered the burial position and the effect of the decomposition process, and their possible meaning for the presence/absence of a container. In some cases, the archaeothanatomical analysis suggests the presence of wide or narrow containers. If the cell is empty, the presence of a container has not been documented or the preservation/lack of documentation prevents making further conclusions.

**Artefacts/finds** column includes the objects found from the grave, based on the descriptions in the reports and the find catalogues. In this column, “bronze” refers to any copper alloy metals.

**Sex** is an estimation with M = male, F = female. If no additional references have been given in this column, the estimates are taken from the original reports. In these cases, the estimates are usually based on the artefacts, sometimes on the size of the bones or the length of the grave pit, and may not, therefore, represent the biological sex of the individuals. Also, the differences in biological sex and gender have not been taken into consideration in these tables.

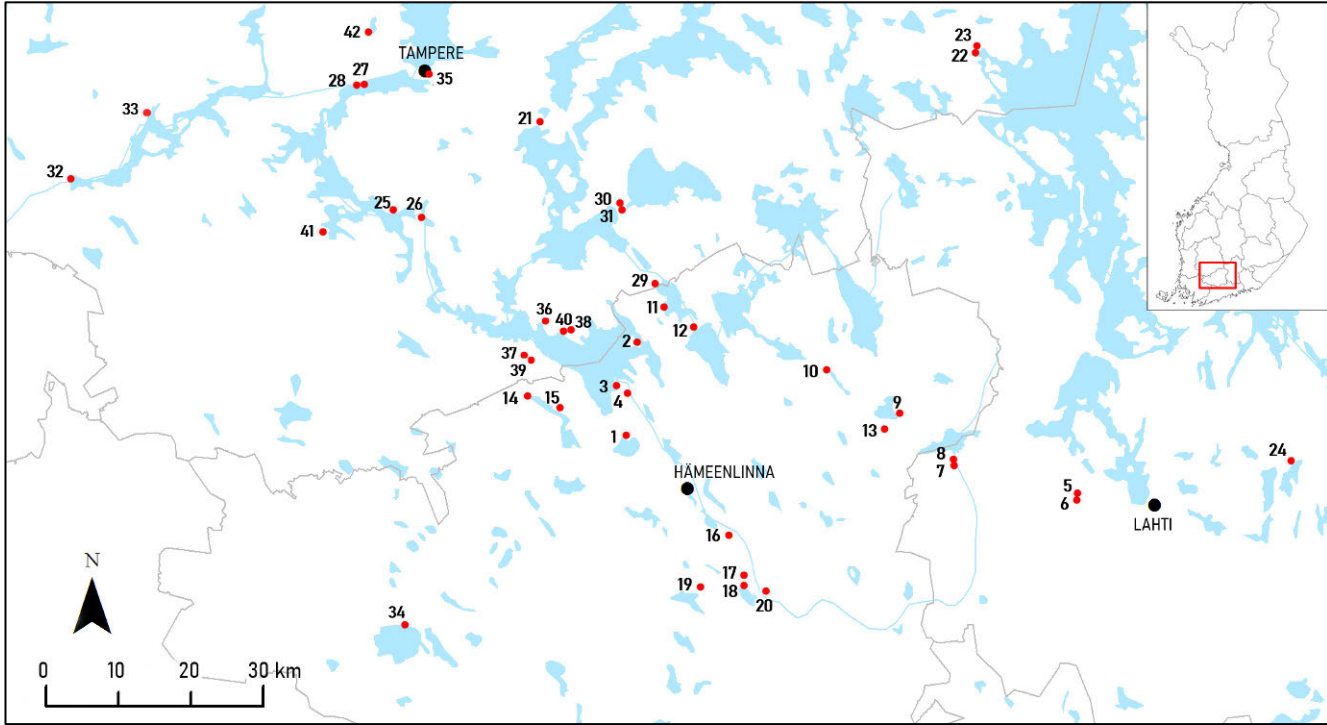
**Age** is an estimate based on either excavation or osteological reports. If osteological analysis has not been carried out, the estimates have often been based on the size of bones, and sometimes on the size of the grave pit or the coffin. The abbreviations used in the column are: **A**: Adult (c. 20+ years), **C**: Child (c. 0–16 years, including adolescents), **I**: Infant (c. 0–3 years), **MA**: Mature adult (c. 50+ years), **YA**: Young adult (c. 20–30 years) (e.g., Buikstra & Ubelaker 1994).

**Dating** is based on the typology of artefacts, stratigraphy, coin dates, or  $^{14}\text{C}$  dates. All  $^{14}\text{C}$  dates gathered from the literature have been referenced. If the reference is missing, the dating is new, and the results are obtained in the SUGRIGE project (Universities of Helsinki and Turku, PI Päivi Onkamo). These dates have been published in this dissertation for the first time. The timeline and periods used are presented in the picture below:



**Burial position** is a description based on written documents, grave illustrations, and photographs (see also Chapter 1.3). As archaeothanatological analysis has been applied when possible, the column also includes information on the possible post-mortem treatment (e.g., wrappings). Abbreviations: **ACP**: Anatomically correct position.

**References** column lists the primary original sources used, and the original reports and find catalogues, which often clarify the find contexts of certain finds.



The sites. 1. Hattula Kirkkomäki 1, 2. Hattula Myllymäki, 3. Hattula Ruskeenkärki, 4. Hattula Vesitorinmäki, 5. Hollola Hälvälä, 6. Hollola Kirkkailanmäki, 7. Hollola (Hämeenkoski) Pyhän Laurin kirkon raunio, 8. Hollola Santahaudanmäki, 9. Hämeenlinna Honkaliini 1, 10. Hämeenlinna Eerola 2, 11. Hämeenlinna Kalomäki 2, 12. Hämeenlinna Männistönmäki, 13. Hämeenlinna Nisula (Hannula), 14. Hämeenlinna Pahnainmäki, 15. Hämeenlinna Urheilukenttä, 16. Janakkala, Kinnari 1, 17. Janakkala Kirkkomaa, 18. Janakkala Makasiininmäki, 19. Janakkala Tupala, 20. Janakkala Vähä-Kurki, 21. Kangasala Liuksialan kappeli, 22. Kuhmoinen Ala-Rantala, 23. Kuhmoinen Linden, 24. Lahti Ristimäki, 25. Lempäälä Aimalankangas, 26. Lempäälä Lempoinen, 27. Nokia Hakamäki, 28. Nokia Ketolanmäki, 29. Pälkäne Kokkostenkärki, 30. Pälkäne Rauniokirkko, 31. Pälkäne Ristiänmäki, 32. Sastamala Kaukola, 33. Sastamala Tulonen, 34. Tammela Näkämaan kumpu, 35. Tampere Vilusenharju, 36. Valkeakoski Kiiliä, 37. Valkeakoski Kokkomäki, 38. Valkeakoski Moijanen, 39. Valkeakoski Muuntajamäki, 40. Valkeakoski Toppolanmäki, 41. Vesilahti Rukoushuone, 42. Ylöjärvi Mikkola. Map: Ulla Moilanen & Timo Rantanen.

## 1. Hattula, Kirkkomäki 1 (82010012)

Already at the end of the 19th century, several human bones were reported to have been found from Ihalempi Kirkkomäki in Hattula over the years. Most of the finds have never been properly excavated or documented. The catalogued finds from 1894 include fragments of cranium and vertebrae, and a stone spinning wheel (NM 3008: 13–14) but is unclear whether these finds can be associated with each other. According to Heikel (Cleve 1933a), several depressions (likely graves) were visible at the site in the 1870s. Heikel excavated three of them, but claimed to have found only animal bones in them. According to oral tradition, a wooden church has stood at the site, and based on this, Heikel suggested that Lehijärvi chapelric congregation was situated at the site in the Middle Ages. In 1933, Nils Cleve inspected the find location of a penannular brooch and “a fragile skull”, which had been found five years earlier (grave 1/1928). In 1937, three graves were excavated by Jouko Voionmaa in 1937. Two graves contained fragments of human bones, and in one of the graves a glass bead was found. Grave 3/1937 contained a well-preserved skeleton of a horse, which was left *in situ*. Voionmaa (1937) considered the horse “possibly secondary” and not related to the Early Medieval human graves. Only minimal documentation of the site and the graves exists. The only photographed grave is the one with the horse. (Cleve 1933a; Heikel 1894: 127; Voionmaa 1937.)

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1894		Moderate		Spinning wheel made of stone			Crusade Period?		Unclear whether the spinning wheel can be associated with the human bones found from the site.	Heikel 1894; NM 3008
2–4/1894				No			Crusade Period?		Poorly documented. Heikel described excavating three grave-like depressions. He claimed to have found only animal bones, and no human bones or artefacts. Were some of these animal graves?	Heikel 1894;
1/1928		Poor/moderate		Penannular brooch			Late 12th–Early 13th century		Never archaeologically excavated, grave found already in 1928 but inspected in 1933, when the human skull and a penannular brooch found from this grave were sent to the AC.	Cleve 1933a; NM 9563:2
1/1937	35–40	Poor		No			Crusade Period?		Bone fragments	Voionmaa 1937
2/1937	35–40	Poor		A glass bead			Crusade Period?		Bone fragments	Voionmaa 1937; NM 10697: 2
3/1937		Good		No			Early modern?		Animal burial (horse) left <i>in situ</i>	Voionmaa 1937

## 2. Hattula, Myllymäki (82010036)

The site is located on Retulansaari island, which is known for its numerous Iron Age remains. The Myllymäki site consists of over 20 cup-marked stones and 200 earth-mixed cairns, which have been interpreted as burials, sacrificial cairns, and settlement remains (Taivainen 2004). In 1975, one of the cairns was excavated by Anja Sarvas. Clear find contexts could not be determined, as the whole excavation area was completely disturbed. The catalogued finds (NM 19704) include fragments of bronze and iron artefacts and pottery sherds, clay daub, and unburnt and burnt bones. Most of the bones belong to animals, but they also include fragments of unburnt human cranium. The human bones were catalogued as “decomposed bone”, and they have not been mentioned in the excavation report (Sarvas 1976). The initial context of these bones is unknown.

## 3. Hattula, Ruskeenkärki (82010021)

The first objects were found by local residents, who sent their findings (bones, two round convex brooches, a penannular brooch, a neck-ring, 80 glass beads (most of them blue), several bronze spirals, and a spearhead (type Petersen G) to the National Museum in 1954 (NM 13640). The bones were sent to the Anatomical Department at the University of Helsinki, where they were analysed as belonging to an adult female. Jorma Leppäaho and Helmer Salmo inspected the site in 1954. They received additional finds from the landowners: a spiral finger ring, scramasax, and horse accessories (bits) (NM 13645), which had appeared after heavy rain. Leppäaho and Salmo noted that most of the stones had already been removed but considered it worthwhile to excavate the remaining cairn. The excavation was conducted in the following year by Oiva Keskitalo.

Keskitalo interviewed the landowners who had made the previous finds. Based on their accounts and the evidence collected during the excavation, he reconstructed the burials in a drawing (Fig. 9). It is not completely clear which items can be associated with which burial. Keskitalo automatically assumed that the spearheads had belonged to the male burial, although two of the spearheads (NM 13777: 14–15) were located closer to the assumed female burial.

According to Huurre (1976: 31–32), the site is exceptional because of its location and structure. The corpses had been placed on the ground and covered with a pile of large stones (no soil). The site is located on a steep, stony slope, somewhat far from arable land and known settlement sites. Huurre (1976: 31–33) has interpreted the site as a temporary burial, a burial of crime victims, or burial of a trader and his wife (meaning that they would have been strangers in the community). Keskitalo (1963: 36) also suggested that the individuals may not have been locals or that they had been buried in haste.

The graves at Ruskeenkärki are among the oldest inhumation burials in Häme (10th–11th century). The peculiarity of the burial may have been exaggerated because it has been compared to later Crusade Period graves and not to contemporary cremation burials in cairns (although the typological dating of the artefacts corresponds with the Viking Age date). The site itself can be considered a typical burial place compared



to contemporary cremations, although the treatment of corpses was different than usual (Taavitsainen 2003a; 2003b). A possibility not yet explored is a winter burial, which could be indicated by the lack of soil above the burials.

The bones found in burial B belong to at least two individuals, an adult and a nine-year-old child (Salo 2019b). This means that at least three individuals were buried in the cairn. The burial of a child had not been identified earlier. The original context of the burials is unknown, but based on the number of artefacts, the possibility of more than three individuals being buried in it should also be considered.

The most recent finds from the site were made in 1996. They include a spearhead (type Petersen E) (NM 29712) and a crossguard of a Viking Age sword (NM 30326).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
A/1955		Poor/moderate	No	Fragments of scales, penannular brooch, sickle, knife (NM 13777: 2-4)  Keskitalo associated the previously found spearhead NM 13640: 8 with this individual. Also, the previously found finger ring, scramasax and horse accessories (bits) (NM 13645) may have been near this burial.	M?	A	889–992 calAD (95.4%) (Mannheim-34126)	Keskitalo noted that the bones were not in a similar order than in "normal inhumation burials". The position of bones was not documented in detail.	Inhumation burial at the southern side of the cairn.	Keskitalo 1956; 1963; NM 13777: 1–4  Possibly NM 13640: 8; NM 13645:1–3
B/1955		Poor/moderate	No	Bronze spiral ornaments, c. 45 beads, knife, 2 bracelets (NM 13777: 6–12)  Neck-ring, 2 round convex brooches, penannular brooch, 80 beads, bronze spiral ornaments (NM 13640: 1–7)	F? + ?	A + C	891–994 cal AD (95.4%) (Mannheim-34125)	Based on the location of bracelets, the arms may have been placed on the hip or waist. Supine?	Inhumation burial at the northern side of the cairn. On the hip, ca 50 additional beads and a knife. The beads could indicate a fully decomposed child placed on the stomach, but as no other proof exists, this remains highly hypothetical.  The analysed bones belong to an adult and c. 9-year-old child (Salo 2019b). The burial of a child in the same grave has not been identified earlier.	Keskitalo 1956; 1963; NM 13640: 1–7; NM 13777: 6–12

#### 4. Hattula, Vesitorninmäki (82010023)

The site is also known by the name “Suontaka”. The grave was found when a bronze-hilted sword was unearthed in digging a pipeline. Keskitalo excavated the site in 1969. The burial has included one individual, who was dressed in feminine garments, indicated by two oval convex brooches, a twin-spiral chain-distributor, a small penannular brooch, a sickle, and a small knife. There was also a hiltless sword in the grave, placed directly on the corpse, on the left side of it. The previously found bronze-hilted sword was possibly located in the upper layers of the grave. The aDNA analysis suggests that the individual may have been an XXY male (see PAPER IV for details). (Keskitalo 1969a; 1969b; PAPER IV.) There have never been large-scale excavations at the site, and it is unknown whether the grave belongs to a large cemetery (PAPER IV).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1968	70–90	Poor	No	Two oval convex brooches under shoulders, twin-spiral chain-distributor in the middle (likely used as a pendant), penannular brooch at waist, sickle at chest, sheathed knife and a hiltless sword on the left hip/leg.	XXY male	A	cal AD 1040–1174 (95.4%, Hela-4566)	Supine	The bronze-hilted sword was located at the upper corner of the grave pit. It may have been placed in the grave fill, possibly sometime after the initial burial. For full description of context, see PAPER IV.	Keskitalo 1969a; 1969b; PAPER IV; NM 17777

#### 5. Hollola, (Ojasmäki) Hälvälä (98010015)

Anna-Liisa Hirviluoto inspected the site after a local inhabitant was told to have found human bones from a pipeline trench. She noted at least two grave cuts in the trench. Of these, grave 2/1961 was left untouched. No bones were collected, and only a knife (NM 15174:1) which had possibly located in grave 1/1961 was catalogued.

Grave nr	Depth in cm	Preservation of bones	Coffin	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1961	70	Moderate/good?	Yes	Knife			Crusade Period?	Supine	Orientation N/NE-S/SW.	Hirviluoto 1962; NM 15174
2/1961									Orientation N/NE-S/SW. Unexcavated.	Hirviluoto 1962

## 6. Hollola, Kirkkailanmäki (98010014)

Kirkkailanmäki was already known as an old cemetery site in the 19th century. Wallin (1894: 3) describes how not only pigs had dug human bones from the hill during the years but also youngsters “for fun”. At least c. 140 graves have been excavated or documented at the site. The first excavation was conducted by Jorma Leppäaho in 1935, after two oval convex brooches (NM 10048) were sent to the National Museum. He excavated c. 46 burials but left most of the bones in the graves. Leppäaho’s documentation material consists of written descriptions, illustrations, and photographs (Fig. 27), which show that the excavation methods were rough. The methods must have affected the documentation and the interpretation, but on the other hand, the preservation of bones was generally better compared to some other sites. In the following year, Helmer Salmo excavated 63 burials from the site. His report (Salmo 1937) consists of a short summary and sketches, but no individual descriptions of the graves were written. The illustrations are often sketchy and undetailed in the early reports. In 1963, Anna-Liisa Hirviluoto inspected the site after several burials had been destroyed in a roadwork. She noted bones and remains of destroyed graves in an area that had not been excavated earlier (Hirviluoto 1963a). The next graves were excavated in 1978 and 1979 by Hirviluoto (22 in total). These were the first excavations at Kirkkailanmäki on which the human remains were catalogued in the NM collections. Unfortunately, Hirviluoto’s excavation report was never finished. The field notes were compiled as a report by Katja Vuoristo in 2010. One more grave with commingled bones was excavated by Hirviluoto in 1987. The report from this excavation was also compiled by Vuoristo in 2010. In the test excavations of 1989 and 1991 at least 16 grave cuts were noted, but none were excavated (Seppälä 1991; Seppälä & Tusa 1990). One of these graves was suggested to be a double burial because of the size of the grave cut.

The Kirkkailanmäki cemetery is often dated between c. AD 1000–1300 (e.g., Hirviluoto 1985: 31–34; Jäkärä 2001). However, coin and <sup>14</sup>C dates suggest that the usage of the site continued to the end of the 14th century, possibly to the beginning of the 15th century (Ehrnsten 2019; Sarvas 1971; Översti et al. 2019). The site can, therefore, be considered mostly Medieval with the usage extending to the Late Medieval Period. The long usage is indicated by burials which have been dug over each other. Many of the older burials have been destroyed by younger ones. A characteristic feature of the cemetery is the large number of cremation burials, which have often been placed near the inhumation burials or even on top of the corpses, likely in the same grave pits with them (e.g., Puolakka 2020). The cremated bones consist of mostly human bones, but also sheep and fish have been identified (NM 10137, analysis possibly by Tarja Formisto, according to a remark in the find catalogue. The catalogue was updated in 2013 by Katariina Nurminen).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
1 (area I)/1935	60–70	Poor	Tree trunk coffin with a flat bottom and a lid	No		C (I)		Prone extended or more likely supine extended if patellae have been documented correctly, as	Burial of c. 2-year-old child. The head may have rested on a pillow, and rolled upside down when the ligaments decayed. This indicates	Leppäaho 1937; PAPER III

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
								they seem to be in ACP. The position of femurs and patellae indicate a flat-bottomed coffin, and the position of cranium a decayed pillow.	there was a lid, which created an open space in the coffin. If the coffin had a rounded bottom, the femurs and the patellae would have moved during decomposition.	
2 (area I)/1935	70	Good	No	No		A		Supine extended, head turned left, arms extended by sides, no constrictions. Mouth closed and patellae in ACP. The soil has provided support for the corpse when buried without a coffin.	According to Leppäaho, "thrown in the ground", this is an exaggerated interpretation likely stemming from the "wide" position of the skeleton when compared to burials in coffins.	Leppäaho 1937
2b (area I)/1935	55–60		Plank coffin	No					Unnumbered and unexcavated grave under the road. Skull visible at the foot end of grave 2/1935.	Leppäaho 1937
3 (area I)/1935	80–90	Poor	Plank coffin	No	F + M ?	A + A?		Leppäaho's interpretation is based only on long bones visible between the contours of coffin sides. At least one lower limb seems articulated, and the patellae is in ACP.	According to Leppäaho, a superimposed double burial in "coital position". The sex determination is likely based on the assumed number of individuals in the grave. It is not possible to determine the exact position or the number of individuals in the coffin because of the poor preservation of bones and the lack of detail in documentation. The observed additional bones may have originated from an older burial as well.	Leppäaho 1937
4 (area I)/1935	100–105		Plank coffin slightly narrowing to the foot end	Two oval con-vex brooches (NM 10048), glass bead, bronze spirals	F	A	Crusade Period	Supine extended. Patellae and small bones of feet in ACP indicating support (loose wrapping or cover) in the coffin.	Partly under grave 3 (area I)/1935 and partly destroyed, the previously found brooches belong to this grave.	Leppäaho 1937; NM 10048; NM 10137: 1–3

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
5a (area I)/1935	80	Good	Coffin slightly narrowing to the foot end	No	M	A		Supine extended, no constrictions. Patellae in ACP. Right arm semi-flexed, hand on pelvis, right arm possibly extended by the side.  According to Leppäaho, the grave belonged to a male with a height of 173 cm.	According to Leppäaho, grave 5/1935 included two adults and a small child at the foot-end. There was a 5–10 cm layer of soil between the adult skeletons, and the upper grave had possibly destroyed parts of the lower coffin. The child burial was dug partially over the adult graves, making it stratigraphically the youngest of the three. Because the burials seem to have been made at different times, I have marked the upper adult as grave 5a, the lower as 5b, and the child as 5c.	Leppäaho 1937
5b (area I)/1935	100	Poor	Coffin	No		A		Supine extended, upper limbs not in ACP? Not preserved well enough to make accurate interpretations.	Under grave 5a (area I), divided by 5-10 cm layer of soil.	Leppäaho 1937
5c (area I)/1935	70–75	Poor	Tree trunk coffin	No		C (I)			At the foot end of graves 5a–5b (area I)/1935. Length of grave pit c. 60 cm. Cremation burial (CB1) placed immediately on top of the grave. CB1 could be simultaneous with burial 5c/1935.	Leppäaho 1937
6 (area I)/1935	55–60	Moderate/good	No	Armband? (Three small iron fragments on the left wrist)		A	Medieval/Late medieval?	Supine extended, arms flexed over stomach. Possibly (loosely) wrapped.	Skeleton length 155 cm. Partly over another (unnumbered and unexcavated?) grave.	Leppäaho 1937; NM 10137: 14–24 (bones); NM-Hist 35175:2
7 (area I)/1935	55	Poor	Tree trunk coffin with flat bottom	No		C		Supine extended. Upper and lower limbs semi-flexed, no constriction. Skull in vertical position according to Leppäaho -> head supported from the back. Because the	Skeleton length 115 cm. Partly over another (unnumbered?) grave.	Leppäaho 1937

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
								femurs and ribs have not been compressed, the coffin was likely flat-bottomed. There may have been rigid material (pelt?) around the corpse in the coffin, as it would have given support to the body. This material may have also supported the head, or the head may have rested against the wall of the coffin.		
8 (area I)/1935	90	Poor	No	Knife by right femur.		A		Supine extended. Right arm flexed on stomach.	Upper half of the grave destroyed by a potato cellar.	Leppäaho 1937; NM-Hist 35175:3
8b (area I)/1935		Moderate		No		A		Supine extended.	Unnumbered grave on the left side of grave 8, mostly under the potato cellar and therefore destroyed by it. Only right side of the skeleton visible and preserved.	Leppäaho 1937
9–10 (area I)/1935	90–100	Moderate/good	No	No		A + A		Both supine extended, arms semi-flexed on pelvis. The skeletons were facing, but not touching each other. 9/1935: No constrictions. Anatomical connection lost at knees -> rigid but loose support (wrapping) around the corpse. 10/1935: patellae and bones at hands and feet in ACP -> possibly buried without coffin unwrapped.	According to Leppäaho, a double burial of individuals with heights of c. 165 cm and 178 cm. The size of the grave pit was not documented, and it is uncertain whether the individuals were in the same pit. The skeletons were at different depths with 5–10 cm between them, which could indicate that the burials were made in separate grave pits at different times.	Leppäaho 1937
11 (area I)/1935	90	Moderate/good	No	No		A		Supine extended, right arm semi-flexed, hand at pelvis.	Mostly under the road.	Leppäaho 1937
12–13 (area I)/1935	80	Moderate/good	No	No		A + A		Supine extended, arms semi-flexed, hands on pelvis.	Double burial. Partly destroyed by a road.	Leppäaho 1937

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
1 (area II)/1935	60–75	Moderate/good	No	Individual A: two bracelets on the right arm (not on wrist) (: 5–6), one bracelet on the left arm (: 7). Penannular brooch at upper abdomen, terminals upwards (: 4). Individual B: belt buckle (: 8). beads from CB9 (: 9).	(A–D): F + M + ? + ?	A + YA + A + A		A: Supine extended, arms semi-flexed, hands on pelvis. B: supine extended, arms flexed over stomach, C: cannot be determined D: supine, arms possibly flexed over stomach. Articulations visible on skeletons A, B, C. They are tightly on top of each other, and they were possibly buried at the same time. D is likely an older burial, which was disturbed when A–C and the cremation were buried.  A–C: Loose wrapping?	Four inhumations and 2 cremations; mass grave according to Leppäaho. Individuals A–D from left to right. Skeleton B (height c. 150 cm) partly over A. Skeleton C immediately under B. Skeleton D partly destroyed when CB2 (and possibly A–C) were deposited. CB9 is located under the right femur and tibia of individual considered D. May have been a mass grave of three individuals, but skeleton D may also consist of two individuals who were buried earlier than the other three.	Leppäaho 1937; NM-Hist 35175: 5–9, 12
2 (area II)/1935	50–60	Moderate/good	No	No		A		Supine extended, arms flexed over stomach. Head on right cheek. No constrictions.		Leppäaho 1937
2b (area II)/1935	70–80		No	No					Unnumbered grave on the left side of grave 2. Empty, according to Leppäaho. Length 150 cm.	Leppäaho 1937
3 (area II)/1935	60–70	Moderate/good	No	Ring brooch on the chest.			Medieval/Late Medieval? Leppäaho claims that Tynni Vahter had identified remains of “lace” on the brooch. If this is correct, the	Supine extended, arms semi-flexed over stomach. Head almost in vertical position -> support from back, possibly the edge of the grave pit. No constrictions (not wrapped).		Leppäaho 1937; NM-Hist 35175: 11

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
							date would be Early Modern period at the latest (see Sonnensche in 2020).			
4 (area II)/1935	45–55	Poor/moderate	No	No		A		Supine extended, upper body slightly rotated to right. Arms semi-flexed over stomach. No constrictions. Not tightly wrapped. Loose wrapping cannot be excluded.	Small cremation burial (CB5) on the right knee.	Leppäaho 1937
5 (area II)/1935	30–40		No	No		A		Supine extended, arms semi-flexed over stomach. Not tightly wrapped. Loose wrapping cannot be excluded.	The foot end destroyed in digging a cremation burial (CB6).	Leppäaho 1937
6a (area II)/1935	60	Moderate/good		No		C		Supine extended, arms extended by sides.	C. 75 cm tall child skeleton over CB7. Partly destroyed by grave 6b.	Leppäaho 1937
6b (area II)/1935	50	Moderate/good	No	No	M	A		Supine extended, arms semi-flexed over stomach.	"Tall man of c. 190 cm" according to Leppäaho. Buried over grave 6a.	Leppäaho 1937
7 (area II)/1935	50	Poor/moderate	No	No		A		Supine extended, arms semi-flexed over stomach. Head almost in vertical position -> support from back, possibly edge of the grave pit	Partly destroyed.	Leppäaho 1937
8 (area II)/1935	60	Moderate/good	Plank coffin, 170 x 38–44 cm, handles at corners.	No		YA	F	Supine extended, arms extended by sides. Patellas in ACP.	Skeleton length 160 cm. YA female according to the updated find catalogue by K. Nurminen.	Leppäaho 1937; NM 10137
9 (area II)/1935	75	Moderate	No	No				Supine extended, arms semi-flexed, hands on pelvis. No constrictions.	Skeleton length 165 cm	Leppäaho 1937



Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
10a (area II)/1935	50	Poor/moderate		No				Supine extended, lower limbs tightly together indicating either tight wrapping or narrow container/pit.	Skeleton length 140 cm. Partly on top of grave 10b (area II)/1935. Not a double burial.	Leppäaho 1937
10b (area II)/1935	60	Moderate/good	No	No				Supine extended, left arm extended by the side, right flexed on stomach. No constrictions.	Partly under grave 10a (area II)/1935. Skeleton length 160 cm.	Leppäaho 1937
11 (area II)/1935	60	Poor (only skull and femurs)	No	No				Supine extended.		Leppäaho 1937
12 (area II)/1935	75	Moderate	Tree trunk coffin with flat bottom	No		A		Supine extended, arms semi-flexed, hands at pelvis.	Partly under graves 10a–10b/1935	Leppäaho 1937
13 (area II)/1935	75	Moderate/good	No	No		A		Supine extended, arms semi-flexed, hands at pelvis.	Skeleton length 155 cm.	Leppäaho 1937
14 (area II)/1935	90	Moderate/good	No	Iron tool (resembling a hand drill, according to Leppäaho) by the right femur.	M	A	Medieval?	Supine extended, arms extended by sides. Upper body slightly curved to left, pelvis lower than limbs.	Skeleton length 180 cm. "Thrown into the grave", according to Leppäaho. More likely slightly uneven bottom in the grave pit.	Leppäaho 1937; NM-Hist 35175: 12
15 (area II)/1935	70	Moderate/good	No	Knife at the inner side of the right femur		A		Supine extended, arms flexed over stomach.	Partly over grave 30/1935.	Leppäaho 1937; NM-Hist 35175: 14
16 (area II)/1935	85	Moderate/good	No	No		A		Supine extended, left arm extended by the side, right semi-flexed, hand on pelvis.	Partly under and destroyed by grave 29/1935. Skeleton length 165 cm.	Leppäaho 1937
17 (area II)/1935	60	Good	No	Silver ring brooch at the neck.	M	A	Medieval	Supine extended, right arm straight by the side, left semi-flexed over stomach. Possibly loose wrapping or a narrow grave pit.	Skeleton length 180 cm	Leppäaho 1937; NM-Hist 35175: 13
18 (area II)/1935	55	Moderate	Plank coffin 183 cm x 42–16 cm narrowing to the foot end.	Bronze ring brooch at the ribcage.		A	Medieval	Supine extended, left arm extended by the side, right arm semi-flexed on stomach. Head on the left cheek.	Over grave 19/1935.	Leppäaho 1937

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
19 (area II)/1935	75	Moderate	No	No		A		Supine extended, arms flexed, hands on chest.	Under grave 18/1935. Skeleton length 145–150 cm	Leppäaho 1937
20 (area II)/1935	90	Poor		Bronze brooch by the skull, presumably from an older burial.		A		Supine extended, arms flexed over stomach.	This grave has destroyed an older one. Displaced bones from the previous burial around the skeleton.	Leppäaho 1937; NM-Hist 35175:16
21 (area II)/1935	90	Moderate/good	No	No		A		Prone extended, right arm extended by the side, left arm extended, slightly over back/ribs. Likely buried in a pit narrowing to the head end (see PAPER III)	Cremation burial on the right side of skeleton.	Leppäaho 1937; PAPER III
22 (area II)/1935	60	Moderate/good	Plank coffin, size 172 x 45–47 cm.	No		A		Supine extended, arms crossed and semi-flexed over stomach.		Leppäaho 1937
23 (area II)/1935	80	Good	No	No	M	A	14th–15th c.? Stratigraphically younger than 23b/1935	Supine extended, arms flexed over stomach. Lower limbs slightly adducted, patellae in ACP. Narrow grave pit or loose wrapping.	Length of skeleton 190 cm (likely overestimated). Over an unnumbered grave (renumbered here as 23b/1935).	Leppäaho 1937
23b (area II)/1935		Poor	No	Bracteate of Magnus Eriksson (AD 1360–63) by the right femur. Remains of organic material on the coin thought to be from a purse.			Late 14th century (coin date, Ehmsten 2019: 144; 294)	Supine extended. Lower limbs slightly adducted. Possibly wrapped. In this case, the organic material observed on the coin could also come from shroud or other wrapping material.	Unnumbered grave below and partly destroyed by 23 (area II)/1935. Only lower limbs preserved.	Leppäaho 1937; NM-Hist 35175:17
24 (area II)/1935	75	Moderate/good	Narrow tree trunk coffin with flat bottom	No				Supine extended, arms semi-flexed, hands on pelvis. Clavicles in (slightly) vertical position.		Leppäaho 1937
25 (area II)/1935	75	Moderate/good	No	No			Medieval	Supine extended, arms semi-flexed, hands on pelvis,	Over older graves, secondary bones, two skulls, and artefacts (bracelet and ring brooch) on	Leppäaho 1937; NM-Hist 35175: 20-21

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
								crossed at wrists. No constriction.	and beside the skeleton. According to Leppäaho, the older burial may have been a double burial.	
1/1936		Moderate/good	Plank coffin slightly narrowing to the foot end	Bracteate of Magnus Eriksson (AD 1360–63) at the pelvic area			Late 14th century (coin date, Ehmsten 2019: 144; 294)	Supine extended, arms extended by sides. Head on right cheek, mouth open.	Additional femur over the ribcage?	Salmo 1937
2/1936		Poor	Coffin	No				Supine extended, right arm flexed over stomach	Partly over grave 10/1936. Cremation burial at the head end.	Salmo 1937
3/1936		Poor/moderate		No				Supine extended, right arm flexed over stomach, left possibly extended by the side.	Additional, commingled bones over the coffin.	Salmo 1937
4/1936		Moderate/good		Bracteate of Magnus Eriksson (AD 1360–63) between femurs. Silver ring brooch by femur, likely from a destroyed burial at the site.		A + C?	Late 14th century (coin date, Ehmsten 2019: 144; 294)	Supine extended, arms tightly flexed, hands near chin (individual holding an infant?)	A double burial of an adult and an infant? Very small bones were found at the chest and near the chin of the adult skeleton. These bones have not been stored for further analysis, but the tightly flexed arms of the adult could indicate a holding position. Secondary bones (two skulls) over the grave. Cremation burial over ankles and feet.	Salmo 1937
5/1936		Moderate/good		No		A + C		Adult: Supine extended, right arm tightly flexed, hand on chest. Lower limbs together at ankles. Child: supine extended.	Salmo's map includes two skeletons (A + C) with the same burial number. The child burial extends over the limits of the of individual A, which could indicate that this is not a double burial.	Salmo 1937
6/1936		Moderate	Plank coffin slightly	No		A		Supine extended, arms semi-flexed, hands joined at pelvis.	Some additional, commingled bones on the grave.	Salmo 1937

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
7/1936		Moderate/good	narrowing to the foot end Plank coffin, possibly hexagonal, widest point at the knees	No		A		Supine extended, arms extended by the sides. No constrictions (individual not wrapped).	The container seems to have been hexagonal, but the widest point was at the knees instead of the upper body.	Salmo 1937
8/1936		Poor	Plank coffin	No				Supine extended.	Additional bones near the grave.	Salmo 1937
9/1936		Moderate/good	No	No		A		Supine extended, arms flexed on stomach.	Possibly loosely wrapped.	Salmo 1937
10/1936		Poor	Plank coffin narrowing to the foot end	No					Partly under grave 2/1936	Salmo 1937
11/1936		Poor/moderate (skull well preserved, according to Salmo)	Plank coffin with handles at corners	No		A		Supine extended, arms extended by sides. No constriction.	Under grave 4/1936. The upper body seems slightly disturbed, possibly by grave 4.	Salmo 1937
12/1936		Poor/moderate	Plank coffin possibly narrowing to the head end	Beads at the neck, ring brooch at chest.	F?	A	Medieval	Supine extended, arms extended by sides. Head on the right cheek. No constrictions.	Additional bones over the grave.	Salmo 1937
13/1936		Moderate/good	Plank coffin narrowing to foot end, handles at corners.	No		A	Medieval	Supine extended, arms semi-flexed, joined at pelvis. Head slightly turned right and down, on the right cheek.	Additional bones from older graves around the coffin.	Salmo 1937
14/1936		Moderate		No				Supine extended, arms extended by sides		Salmo 1937
15/1936		Poor		No					"Skull went missing during the excavation."	Salmo 1937
16/1936		Poor		Brooch at chin/neck and textile over it					Only a skull.	Salmo 1937
17/1936		Moderate/good	Possibly narrow coffin	No				Supine extended, arms semi-flexed, joined at pelvis. Some constriction.	Additional skull on pelvis.	Salmo 1937

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
18/1936		Moderate/good		No				Supine extended, arms flexed over stomach.		Salmo 1937
19/1936		Moderate/good	No	No		A + A + A		Individual A at the top: supine extended, arms extended by sides, lower limbs constricted -> tightly wrapped. Individual B under A. Supine extended, finger bones on pelvis, clavicles in vertical position, constricted -> tightly wrapped. Individual C: bones partly under B, partly mixed with the bones. Skeleton in lateral position, on the left side, possibly semi-flexed, but slightly disturbed. All skeletons facing left, heads on the left cheeks.	Possibly a superimposed double burial over an older burial.  A and B buried at the same time or in very short intervals: A has not disturbed the articulations of B. Individual C likely buried a few years earlier, some connections still present when burial of A and B was made.  Additional skull near the grave.	Salmo 1937
20/1936		Poor/moderate	Coffin	No		A		Supine extended, arms semi-flexed, on stomach.		Salmo 1937
21/1936		Poor/moderate		No		A		Supine extended, arms semi-flexed on stomach. Head on right cheek. No constriction.	Fabric preserved near the right side, not following the shape of the corpse. Considering the position, possibly loose wrapping.	Salmo 1937
22/1936		Poor/moderate		No				Supine extended, arms flexed on stomach. Head on right cheek		Salmo 1937
23/1936		Poor		No				Supine extended. The upper skeleton seems very tightly adducted, which could indicate a v-shaped tree trunk coffin. The lower is less constricted.	Documentation is not detailed enough to determine whether the two corpses have been deposited simultaneously.	Salmo 1937
24/1936				No					Uncertain grave.	Salmo 1937

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
25/ 1936		Moderate/good	Coffin	No		A		Supine extended, arms extended on sides. Head on left cheek.		Salmo 1937
26/ 1936				No					Commingle bones from at least two individuals (two skulls). Possibly a disturbed burial.	Salmo 1937
27/ 1936		Poor	Plank coffin, handles at corners	No		A	Medieval	Possibly supine extended	A disturbed grave with remains of younger burial partly on top of it.	Salmo 1937
28/ 1936		Poor/moderate	Plank coffin, handles at corners	No		A	Medieval	Supine extended, left arm flexed on stomach. Head on the right cheek.		Salmo 1937
28a/ 1936		Moderate/good	No	No		A		Supine extended, arms flexed on stomach. Head on right cheek, mouth open. Slightly constricted.	Burial in a narrow pit or wrapping in rigid material.	Salmo 1937
29/ 1936		Moderate/good	No	No		A		Supine extended, arms semi-flexed on stomach, head slightly turned to left, mouth open.		Salmo 1937
30/ 1936		Poor		No				Supine extended, right arm flexed on stomach, left has not been preserved.	Cremated bones near left ankle.	Salmo 1937
31/ 1936		Moderate/good		No				Supine extended.		Salmo 1937
32/ 1936		Poor	Plank coffin	No		A		Supine extended.	Salmo's drawing includes two skeletons (one in a coffin and one without), which seem to have been numbered as 32. According to the drawing and the profile section, the graves are c. 50 cm apart from each other horizontally and c. 20–30 cm at different depths. This would indicate separate burials and not a double burial. Or could the drawing represent the	Salmo 1937

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
									same skeleton at different depths?	
33/1936		Poor/moderate		No		A		Supine extended, arms semi-flexed on stomach.		Salmo 1937
34/1936		Moderate/good		No				Salmo has drawn two graves, and it is not clear which grave is slightly on top of the other. These burials have been dug at different times. The other grave has a skeleton in a supine position, arms semi-flexed, hands on pelvis. The head is supported from the back. The other skeleton is in a supine position with left arm semi-flexed and left lower limb flexed (femur lifted up and leg bent at the knee). This may be a secondary position, as a cremation burial has been dug at the foot end of the grave.	Based on the position of the flexed leg, the cremation burial has likely been deposited shortly after the inhumation burial -> the ligaments at the knee had still been attached when the cremation has been deposited.	Salmo 1937
35/1936		Poor	Narrow plank coffin	No		A		Supine extended, arms flexed on stomach.	Cremation burial by the head.	Salmo 1937
36/1936		Moderate		No		A		Supine extended, arms semi-flexed on stomach, head on right cheek.		Salmo 1937
37/1936		Moderate/good	Plank coffin	No		A		Supine extended, arms extended by the sides, head on right cheek.		Salmo 1937
38/1936		Moderate/good		No				Supine extended, arms flexed on stomach, head on right cheek.		Salmo 1937
39/1936		Moderate		No				Supine extended, arms semi-flexed on stomach.	Additional skull at the waist.	Salmo 1937
40/1936		Moderate/good		No		A		Supine extended, arms semi-flexed, hands joined on stomach. Mouth open.		Salmo 1937

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
41/1936		Moderate/good		No		A		Supine extended, arms semi-flexed, hands joined on stomach.		Salmo 1937
42/1936		Poor		No		A + A?			Either a superimposed double burial or two burials on top of each other. The documentation is not clear and might indicate some disturbance.	Salmo 1937
43/1936		Poor	Plank coffin	No		A		Supine extended.	Cremation burial at the head end.	Salmo 1937
44/1936		Poor		No		A		Supine extended, arms flexed on stomach.		Salmo 1937
45/1936		Poor		No		A		Supine extended, arms flexed on stomach.		Salmo 1937
46/1936		Poor	Plank coffin	No		A		Supine extended, head on the left cheek. Patellae in ACP.		Salmo 1937
47/1936		Poor		No		A		Likely supine extended.		Salmo 1937
48/1936		Poor		No		A		Supine extended.		Salmo 1937
49/1936		Poor		Knife by the left femur		A		Supine extended.		Salmo 1937
50/1936		Poor		No		A + A?		Possibly two individuals, the lower one in supine extended position, the upper possibly in lateral position, on the left side, facing the first individual, head on the chest of this individual. This is, however, an uncertain interpretation.	Double burial or a burial with partially destroyed older burial. The documentation drawing is very sketchy, and it is not possible to make definite interpretations. The profile section drawing suggests the skeletons were lying at the same level.	Salmo 1937
51/1936		Poor/moderate		Brooch on the chest		A		Supine extended, arms flexed on stomach.	Birch bark covering/ loose wrapping.	Salmo 1937
52/1936				No					The drawing includes an empty grave and another, poorly preserved skeleton with cremated bones at the foot end.	Salmo 1937



Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
53/1936		Poor	Plank coffin	No		A		Supine extended?	Additional skull at the head-end of the coffin, or two individuals in the same coffin. There is a partially destroyed grave under the coffin, so the additional bones could originate from this grave.	Salmo 1937
54/1936		Poor		No				Supine extended.		Salmo 1937
55/1936		Moderate	Plank coffin	No		A		Supine extended, left arm semi-flexed over stomach, right arm extended by side. Head on the left cheek.		Salmo 1937
56/1936		Poor		Arrowhead found in one of the skulls.					Bones of at least 3 individuals, partly commingled. According to Salmo, one of the skulls belonged to a male, who had an arrowhead plunged into the skull behind the ear. It is uncertain whether the bones have formed a multiple burial.	Salmo 1937; HistM 36077: 44
57/1936		Poor		No		A		Supine extended, arms possibly extended by the sides.		Salmo 1937
58/1936		Poor/moderate		No		C + C + C		Supine extended	Triple grave of three children.	Salmo 1937
59/1936		Poor/moderate		Beads and pendants at the neck.		C?		Supine extended, head on the left cheek, right arm semi-flexed, hand on stomach, left possibly semi-flexed, hand on pelvis. Left leg semi-flexed.		Salmo 1937
60/1936		Poor		No				Supine extended		Salmo 1937
61/1936		Poor/moderate		No				Supine extended, arms extended by sides.	The drawing shows remains of two other graves beside the skeleton. The remains of tree trunk coffin are visible on the	Salmo 1937

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
									right side, remains of another skeleton by left lower limb.	
62/1936		Poor		No				Supine extended		Salmo 1937
1/1978	Near the surface	Moderate/good	Plank coffin made of pine, handles at corners, support beam made of hardwood.	Bracelets around both arms	F (Salo 2011)	A (Salo 2011)	1170 – 1300 calAD (94.7%), median late 13th century (Su-1722, Taavitsainen 1990: 84)  1025–1160 cal AD (95.4%) (Hela-4185) (Översti et al. 2019, suppl. 1).	Supine extended, arms flexed on stomach. Head resting over a support beam of the coffin.	Orientation: SW-NE. Hair well preserved (Hirviluoto 1986). The first <sup>14</sup> C date published by Taavitsainen (1990) has been recalibrated in Oxcal v4.4 (Bronk Ramsey 2017) using IntCal 20 atmospheric curve (Reimer et al. 2020). The most recent date published by Översti et al. (2019) differs from the first by c. 100 years.	Hirviluoto 1979 (Vuoristo 2010b); NM 20450: 1-9
2/1978		Poor/moderate		No						Hirviluoto 1979 (Vuoristo 2010b); NM 20450: 71–75
3/1978									Grave nr 3 had not been mentioned in the report.	
4/1978			Narrow coffin	Knife on the left side of waist, bronze spirals, bracelet around the right arm, ear spoon under it. Similar bracelet around the left arm. Two oval convex brooches, twin-spiral chain-	F (Salo 2011)	A (maturus) (Salo 2011)	AD 1157–1277 (94.4%) (Su-1712) Most likely date: early 13th century.	Supine extended, right arm semi-flexed, hand on the pelvis. Left arm flexed, hand on the chest. Head on the left cheek. Clavicle verticalized, indicating a narrow container.	Orientation: NW–SE. The <sup>14</sup> C date from Taavitsainen 1990 has been recalibrated in Oxcal v4.4 (Bronk Ramsey 2017) using IntCal 20 atmospheric curve (Reimer et al. 2020).	Hirviluoto 1979 (Vuoristo 2010b); NM 20450: 10–37

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
				distributors, two beads.						
5/1978				Two oval con-vex brooches (subtype Hauho) and twin-spiral chain-distributors, beads, key pendant. Knife at the left elbow. Ring on the right hand.	F (Salo 2011)	A (Salo 2011)	1116–1226 cal AD (72.3%) (Su-1721, Taavitsainen 1990: 84).  Late 12th century	Supine extended, right arm on the waist, left arm flexed, hand on the chest.	Orientation: NW–SE. The <sup>14</sup> C date from Taavitsainen 1990 has been recalibrated in Oxcal v4.4 (Bronk Ramsey 2017) using IntCal 20 atmospheric curve (Reimer et al. 2020).	Hirviluoto 1979 (Vuoristo 2010b); NM 20450: 38–57
6/1978				No			1185–1285 cal AD (95.4%) (Hela-4186) (Översti et al. 2019, suppl. 1)			Hirviluoto 1979 [Vuoristo 2010b]; NM 20450: 76–77
7/1978				No			890–1115 cal AD (95.4%) (Hela-4187) (Översti et al. 2019, suppl. 1)		<sup>14</sup> C median 995 AD	Hirviluoto 1979 [Vuoristo 2010b]; NM 20450: 78–82
8/1978				No	F? (Salo 2011)	A (Salo 2011)	1315–1450 cal AD (95.4%) (Hela-4188) (Översti et al. 2019, suppl. 1)		<sup>14</sup> C median 1415 AD	Hirviluoto 1979 [Vuoristo 2010b]; NM 20450: 83–86
9/1978				No	M? (Salo 2011)	A (matu rus)	895–1155 cal AD (95.4%)		<sup>14</sup> C median 1100 AD	Hirviluoto 1979 [Vuoristo 2010b]; NM 20450: 120–131

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
						(Salo 2011)	(Hela-4189) (Översti et al. 2019, suppl. 1)			
10/1978				Knife		A + C (maturus) (Salo 2011)	1035–1245 cal AD (95.4%) (Hela-4190) (Översti et al. 2019, suppl. 1)		<sup>14</sup> C median 1160 AD; The bone material retrieved from the grave contains bones of an older adult and c. 8-year-old child (Salo 2011).	Hirviluoto 1979 [Vuoristo 2010b]; NM 20450: 132–139
11/1978				No		C			The bones belong to a child of c. 10–15 years of age, according to the new catalogue by Katariina Nurminen.	Hirviluoto 1979 [Vuoristo 2010b]; NM 20450: 140–147
12/1979		Moderate/good	Coffin with handles at comers.	No		YA (Salo 2011)		Supine extended, arms flexed, hands on the chest.	Orientation: SW–NE.	Hirviluoto 1979 [Vuoristo 2010b]; NM 21112: 1–7
13/1979		Good	Coffin	No	M (Salo 2011)	A (Salo 2011)	907 – 1154 calAD (95,4%) (Hela-4191) (Översti et al. 2019, suppl. 1)	Supine extended, head on the right cheek.	Orientation: SW–NE <sup>14</sup> C median 1022 AD.	Hirviluoto 1979 [Vuoristo 2010b]; NM 21112: 8–14
14/1979	40 cm	Moderate	Coffin	Remains of a leather belt with a bronze mount and a buckle, glass bead, knife	M? (Salo 2011)	A (Salo 2011)	14th century	Supine extended, head on the right cheek.	Orientation: SW–NE. Remains of fur (Cervidae) on top of the belt buckle (Kirkinen 2019). Possibly remains of juniper berries in the grave (NM 21112: 22).	Hirviluoto 1979 [Vuoristo 2010b]; NM 21112: 15–29
15/1979		Poor	Coffin with iron handles, size 50 x 23 cm			C (I)?			Orientation: SW–NE, Limb bones found from the coffin?	Hirviluoto 1979 [Vuoristo 2010b]; NM 21112: 30–36
16/1979		Moderate/good			M? (Salo 2011)	A (Salo 2011)			Orientation: SW–NE. Commingled bones.	Hirviluoto 1979 (Vuoristo)

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
										2010b]; NM 21112: 37–51
17/1979		Moderate/good		No	M? (Salo 2011)	A (Salo 2011)	970–1150 cal AD (95.4%) (Hela-4192) (Översti et al. 2019, suppl. 1)		Assumed to be a mass grave in the report but consisting of commingled bones without anatomical connections. <sup>14</sup> C median 1010 AD.	Hirviluoto 1979 [Vuoristo 2010b]; NM 21112: 52–72
18/1979		Poor	Possibly a coffin			C (Salo 2011)			Orientation: SW–NE. Commingled bones. The bones belong to c. 5-yearold child.	Hirviluoto 1979 (Vuoristo 2010b); NM 21112: 73–75
19/1979		Good				A (Salo 2011)			Well-preserved skeleton left in situ and covered with a plastic sheet and soil.	Hirviluoto 1979 (Vuoristo 2010b); NM 21112: 83
20/1979	60 cm	Moderate	Plank coffin		F? (Salo 2011)	A (matu rus) (Salo 2011)	1220–1290 cal AD (95.4%) (Hela-4194) (Översti et al. 2019, suppl. 1)		Orientation: NE–SW. Birch bark in the grave.	Hirviluoto 1979 (Vuoristo 2010b); NM 21112: 84–97
21/1979		Moderate	Plank coffin		M?	A (matu rus) (Salo 2011)	1045–1220 cal AD (95.4%) (Hela-4193) (Översti et al. 2019, suppl. 1)	Supine extended, head on right cheek.	Orientation: SW–NE.	Hirviluoto 1979 (Vuoristo 2010b); NM 21112: 98–104
22/1979										Hirviluoto 1979 (Vuoristo 2010b)
1/1987			Coffin						Orientation: N–S. Comingled bones.	Hirviluoto 1987 (Vuoristo 2010a)
1–2/1989									Trench 4, location 921/495-497. Orientation: SW–NE. Two	Seppälä & Tusa 1990

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body position	Other notes	References
									graves, one partially under the other. Unexcavated.	
3/1989									Trench 4, location 921/498-499. Orientation: SW-NE. Assumed double burial based on the size of the grave pit. Unexcavated.	Seppälä & Tusa 1990
4/1989			Coffin						Trench 4, location 920-921/500-501. Orientation: SW-NE. Unexcavated.	Seppälä & Tusa 1990
5/1989									Trench 4, location 920-500, next to 4/1989. Orientation: SW-NE. Unexcavated.	Seppälä & Tusa 1990
6-7/1989									Trench 4b. Two graves, orientation: SW-NE. Unexcavated.	Seppälä & Tusa 1990
8-10/1989									Trench 4c. Three graves, orientation: SW-NE. Unexcavated.	Seppälä & Tusa 1990
11/1989									Trench 2, location 941/500. Orientation: NW-SE. Unexcavated.	Seppälä & Tusa 1990
12/1989									Trench 3, location 921-923/500. Orientation: NW-SE. Unexcavated.	Seppälä & Tusa 1990
1-4/1991									Unexcavated.	Seppälä 1991



**Figure 27.** A photograph from the excavation at Hollola Kirkkailanmäki in 1935 reveals the rough excavation methods used. Photo: Jorma Leppäaho/FHA.

## 7. Hollola, (Hämeenkoski) Pyhän Laurin kirkon raunio (283500001)

The church of St Lawrence (Laurentius) was built in the 16th century and abandoned before the 1650s (Hiekkänen 2005; 2020). The excavation finds (including Crusade Period penannular brooches and graves that have been <sup>14</sup>C dated to the late 13th or 14th century) indicate that the church was built on an Early Medieval cemetery (Hiekkänen 2005; 2020; Ratilainen 2005). The Early Medieval cemetery may have been preceded by a Late Iron Age field, based on the <sup>14</sup>C dates of charred barley seeds found from some of the graves (Ratilainen 2005: 98). The first excavation at the site was conducted in 1962. At the time, “some” skeletons were found by the eastern wall of the church. The graves were not documented, and it is only written that they had coffins in the W–E orientation. The bones were reburied at the cemetery (Lilius 1962). The later excavation finds have often included commingled and mixed animal and human remains (e.g., Liesivuori & Kumpulainen 1997). The animal bones have been <sup>14</sup>C dated and they can be associated with later (post-abandonment) activities at the site (Tourunen 2005: 105). In 1998, at least two graves were found. Both were partially disturbed, as they included additional bones and some anatomical connections had been lost (Ratilainen 1999). The graves excavated in 1999 include a 16th-century double burial of two men and two graves described as “peculiar” because of a dark, round, cup-like feature observed at the end of the graves (Lompolo 2000). In 2000, evidence of several destroyed graves and at least four possibly intact graves (two with coffins) were observed but not excavated (Kehusmaa 2002). In 2001, seven graves were excavated, and in addition to them, commingled remains of c. 40 individuals were observed (Paljärvi 2002). The last excavation at the site was conducted in 2002. In the excavation, 24 graves mostly belonging to children (17 in total) were excavated and/or documented (Ratilainen 2002). The bones have been analysed by Auli Tourunen (see references to reports and publications in the References column). The site is located 400 meters south from Santahaudanmäki (site nr 8).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1998	50–70	Moderate	Possibly plank coffin	Coffin nail	M	A	Medieval/Late Medieval	Supine extended, arms flexed, hands on stomach.	Orientation: W–E. Head between two stones. Some signs of disturbance (bones missing and displaced). Additional bones in the grave (mandible at the left knee).	Ratilainen 1999
2/1998	50–70	Poor	Possibly plank coffin	Coffin nails		C	Medieval/Late Medieval		Unnumbered grave described in the report, location 65/98–99. Orientation: W–E. Grave cut length c. 110 cm. The bones belong to a child.	Ratilainen 1999

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial positon	Other notes	References
1/1999		Moderate/good?		No		A	Medieval/Late Medieval	Supine extended	Unnumbered grave described in the report. The grave was photographed but not drawn on the maps. Level 6, location: 71/98–99. Orientation W–E. Only the lower limbs had been preserved.	Lompolo 2000;
2/1999		Moderate/good	No	No		C	Medieval/Late Medieval	Supine extended, right arm flexed over chest. Constriction of lower limbs and ribcage indicate tight wrapping.	Unnumbered grave described in the report, map 15. Level 8, location 72/100–101. Orientation: W–E. The skeleton of c. 3–5-year-old child otherwise complete, but upper part of the cranium and pelvis missing.	Lompolo 2000
3/1999		Moderate/good	No	No	M	A	1440–1620 cal AD, (68.2%) (Ua-23724) (Hiekkänen 2005: 56)	Supine extended, right arm semi-flexed, hand on pelvis. Left arm flexed over chest. Pelvis not flattened -> buried without coffin, no constrictions -> not wrapped tightly.	Unnumbered grave described in the report. Location 70/98–99, levels 8–9, map 12. Orientation: W–E. The foundation of a sacristy has destroyed the grave below the knees. <i>Numbered as grave 5 in Hiekkänen 2005.</i>	Lompolo 2000
4/1999		Poor/moderate		No	F	A	15th century or younger because of the sacristy (see Ratilainen 2005: 96–97).	Supine extended	Unnumbered grave described in the report. Location 70/98–99, level 9, map 12, orientation: W–E. On the southern side of 3/1999. The foundation of a sacristy has destroyed the grave below the chest.	Lompolo 2000



Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial positon	Other notes	References
5-6/ 1999		Poor		No			Medieval/Late Medieval	Supine extended	Unnumbered graves described as "peculiar" in the report. Location 66/98-100, level 9-10. Orientation W-E, a round "cup-like" area of decomposed organic material at the western end in the one, and at the eastern end in the other one. In the soil analysis, only human bones were identified in these areas (Lompola 2000). <i>One of these graves was numbered as grave 1 in the soil analysis report (Terttu Lempiäinen in Lompola 2000).</i>	Lompola 2000
7/1999		Poor (only dental enamel)		20 glass beads (14 of them fragmentary)			Medieval/Late Medieval		Unnumbered grave described in the report. Location 64/99-100, level 10. Orientation: W-E.	Lompola 2000; Hiekkänen 2006; NM-Hist 2000027:4
8/1999		Moderate/good	Coffin	No	F	A	1290-1410 cal AD, (95.4%) (Ua-23721) Hiekkänen 2005: 56)	Supine extended, arms semi-flexed, crossed over stomach.	Unnumbered grave described in the report. Location 71-72/98-99, level 10, map 13. Orientation: W-E. Additional bones in the grave. <i>Numbered as grave 2 in Hiekkänen 2005.</i>	Lompola 2000
9/1999		Poor		Silver ring brooch on the left side of the chest	F	A	1270-1390 cal AD (Su-3336) Hiekkänen 2005: 56)	Supine extended	Unnumbered grave described in the report. Location: 67/98-100, level 11, maps 7, 14. Orientation: W-E.	Lompola 2000; NM-Hist 2000027:1

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial positon	Other notes	References
									<p><sup>14</sup>C date from Hiekkanen 2005 has been recalibrated in Oxcal v4.4 (Bronk Ramsey 2017) using IntCal 20 atmospheric curve (Reimer et al. 2020).</p> <p><i>Numbered as grave 1 in Hiekkanen 2005.</i></p>	
10–11/ 1999		Moderate/good	No	No	M + M	A + A	<p>1487–1655 ca IAD (Ua-23722) Hiekkanen 2005: 56)</p> <p>and</p> <p>1495–1602 cal AD (Ua-23723) Hiekkanen 2005: 56)</p> <p>Both likely buried at the same time in the 16th century.</p>	<p>Individual on the right facing right, supine extended, left arm flexed, right arm straight by the side, right radius and ulna under the arm bones of the left individual. Hand bones articulated. Flattened ribcage and pelvis, clavicle in a vertical position. -&gt; Likely rigid material on top of the upper body. Left individual facing left, upper body slightly on the left side, left arm straight by the side, right arm flexed over stomach. No flattening of pelvis. Ribcage not flattened but the ribs from the right side have collapsed inside the volume of the body. Both individuals: patellae in ACP. No constrictions.</p>	<p>Unnumbered double grave described in the report. Location: 71–72/98–99, level 10–11, maps 7, 16. Orientation: W–E.</p> <p>The extended arms of both individuals are crossing each other, and the small hand bones of both individuals (left and right hand) seem to be at the same location. The individual on the right has been placed in the grave first, because the right arm is partly under the other individual.</p> <p>The lower individual had arthritis in the vertebrae and a healed fracture in the tibia and fibula.</p> <p>The <sup>14</sup>C dates from Hiekkanen 2005 have been recalibrated in</p>	Lompola 2000

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
								Not tightly wrapped. Burial without coffin. Likely buried in clothes.	Oxcal v4.4 (Bronk Ramsey 2017) using IntCal20 atmospheric curve (Reimer et al. 2020). <i>Numbered as graves 3 and 4 in Hiekkanen 2005: 56.</i>	
1/2001		Poor	Coffin	No					Orientation: W–E.	Pajjärvi 2002
2/2001		Poor	Coffin	Coffin nails with wood attached to them.			Medieval/Late Medieval		Orientation: W–E.	Pajjärvi 2002
3/2001		Poor	Coffin?	No					Orientation: W–E. Additional bones in the grave.	Pajjärvi 2002
4/2001		Poor/moderate	Coffin, possibly slightly narrowing to the foot end.	No			Medieval/Late Medieval		Orientation: W–E.	Pajjärvi 2002
5a–5b /2001		Moderate/good		No			Medieval/Late Medieval	Possibly constricted -> tightly wrapped?	Orientation: W–E. Bones of two individuals in anatomical order, at slightly different depths. It is not possible to determine if this is a double grave or not.	Pajjärvi 2002
6/2001		Poor	Possibly a coffin	No			Medieval/Late Medieval			Pajjärvi 2002
7/2001		Poor		No						Pajjärvi 2002
1/2002				No		C			Orientation: W–E. Size of the grave cut 100 x 36–50 cm. A flat stone on the grave at the foot end.	Ratilainen 2002
2/2002			Possibly a coffin	No		C			Orientation: W–E. Size of the grave cut 104 x 36–54 cm. Partly over grave 5/2002.	Ratilainen 2002

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
3/2002		Moderate/good	No	No	M	A	1450–1650 cal AD (Poz-1256) (Hiekkänen 2005: 56)	Supine/slightly lateral on the right side, extended, right arm flexed, hand clenched in a fist at the chest. Left hand on the pelvis. Ankles crossed.	Orientation: W–E. Partly over grave 14/2002. Individual c. 35-year-old adult male, height c. 165 cm (Ratilainen & Tourunen 2003: 25). Caries and enamel hypoplasia (Tourunen 2005).	Ratilainen 2002; Ratilainen & Tourunen 2003; Tourunen 2005
4/2002			Possibly a coffin	No		C			Orientation: W–E. Size of the grave cut 100 x 30 cm. Partially over grave 11b/2002.	Ratilainen 2002
5/2002			Possibly a coffin narrowing to the western end.	No			Medieval? Date from a charred barley grain: 1160–1300 cal AD (Ua-23725) (Hiekkänen 2005: 56)		Orientation: W–E. Size of the grave cut 130 x 10–40 cm. Partly under grave 2/2002.  The charred barley seed could indicate that the site was used as a field before the establishment of the cemetery (Ratilainen 2005: 98).	Ratilainen 2002
6/2002				No		C	Two dates from charred barley grains: 980–1190 cal AD (95.4%) (Ua-23727) (Hiekkänen 2005: 56)  and  970–1160 cal AD (95.4%)		Orientation: W–E. Size of the grave cut 60 x 18–26 cm, partially over grave 78/2002.  The charred barley seed could indicate that the site was used as a field before the establishment of the cemetery (Ratilainen 2005: 98).	

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial positon	Other notes	References
							(Ua-23728) (Hiekkänen 2005: 56)			
7/2002				No		C			Orientation: W–E. Size of the grave cut 70 x 30 cm.	Ratilainen 2002
8/2002				No		C			Orientation: W–E. Size of the grave cut 60 x 10–30 cm. Partially under grave 6/2002.	Ratilainen 2002
9/2002				No		C			Orientation: W–E. Size of the grave cut 90 x 20–38 cm.	Ratilainen 2002
10a/2002				No		C			Orientation: W–E. Size of the grave cut 60 x 20–30 cm. Possibly under 10b/2002.	Ratilainen 2002
10b/2002			Possibly a coffin	No		C			Orientation: W–E. Size of the grave cut 50 x 30 cm. Possibly over 10a/2002.	Ratilainen 2002
11a/2002				No		C	Younger than grave 15/2002.		Orientation: W–E. Size of the grave cut 106 x 30–50 cm. Partially over grave 15/2002.	Ratilainen 2002
11b/2002				No			Younger than grave 15/2002.		Orientation: W–E. Size of the grave cut 146 x 30–40 cm. Partially under grave 4/2002. Partially over grave 15/2002.	Ratilainen 2002
12/2002				No		C			Orientation: W–E. Size of the grave cut 45 x 25 cm	Ratilainen 2002
13/2002				No		C			Orientation: W–E. Size of the grave cut 100 x 10–50 cm.	Ratilainen 2002
14/2002				No			Older than grave 3/2002.		Orientation: W–E. Size of the grave cut 150 x 35	Ratilainen 2002

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial positon	Other notes	References
									cm. Partially under grave 3/2002.	
15/2002		Moderate/good		No	F	A	1475–1660 cal AD (Poz-1254) (Hiekkanen 2005: 56)	Supine extended, arms semi-flexed, hands on the pelvis. Head supported from the back.	Partly under graves 10a–10b/2002. C. 35–49-year-old female, height 154 cm (Ratilainen & Tourunen 2003: 26).	Ratilainen 2002; Ratilainen & Tourunen 2003
16/2002		Poor (only teeth)		No		C	Date from a charred barley grain: 1150–1290 cal AD (95.4%) (Ua-23726) (Hiekkanen 2005: 56)		Orientation: SW–NE. C. 11–13-year-old child with caries (Ratilainen & Tourunen 2003: 26)  The charred barley seed could indicate that the site was used as a field before the establishment of the cemetery (Ratilainen 2005: 98).	Ratilainen 2002; Ratilainen & Tourunen 2003
17/2002				No		C?			Orientation: W–E. Size of the grave cut 80 x 40 cm. Not excavated.	Ratilainen 2002
18/2002		Only dental enamel		No		C?			Orientation: W–E. Size of the grave cut 70 x 30 cm.	Ratilainen 2002
19/2002				No					Orientation: W–E. Size of the grave cut 130 x 40–45 cm.	Ratilainen 2002
20/2002			Possibly a coffin	No		C			Orientation: W–E. Size of the grave cut 70–75 x 40 cm.	Ratilainen 2002
21/2002			Coffin, size 35 x 16.5 cm	No		C			Orientation: SW–NE. “Fragile bones which do not belong to the buried individual.”	Ratilainen 2002
22/2002		Moderate		No		A?			Orientation: W–E.	Ratilainen 2002

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
23/2002				No					At the foot end of grave 3/2002. Not excavated.	Ratilainen 2002
24/2002			Possibly a coffin	No					Only the remains of coffin sides observed. Possibly a disturbed burial.	Ratilainen 2002

## 8. Hollola, Santahaudanmäki (283010003)

The first artefacts and human bones had already been found in the 19th century (Wallin 1894: 3), but none of these finds have been stored in archaeological collections. In 1962, a bronze penannular brooch (NM 15463) and an axe (NM 15444) were sent to the National Museum. In 1963, Anna-Liisa Hirviluoto inspected the site, and she was told that the objects had been found by schoolboys during their own excavation when sieving the sandy soil (Hirviluoto 1964). In 1983, a sword and four spearheads (NM 22079: 1–5) were found from the same location that Hirviluoto had noted as a possible grave (Taavitsainen 1983). The artefacts were found from a small area covering c. 1 m, suggesting they all belong to the same burial. The spearheads had been bent, and there are wood fibres in a transverse direction at the bent, suggesting the spearheads were likely struck into the coffin structure. In 1985, another find was reported. It contained human bones, a sword blade and three spearheads (all fragmentary), two axes, and again, a bent spearhead with wood remains at the bend (NM 23043). The finds had been recovered from a small area, and they likely originated from the same grave. According to the finder, the axes had been “under the skull”. During the archaeological inspection, the bottom of the grave was still visible (Seger 1985), but the size or the shape of it was not documented. The grave was not visible when the find spot was finally properly excavated after two years (Kotivuori & Bergström 1986). The bones had been lifted in 1985 as a bulk with the surrounding sandy soil. I cleared the bones and sampled the soil in 2017. At that time, it was noted that the grave contained three femoral heads (Moilanen 2017). This could indicate that the grave had been a double burial. The finds also contained several small fragments of birch bark, which may have been used as covering for the corpse(s) (Moilanen 2017). The site is located only 400 m north of Pyhän Laurin kirkon raunio (site nr 7).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1961				Bronze penannular brooch, axe, sword (locations unknown)			Crusade Period (typology, see Taavitsainen 1990: 78).		Found by school children, never excavated or documented by archaeologists. According to the locals, the artefacts had been found together with a human skull. The remains of the grave	Hirviluoto 1964; NM 15463 NM 15444

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1963	c. 150		Coffin/wooden structure with spearheads struck into it.	Sword, four bent spearheads with wood remains at the bends			Typological dating of the artefacts: late 10th – early 11th century		cut were noted by Hirviluoto during her inspection. An unexcavated grave cut noted by Hirviluoto. The artefacts reported decades later were found from the same spot, according to Taavitsainen. The grave seems deep but there has likely been secondary fill on top of it. The spearheads have likely been struck into the coffin structure.	Hirviluoto 1964; Taavitsainen 1984; NM 22079
1/1985		Moderate/Good	Coffin/wooden structure with a spearhead struck into it.	Fragmentary sword blade, three (fragmentary) spearheads, a bent spearhead with remains of wood at the bend, two axes.	M? + ? (Salo 2019c)	A + A	1161–1261 cal AD (95.4%) (Hela-4599)  Mean and median 1195 cal AD		The axes were reportedly under the skull. The fragmentary tips of the spearheads and the bent spearhead have transverse wood fibres attached to them. They have likely been struck into the coffin structure. The bones belong to two individuals. One of the skull fragments possibly belonging to a male individual has a possible perimortem fracture in the left side the parietal and occipital bone (Salo 2019c: 8). Birch bark from the grave. Tuija Kirkinen has identified a bird feather fragment and hairs from Mustelidae species, possibly marten or badger, and a possible hair from a seal (Phocidae) from the soil sample taken from the grave (analysis for this dissertation).	Seger 1985; Moilanen 2017; NM 23043



## 9. Hämeenlinna (Lammi), Honkaliini 1 (401010009)

In 1932, Nils Cleve conducted a small-scale excavation on a hill, from where a few Viking Age artefacts, including a spearhead of Petersen type M (NM 9579: 1) and a round convex brooch of Appelgren type D (NM 9579: 2) had been found. Based on the excavation finds (NM 9727) Cleve (1933) concluded that the site is a Late Iron Age cremation cemetery under level ground, in which inhumations had been made at the end of the usage period. The unburnt human bones were not found in an anatomical order, and they were not documented. According to Cleve, the inhumation burial had possibly included a ceramic vessel (NM 9727: 1) and a bronze double-spiral chain-distributor (: 2), which have occasionally been reused as pendants, based on the finds from Hattula Vesitorninmäki (site nr 4) and Pälkäne Ristiänmäki (site nr 31).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1932		Moderate		Pottery sherd (: 1) and a bronze twin-spiral chain-distributor (: 2)	F?		Crusade Period		Inhumation burial in a cremation cemetery.	Cleve 1933b; NM 9727

## 10. Hämeenlinna (Tuulos), Eerola 2 (855010004)

In 1939, the Archaeological Commission received a report of Iron Age artefacts found from the Eerola house in Hämeenlinna. A group of workmen had found cremated bones, pottery sherds, and an angon spearhead (NM 11054) from a stone cairn. At the same time, they reported an unburnt human skull and other bones, which had been found in a previous year from another cairn c. 75 meters from the first find (Salmo 1939b). Salmo did not excavate the cairn. He reported that secondary stones had been placed on it, but at least part of the cairn was still untouched. In 1983, an archaeological survey was conducted in the area, and fragments of an unburnt human cranium (NM 22185) were found near the cairn. It has been speculated that the bone originates from the cairn (Saukkonen 1984). This could be a Viking Age inhumation burial in a cairn (c.f. Hattula Ruskeenkärki, site nr 1, and Pälkäne Kokkostenkärki, site nr 29).

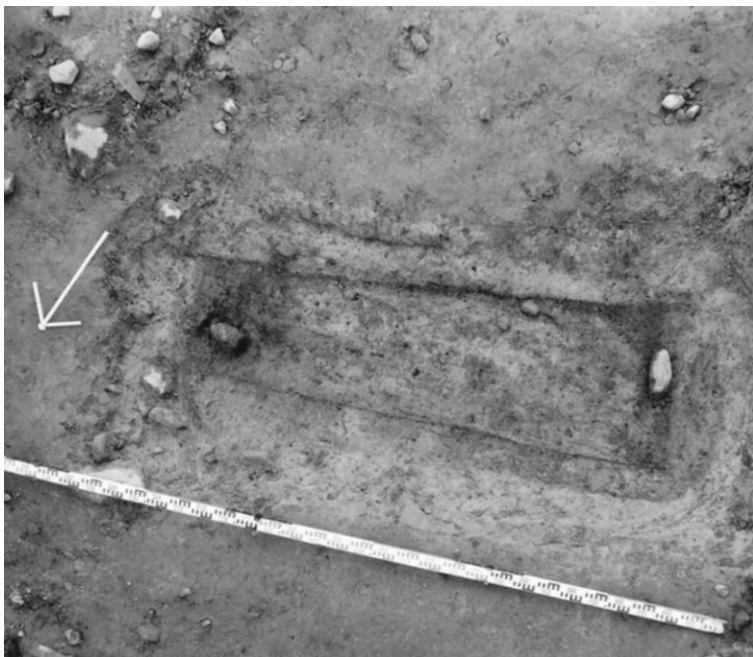
Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1938		Moderate							Possibly an inhumation burial in a cairn.	Salmo 1939b; NM 22185

## 11. Hämeenlinna (Hauho), Kalomäki 2 (83010004)

Kalomäki 2 is a Late Iron Age cremation cemetery under level ground, in which at least five inhumation burials have been made. The inhumation graves were found in excavations in 1971–1972. The reports had been compiled in 2017 from preliminary notes (Söyrinki-Harmo

2017a, 2017b). Graves 1 and 2, as well as half of grave 5, were excavated in autumn 1971, in difficult conditions when the soil was wet (Söyrinki-Harmo 2017a). Söyrinki-Harmo (2017b) considered grave 4/1972 to belong to a child, based on the size of the grave pit (c. 60–70 cm x 120–130 cm, although the size would also allow a small adult to be buried in the grave, especially if buried in a slightly flexed position. Unburnt bones have not been preserved at the sites, so it is not possible to determine the age or the sex of the buried individuals.

Grave nr	Depth in cm	Preservation of bones	Coffin	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1971	60–80		Coffin narrowing towards the end, size c. 40–70 x 220 cm. No nails.	Bent spearhead (: 2356), silver finger ring (:2355), knife (: 2357)	M?		Crusade Period?		The grave has been dug until bedrock. A bent spearhead was found from the upper layers, near the lid. Söyrinki-Harmo (2017) considered it possibly being used as a coffin nail.	Söyrinki-Harmo 2017a; NM 18468: 2354–2357
2/1971	70		Plank coffin with handles at corners (Fig. 28). Size c. 80–90 cm x 220 cm	Miniature axe 108 x 73 mm (: 2362), rectangular firesteel (: 2360), pottery sherds (: 2358), knife (: 2359)	M?		Crusade Period?		Axe and firesteel on the bottom of the coffin, by the head.	Söyrinki-Harmo 2017a; NM 18468: 2358 – 2362
3/1972	70–80		Coffin, size 70–90 x 220 cm, narrowing to one end. One nail (: 748)	Pottery sherds and burnt clay in the fill.			Crusade Period?		Two large stones on top of the coffin at both ends.	Söyrinki-Harmo 2017b; NM 18917: 737–761
4/1972	70		Possibly a coffin	No		C? Based on the size of the grave pit	Crusade Period?		Stone setting, size of the grave pit c. 60–70 x 120–130 cm	Söyrinki-Harmo 2017b; NM 18917
5/1972	80			Pottery sherds and burnt bone and clay in the fill			Crusade Period?		Size of the grave pit c. 70–80 x 220–240 cm. A large stone on top of the grave.	Söyrinki-Harmo 2017b; NM 18917: 762–7



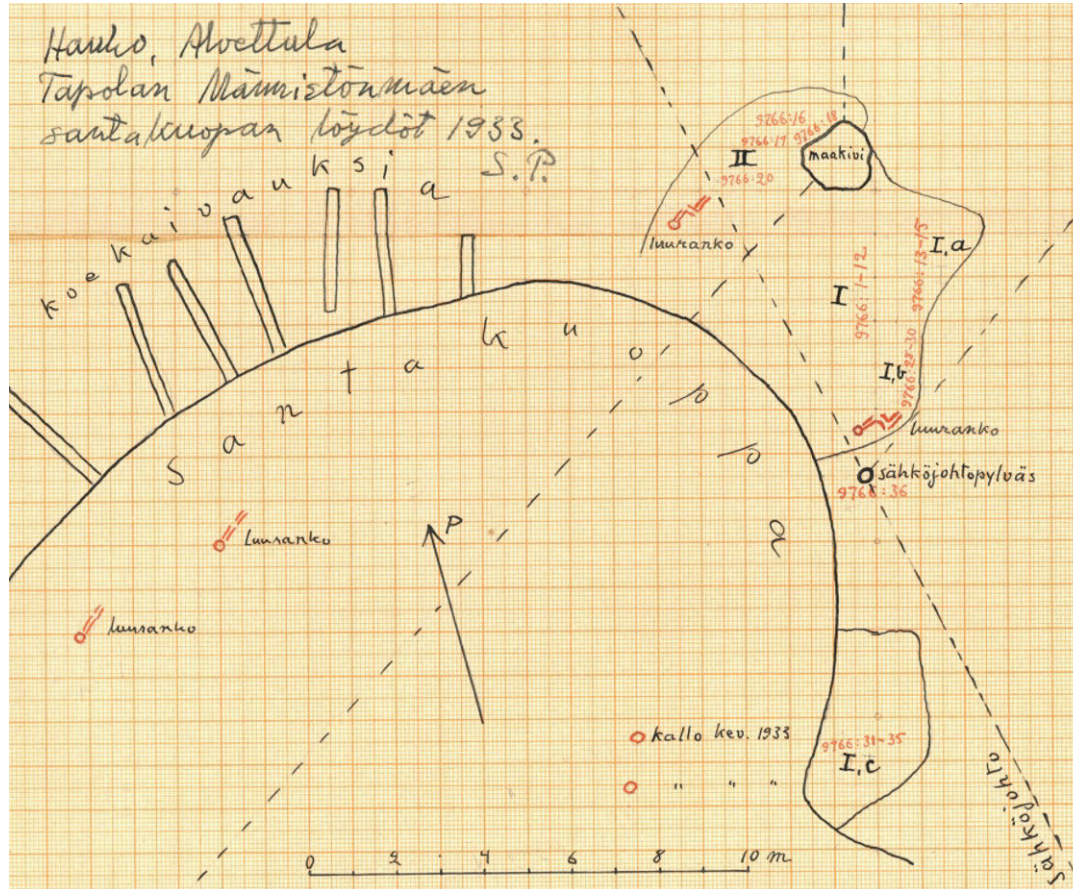
**Figure 28.** Grave 2/1971 at Hämeenlinna Kalomäki 2. The handles of the coffin are clearly visible at the corners. Photo: Leena Söyrinki, FHA.

## **12. Hämeenlinna (Hauho Alvettula), Männistönmäki (83010022)**

The finds at this site originate from cremation and inhumation burials. The first inhumation graves were found in spring 1933, when two skulls were found from a sand pit. No artefacts were found at the time. In autumn 1933, more bones (described as skeletons) were found, as well as Viking Age objects which likely originated from a cremation cemetery under level ground. According to Pälsi (1933), the inhumation graves had been dug through the cremation cemetery layers, based on the sooty soil, cremated bones, and partially melted beads and bronze fragments. The graves were never properly excavated or documented. No artefacts were reported, but it was noted that two individuals had possibly been buried on their sides with the lower limbs bent at the knees (Fig. 29). In 1999, a sword was found when excavating a water pipeline, and in the following archaeological inspection, it was concluded that at least three graves had been destroyed during the work. One grave (1/1999) was

excavated by archaeologists. Fragments of cranium were found from the opposite ends of the grave, but because the bones were poorly preserved, it is impossible to make definitive interpretations. There are multiple different possibilities for the skull fragments in the grave: there could have been two individuals in the grave (heads at opposite directions as in Valkeakoski Toppolanmäki grave 2/1936), additional bones in the grave (like several graves at Hollola Kirkkailanmäki), or the bones could have been commingled due to secondary disturbance, deliberate or not (there may be some evidence of partial destruction of the grave).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1-6/ 1933		Moderate/good		Most of the finds (NM 9766, NM 9794 and NM 10497) likely originate from a cremation cemetery. A bronze finger ring and a gold foil bead (9766: 36) have possibly been found from one of the semi-flexed burials.			Crusade Period	Two individuals reportedly on their sides, legs bent at knees.	Unburnt bones from at least six graves were found in spring and autumn 1933. None of the graves were properly excavated or documented.	Pälsi 1933; NM 9766; NM 9794; NM 10497
1/1999		Poor	Coffin	Knife, round pendant, silver filigree bead. A carnelian bead originating from a cremation cemetery.		A	1036-1176 cal AD (94.4%) (Hela-4733)		Orientation SW-NE, size of the grave pit c. 180 x 100 cm. Cranium fragments were found at the opposite ends of the grave. Cremated bones in the SW section of the grave.	Heikkurinen-Montell 1999; NM 31692



**Figure 29.** The locations of four skeletons found in 1933 at Hämeenlinna Männistömäki. Two of the skeletons were reportedly in a lateral flexed or semi-flexed position. Drawing: Sakari Pälsi.

### 13. Hämeenlinna (Lammi), Nisula (Hannula) (401010002)

In 1978, a human skull was found during road construction work. The finders thought that the grave could originate from the Finnish Civil War (1917), and reported the find to local police, who inspected the site. During the police investigations, ribs and vertebrae were found at first, but when a round brooch (Fig. 30) came to light, the National Board of Antiquities was notified. Anna-Liisa Hirviluoto (1978) inspected the site and interviewed the police about the find. Hirviluoto excavated only the head end of the grave, and the foot end is presumably still untouched.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1978	80	Moderate/good		Round brooch, bronze spiral ornaments, glass beads, bone beads	F?	A?	12th–13th century		Remains of at least two other graves were noted by Hirviluoto.  Similar brooches have been found from the Valkeakoski Toppolanmäki grave 4/1937.	Hirviluoto 1978; NM 20449



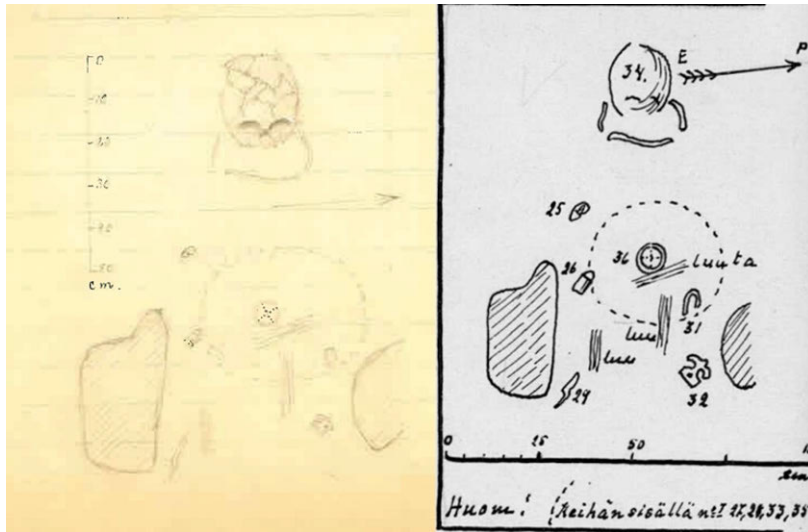
**Figure 30.** Round brooch NM 20449: 1 from grave 1/1978 at Hämeenlinna Nisula (Hannula). Photo: Ulla Moilanen.

#### 14. Hämeenlinna (Kalvola), Pahnainmäki (999000258)

The site consists of a Late Iron Age cremation cemetery under level ground with at least two Crusade Period inhumation burials (Appelgren-Kivalo 1913). Both inhumation burials include artefacts, which had traces of being in a fire. Some of these items (such as the fragmentary neck-ring) seem to have been used on the corpses imitating actual dress accessories and jewellery (Fig. 31).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Dating	Burial position	Other notes	References
1/1911		Poor		<p>Partially in the inhumation burial but originating from the cremation cemetery: sword blade with a broken tip in the soil at an upward angle. Another sword blade in three fragments, tip bent. These objects have some signs of having been in a fire and they extend over the limits of the grave pit.</p> <p>On the unburnt corpse: two oval convex brooches (Ailio type C), two penannular brooches (bronze and silver), two twin-spiral chain-distributors, bronze chain, ear spoon (broken), bear-tooth pendant, two finger-rings, coin pendant (German Otto Adelheid 991–1040 AD), bracteate, bronze spiral ornaments.</p>	F	A	<p>The typological dating of the artefacts on the corpse spans from the 10th and 11th century (e.g., Kivisalo 2008; Taavitsainen 1990: 88) to the 12th century (Taavitsainen 1990: 88-90). Heirlooms used in the jewellery set?</p> <p>Most likely date: the latter half of the 12th century?</p>	Cannot be determined. The locations of artefacts may indicate movement during decomposition in an open space (possibly created by rigid material on top of the corpse).	<p>Orientation SW–NE.</p> <p>Appelgren-Kivalo (1913) interpreted the swords as grave goods placed in the grave "in honour of the deceased".</p>	Appelgren-Kivalo 1913; NM 5960: 1–21
2/1913	50	Poor (skull, limb bones observable)		<p>Penannular brooch with rolled terminals, iron lock. Finds originating from cremation burials: melted bronze chain, two melted beads, cremated bones (collected at the stomach</p>	F	A	12th century? (based on the other inhumation burial)	Supine extended.	Orientation W–E.	Appelgren-Kivalo 1913; NM 6388: 25–36

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Dating	Burial position	Other notes	References
				area of the individual), three fragments of a neck-ring (placed around the neck of the individual), a chain-distributor (Eastern form typically used in the Merovingian and Viking periods), a round convex brooch (type Appelgren F) without a needle. Inhumation burial finds: bronze spirals, rectangular firesteel, knife.						



**Figure 31.** Drawings of grave 2/1913 at Hämeenlinna Pahnainmäki by Hjalmar Appelgren-Kivalo. Three fragments of a neck-ring originating from the cremation cemetery were placed around the neck of the individual.



## 15. Hämeenlinna (Kalvola), Urheilukenttä (210010011)

The grave was found in 1946, when constructing a sports field. C. F. Meinander brought the artefacts (NM 11592) to the National Museum, and although the skeleton was described as being in a good condition and intact, the bones were not taken from the ground and the fate of them is unknown. Kivikoski examined the site in 1951 but did not find additional artefacts or any bones.

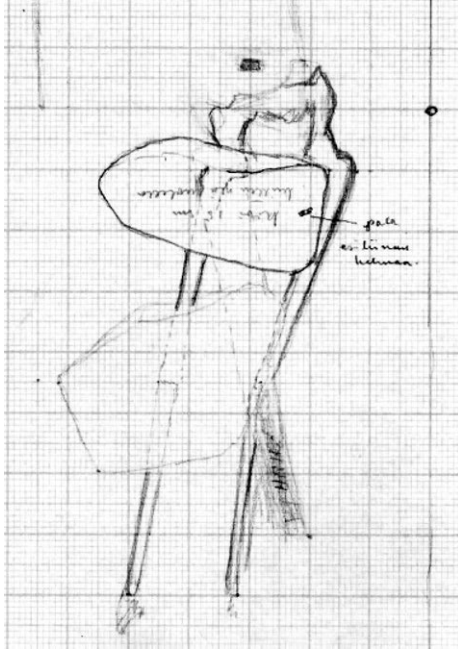
Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1946	30	Good		Two oval convex brooches (Ailio G), penannular brooch, two twin-spiral chain-distributors.	F?	A?	12th century		Orientation SE–NW.	Kivikoski 1951b; NM 11592

## 16. Janakkala, Kinnari 1 (165010026)

In 1929, two skeletons were found from the yard of Kinnari House in Janakkala, right below the Kiianlinna hillfort. Helmer Salonen (later Salmo) inspected the site in late autumn 1929. He excavated the head end of one grave (later numbered as 2/1930) but stopped the work because of cold and frosty weather. According to the finder, the grave belonged to a male – an assumption likely based on the size of the bones. The grave contained a penannular brooch with faceted terminals (NM 9110:1). It was partly covered with fabric remains, which could mean that the corpse had been covered with a cloth. Nils Cleve completed the excavation of the grave and found a small bronze spiral ornament from it. Two large stones had been placed directly on top of the corpse (Fig. 32). Cleve also excavated three other graves. One of them, grave 3/1930, was possibly disturbed, as it consisted only of a well-preserved skull (Fig. 33). In grave 4/1930, two stones were also placed on the corpse.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1930		Poor		Belt buckle of iron, knife			Crusade Period		Orientation SW–NE. Only lower limb bones were partially intact.	Cleve 1930; NM 9199
2/1930		Poor/moderate	No	Penannular brooch with faceted terminals (NM 9110: 1). Bronze spiral ornaments (9199).	M (according to the finder; Salonen 1929)	A	Crusade Period	Supine? No constrictions, meaning the individual was not wrapped tightly.	Orientation SW–NE. The grave was inspected and partially excavated by Salmo in 1929.	Salonen 1929; Cleve 1930; NM 9110 NM 9199

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
									Excavation completed by Cleve in 1930. Two large stones had been placed directly on the corpse. The corpse was also possibly covered with a cloth.	
3/1930		Good (only a skull)		No	F? (Salo 2019a)	c. 10–12-year-old child (Salo 2019a).	991–1048 cal AD (74.8%) 1082–1130 cal AD (17.4%) (Hela-4734)		Orientation SW–NE. Only a skull, no signs of any other bones. Possibly from a disturbed grave, since part of the mandible has been coloured green by a bronze artefact.	Cleve 1930; NM 9199:4
4/1930		Poor		No					Orientation SW–NE. Two stones placed on the corpse.	Cleve 1930



**Figure 32.** (left). Large stones on the corpse in Janakkala Kinnari grave 2/1930. Drawing: Nils Cleve.

**Figure 33.** (below). The skull from “grave” 3/1930. Photo: Ulla Moilanen.



### 17. Janakkala, Kirkkomaa (165010030)

In autumn 1952, a broad-bladed battle axe (type Petersen M) and a knife (NM 13091) were found during the excavation of a cable trench at the medieval stone church of Janakkala. Jorma Leppäaho inspected the site immediately and noticed two inhumation graves 6–7 meters apart from each other. The graves were excavated in the following year by Oiva Keskitalo, who found out that the other grave also contained a Petersen M axe (Fig. 34). The soil in the upper layers of both graves was black and sooty. The sooty area was larger than the actual grave pits, leading Keskitalo (1953a) to think that fires had been burned on top the graves after they had been filled in.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial positon	Other notes	References
1/1953	70–90 (original ground level unknown)	Poor (observable <i>in situ</i> but too soft to lift)	Plank coffin (length c. 200 cm)	Coffin nails (NM 13091: 4; NM 13287: 2–3); penannular brooch with terminals towards the feet (: 6). Axe (type Petersen M) (13287: 11) on the stomach, belt buckle (13287: 7) under it. A sheathed knife and an oval firesteel (13287: 9–10) on the left side of the pelvis. A pottery sherd (:12) in front of the face.	M	A	Crusade Period	Supine extended, arms semi-flexed over stomach/hip. Head on the left cheek, slightly bent towards the left shoulder. No constriction.	Orientation SW–NE. Size of the grave pit: 250–300 x 150 cm . A stone (“fairly large” according to Keskitalo) on the left leg (actually on top of the coffin lid) and another at the foot end. Sooty soil over the grave.	Keskitalo 1953a; Leppäaho 1952; NM 13091; NM 13287
2/1953	60–65 cm (original ground level unknown)	Poor (skull, vertebrae, arms, femurs, and right tibia were observable but too soft for lifting)	Plank coffin, (c. 190 x 46 cm)	The initial finds, the axe of type Petersen M and a knife (NM 13091: 1–2) possibly belong to this grave. Another knife (NM 13287: 13) and a fragment of flint (: 14) on the left side of pelvis.	M	A	Crusade Period	Supine extended, exact arm position cannot be determined, but according to Keskitalo’s notes, they may have been extended by the sides.	Orientation SW–NE. Size of grave pit c. 220 x 55 cm. The mid-section of the grave was destroyed by the cable trench. Sooty soil on top of the grave.	Keskitalo 1953a; Leppäaho 1954; NM 13091



grave with spearheads used to close the coffin lid, and a skull which was not given a separate grave number. These finds were located c. 35 meters from the previously found graves, and it was noted that the area between these two burial places was unsuitable for inhumation burials. Later excavations in 1954 revealed cremation cemetery finds dating to the Merovingian Period and the Viking Age (Keskitalo 1953b; 1954).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1-3?/ 1865		Poor/moderate. Three skulls were taken to the Anatomy Department at the University of Helsinki.		Spearhead, arrowhead, fragments of a neck-ring, nails, rivets.	M + M + M	adult (mature) + YA + YA	Crusade Period		The graves have not been documented. The exact number of graves is unknown, as is the original location of the objects.	Koskinen & Ignatius 1866; NM 598
1/1948	100	Moderate		Oval convex brooch (: 1). Another convex brooch (: 2) was found from a sand pile outside the building and it is uncertain if it originates from this grave.		A + A + C	1156–1231 cal AD (91.1%) (Hela-4732)		Orientation N–S. Based on Keskitalo's description, this was a double burial: the skeletons were lying "side by side". One of the individuals had an oval brooch on the chest. According to the osteological analysis, the minimum number of individuals in the grave is three. There are also bones of a c. 5-year-old child in the grave (Salo 2019d).	Keskitalo 1951; NM 11938: 1–3
Unnumbered bone find/ 1948	30	Good							"The face of the skull has been cut horizontally." It is unknown what this remark refers to, but it might mean that the skull has been damaged in secondary activities.	Keskitalo 1951
1/1950	80–83	Cranium, teeth, and cervical vertebrae in poor condition.	Plank coffin (length c. 155 cm x 40 cm). Width of planks 8 and 9 cm on the N side. The N side	Cremated bones, pottery sherds in the fill and under the coffin. Iron hook, a knife, broken sword tip, and two spearheads used in closing the coffin lid.		A (based on the teeth), sub-adult according to Keskitalo (1950), who based the estimate on		Head on the left cheek. Based on the location of the lower and the upper teeth, the cranium was displaced during the decomposition	Orientation E–W. Size of grave pit 185–200 cm x 65–75 cm. A large stone over the coffin lid, at the head end. The artefacts used in closing the coffin lid have been struck into the side planks and bent above the coffin lid.	Keskitalo 1950; 1951; NM 12694

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial positon	Other notes	References
			has collapsed, and the upper plank has moved inwards c. 10 cm.	On the corpse: a penannular brooch with a broken end terminal (Fig. 35), a glass bead and a small iron ring at the neck, a sheathed knife on the pelvic area. Fabric remains under and over the knife.		the small coffin size.		process. This may have happened when the coffin structure collapsed (indicated by the displaced plank) or if there was a pillow under the head.		



**Figure 35.** The broken penannular brooch and a bead from grave 1/1950 at Janakkala Makasiinmäki. Photo: FHA.

**19. Janakkala, Tupala (100023057)**

The site is located under a plowed field. The grave was found by amateur metal-detectorists in 2013, and this is so far the only archaeologically excavated grave from the site. The GPR investigations and the other metal detectorist finds indicate other, possibly furnished graves, in the area (FHA press release 26.9.2014). The grave has become famous because of the two swords found from the grave, and they have led to a popular nickname “swordsman of Janakkala”. Simo Vanhatalo (2016) has interpreted the swords as personal equipment of the buried individual. He has also suggested that the individual could have taken part in the skirmishes between Sweden and Novgorod taking place in

the Häme area (Vanhatalo 2016: 100). However, the documentation photography and grave plans shows the remains of a rectangular coffin in a lighter-coloured grave pit. The swords have clearly been placed in the grave pit, but outside the coffin. As with the cases of Hämeenlinna Pahnainmäki (site nr 14) and the Hattula Vesitorninmäki (site nr 4) bronze-hilted sword, these swords may not have a direct association with the buried individual. The swords bear fire patina, which indicate that they originate from a cremation cemetery. Also, sooty soil and cremated bones were placed inside the coffin, on the individual. It is often forgotten that the original deposition also included an axe and a kettle handle, which were removed from the top of the swords by metal detectorists before the archaeological excavation took place.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Body positon	Other notes	References
1/2013		Poor	Rectangular (plank) coffin, handles at comers, size 43–53 x 200 cm.	Knife on the left side of the pelvis. Two swords, kettle handle, axe, small spearhead in the grave pit, outside the coffin.	M	A	1270–1400 cal AD (95.4%) (Beta-367455) (Vanhatalo 2016: 95, 99) and 1290–1400 cal AD (95.4%) (Beta-367456) (Vanhatalo 2016: 95, 99)	Supine extended, right arm semi-flexed, hand on the pelvis. Left arm flexed, hand on the chest. Head on the left cheek. No constriction.	Sooty soil and cremated bones placed on top of the individual.	Vanhatalo 2014; 2106; NM 39824

## 20. Janakkala, Vähä-Kurki (165010052)

In 1939, a skeleton find was reported from Janakkala, Vähä-Kurki croft. Salmo (1939a) inspected the site, but his report does not mention what happened to the bones. It is possible that the grave was destroyed before it could be excavated or documented. According to Salmo, several grave-like depressions could be seen at the site. None of them have been excavated, but according to the most recent inspection (Soininen 2017, no report, information in the Ancient Relics Register), the grave-like depressions have been examined with a metal detector. Since there were no metal signals, the depressions were not considered to be graves. The site has since been removed from the register of archaeological sites. However, the reported grave (1/1939) may have been completely unfurnished, so it could be wise to examine the site with more thorough methods than just a metal detector.



## 21. Kangasala, Liuksialan kappeli (211010022)

The site is located at the private chapel of the Liuksiala estate. The estate is known as the residence of former Swedish queen Karin Månsdotter, who lived there between 1577–1612. According to oral tradition, the first church of Kangasala was located at the site, and a map from 1696 mentions an ancient church and a cemetery which have since then vanished: “*Een Uhrminnes gammal Kyrkhia och Kyrkhiégård, som I heedendomen hafver varet brugkeligh Kyrchia ähr alldeles ned fallen steen på steen*” (Hytönen 1995: 8–10; Luoto 2010: 38; a sketch of the map also in Hackman 1927). Between 1859–1926, a windmill stood on the stone foundation believed to be the medieval chapel. In 1920, Jalmari Finne and the “young men from the estate” examined the foundation under the mill. They cleared part of the original floor and found out that it had been made of large, natural stone slabs. One of the slabs was lifted and the excavation continued under it. Iron nails (from a coffin) and a human skull were encountered (Finne 1920). In 1927, after dismantling the windmill, the foundation was cleared of sand and debris. Some of the floor slabs were lifted and the soil under them was excavated in the depth of 120 cm. From there, Alfred Hackman (1927) mentions finding human remains (skulls and long bones) which were not in an anatomical order (Hackman 1927; NM 8776). The skull fragments have been analysed as belonging to an older individual (Salo 2019e). A private chapel was built on the foundation in 1932.

The human remains may originate from a Medieval cemetery, but they are not necessarily related to the stone chapel. From the same area, two Merovingian period spearheads, a Viking Age sword, a penannular brooch, and fragments of pottery have been found. These finds have not been catalogued in the National Museum collections, but they are stored in the Kangasala museum. The exact find locations are unknown. In recent years, several Late Iron Age artefacts have been found in metal-detecting from the surrounding fields (e.g., NM 40060; NM 41649; NM 42897). There is no evidence that any of the objects would originate from inhumation burials, but there is a possibility that the Medieval cemetery would include some Crusade Period graves (c.f. Hollola Kirkkailanmäki, Hämeenkoski Pyhän Laurin kirkon raunio, Pälkäne Rauniokirkko).

## 22. Kuhmoinen, Ala-Rantala (291010004)

Unburnt human bones and several artefacts were found in 1852 and 1853 when constructing a cellar. The site was inspected by Hjalmar Appelgren-Kivalo in 1907 and Aarne Europaeus in 1921, but it was never properly excavated nor documented. Most of the artefacts found at the time (NM 1232) can be dated to the Late Crusade Period (12th–13th centuries AD) (Taavitsainen 1990: 218). They include a twin-spiral chain-distributor, bronze chain, two axes, and a so-called “Hanseatic” bowl (c.f. Tamla & Valk 2017). The typologically oldest artefact, a round convex brooch (type Appelgren E) (NM 1232: 9), can be dated to the Late Viking Age. The brooch was sent to the Archaeological Commission later than the other finds under the same catalogue number. Fragments of a penannular brooch and horse accessories (bits) (NM 1266), and a third axe (NM 1558) have possibly been found from the same location. Considering the large number of artefacts – and assuming

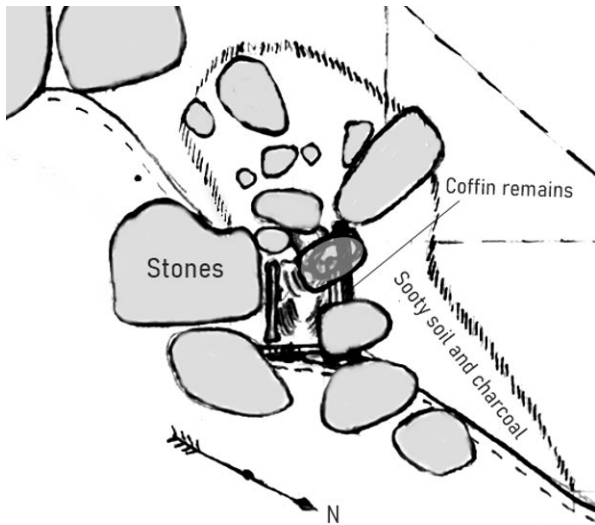
they all have been found from the same place – it seems unlikely that they all originate from only one grave. It is unknown how many individuals have been buried at the site, as no bones have been catalogued. The site is located c. 400 meters south of the Linden cemetery (site nr 23).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
?	60	Moderate/good?		Twin-spiral chain-distributor, bronze chain, two axes, Hanseatic bowl, round convex brooch (type Appelgren E)					It is unknown how many individuals have been buried at the site and from how many graves the artefacts originate from.	Appelgren-Kivalo 1907; Europaeus 1921; NM 1232; NM 1266; NM 1558

### 23. Kuhmoinen, Linden (291010006)

The site is located c. 400 meters north of Ala-Rantala (site nr 22). Human bones were found by Fabian Linden in 1917 at the yard of his cottage. The bones were immediately covered with soil, making it possible for Aarne Europaeus to excavate the grave in 1921. The skeleton was placed in the grave in supine extended position. The head was at the depth of c. 50 cm, ribs at 60 cm. The head was placed between large stones, and there were stones also placed over the grave (Fig. 36). Based on the Europaeus' description, the corpse has been buried in a tree trunk coffin. The documentation is sketchy (Fig. 36), but it could indicate that there are no constrictions or adduction of bones in the upper body. Therefore, the tree trunk coffin likely had a flat bottom inside. The soil above the skeleton was sooty and contained charcoal. This may indicate the burning of a fire above the grave.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1921	50–60	Moderate (mandible, teeth, sacrum, humeri, femurs, tibia)	Tree trunk coffin with flat bottom	No	F?	YA	Crusade Period?	Supine extended, upper arms extended by the sides, head on the left cheek.	Orientation SW–NE. Stones on the coffin. According to Europaeus (1921) the grave belonged to a "large man". Kati Salo (2019f: 6) has determined the skeleton as possibly female with a height of 162 cm.	Europaeus 1921; NM 7903: 2



**Figure 36.** A sketch of the grave at Kuhmoinen Linden. Drawing Ulla Moilanen, after Europaeus 1921.

#### **24. Lahti (Nastola, Ruuhijärvi) Ristimäki (532010006)**

The inhumation cemetery was found during sand extraction in 1908. Hjalmar Appelgren-Kivalo (1908), who inspected the site after the first finds, described the locals having found “two large graves” and “one small one”. It is unknown whether this refers to the length or to the width of the grave pits. He was also told that skulls and ancient artefacts had been found from the site on several occasions over the years. According to one of the local farmers, a well-preserved skeleton had been found c. 10 years earlier. The skeleton was described as having been equipped with brooches and a leather belt with rectangular belt mounts and hooks used as a belt buckle (Appelgren-Kivalo 1908). All items had been lost since. Some artefacts found from the site (for example, a button NM 5082: 2) and a copper bottle described by Appelgren-Kivalo indicate that Early Modern finds have also been made at the site.

Theodor Schvindt excavated four graves in 1909. Two were partially destroyed, but it seems that neither one of them contained artefacts. The artefacts found by Schvindt (NM 5374) possibly originated from other, previously destroyed graves. The objects include, for example, an oval convex brooch, a lyre-shaped firesteel, and a kettle-ear. Based on the description, the bones were well-preserved. In autumn 1915, more

human bones and Crusade Period artefacts (NM 6995: 1–5 and NM 7088: 1) were found. The next summer, Tallgren excavated two graves at the site. Grave 2/1916 included the remains of a belt in an unusual place; it had been placed on the head of the individual. The corrosion of the sheathed knife was still attached to the skull, and the belt's bronze mount had preserved some hair fragments on the skull (NM 7088, Tallgren 1916). According to Anna-Liisa Hirviluoto (1963b), several grave cuts were visible in the roadcut during her inspection in 1963, but these graves were not excavated. In 1967 Hirviluoto inspected three (other?) grave cuts locating close to each other within two meters. "The largest" cut was c. 110 cm deep, and fragments of mandible, teeth, and cranium (NM 17312) were found in it. The other grave cuts had limb bones and "other bones" protruding from the road cut. According to Hirviluoto, these bones originated from three different graves, which had been dug partly on top of each other.

In 1973, Anja Sarvas and Seija Sarkki conducted an excavation at the site. They noted several graves which they interpreted as disturbed. It seems that at least some graves have been destroyed in previous road and construction works. However, the possibility of much older disturbance must be also considered, although the stratigraphy and finds were not documented well enough to make reliable interpretations. The finds from 1973 include a secondary pile of unburnt bones resembling the so-called "bone-pile burials" known from Mikkeli Visulahti. At Lahti Ristimäki, possibly the bones of two individuals had been piled tightly together in a similar manner (Fig. 11). The objects found from the site include "Eastern" types, which could also serve as evidence of contacts with the Mikkeli area. In 1974, Sarkki excavated at least two more graves, which were partially destroyed. The catalogued excavation finds include Early Medieval and Early Modern artefacts, such as a 18th–19th century button (NM 19426: 66).

The cemetery has likely been large, based on the previous, commingled bone finds and graves that cut each other. Some of the graves have been furnished, and the stray finds include similar Crusade Period artefacts that have been found from some of the graves, for example oval convex brooches (NM 8370 and NM 8115: 1) an eared tubular ornament with bird's foot pendants (NM 8115: 2). Some graves have contained rectangular coffins with support beams (Fig. 37).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1–3/1908				No					"Two large" and "one small" grave found by the locals. Never archaeologically excavated or documented.	Appelgren-Kivalo 1908
1/1909	75	Moderate/good	Plank coffin	No					Orientation: SW–NE. Partly destroyed grave with bones of right lower limb.	Schvindt 1909
2/1909	100	Moderate/good	Plank coffin	No	M	A		Head on the right cheek, facing south. Finger	Orientation: SW–NE. Adult male of "ordinary size", according to Schvindt.	Schvindt 1909

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
								bones on the left femoral head.		
3/1909		Moderate/good?		No?					Orientation: NE–SW. Partly destroyed grave with bones of lower limbs.	Schvindt 1909
4/1909		Moderate/good?		No?					Orientation: N/NE–S/SW. Partly destroyed grave with bones of lower limbs.	Schvindt 1909
1/1915	50	Moderate/good?		Two oval convex brooches (NM 6995: 1 and 7088:1) of Ailio type F (Ailio 1922: 32–33), animal (horse) pendant see Schvindt 1893, image 339, two chain- distributors and two pendants (see Schvindt 1893, image 334), eared tubular ornament	F?		13th century		Undocumented grave found by a local farmer. He reported skeletal remains and sent the artefacts to the National Museum.	Tallgren 1916; NM 6995; NM 7088: 1
1/1916	35	Poor/moderate.		No		A		Supine extended	Orientation: W–E. According to Tallgren, the skeleton was c. 170 cm tall. The small bones of the feet, the ribs, and the vertebrae had decomposed.	Tallgren 1916
2/1916	35	Poor/moderate. (partly preserved cranium, hip bones, and fragmentary left femur)		Belt buckle by the head, small bronze ring with a belt mount, a sheathed knife attached to the cranium with corrosion.		A		Supine extended, head on the right cheek.	Orientation: W–E. The belt remains were found by the head, and some hair fragments were preserved with the bronze mount.	Tallgren 1916; NM 7088: 2–5
1/1967	110	Moderate (mandible, teeth, fragments of cranium)	Possibly	No	F (det. K. Salo)	A			“A large” and deep grave cut. Orientation: SE–NW. According to Hirviluoto, graves 1–3/1967 were partly on top of each other.	Hirviluoto 1967; NM 17312: 1–4

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
									The catalogued finds include remains of wood, possibly from a coffin.	
1/1967		Poor/moderate. Only one bone fragment was catalogued.							Orientation: SE-NW. C. 60 cm from grave 1/1967. According to Hirviluoto, graves 1-3/1967 located partly on top of each other.	Hirviluoto 1967; NM 17312: 5
1/1967									Orientation: SE-NW. According to Hirviluoto, graves 1-3/1967 located partly on top of each other. Bones were not catalogued.	Hirviluoto 1967
1/1973									Unnumbered remains of several disturbed graves.	Sarvas & Sarkki 1973; NM 19230
1/1974		Poor	Coffin	Possibly a broken knife tip (the context is not clear).					Orientation E-W. Size 175 cm x 95 cm. The coffin had had three support beams, which were still visible at the bottom of the grave pit.	Sarkki 1974; NM 19429
2/1974		Poor							Orientation E-W. Size 170 cm x 60 cm. Western end had been disturbed.	Sarkki 1974
3/1974		None				C?			Unnumbered feature in the report. The size of the feature was 60 x 20 cm. It was not thought to be a grave, but hypothetically, considering the size, it could have been an infant burial or a grave of a small animal.	Sarkki 1974

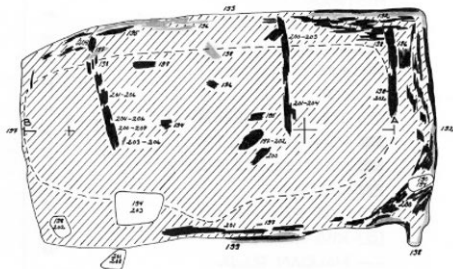


Figure 37. Three support beams visible in grave 1/1974 at Lahti Ristimäki. After S. Sarkki 1974.

## 25. Lempäälä, Aimalankangas (418010012)

According to oral tradition, the first church of Lempäälä was located at the site. Ten unfurnished graves have been excavated in 2017 and several grave cuts have been documented but not excavated. The preservation of bones is not generally good at the site, but some bones have been retrieved. The graves are E–W oriented, and <sup>14</sup>C-dated to 14<sup>th</sup> century. Based on the sizes of the grave cuts, both adults and children have been buried at the site. The depth of graves varies between c. 33–122 cm; the children’s graves were possibly shallower. Individual graves have not been listed here, because the research at the site is still ongoing (Ruuhonen 2018; 2019).

## 26. Lempäälä, Lempainen (418010009)

The site was found in 1917 when widening a road. The first finds were sent to the National Museum with reports of well-preserved skeletons. These graves have not been properly documented, but some artefacts can possibly be associated with certain graves. Most of the bones have not been catalogued; only cranium and rib fragments found in 1917 (NM 7278). These bones cannot be associated with any particular grave or grave goods. The stray finds originating from destroyed burials include two miniature axes (NM 7260: 3 and NM 15515: 1) and a round brooch possibly originating from Central Russia (NM 7260: 9). During the excavation of 1971, two partially destroyed inhumation graves were found, along with the remains of cremations and post-Medieval activities (Lehtosalo-Hilander 1971).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial positon	Other notes	References
1/1917	60–80	Moderate/good	Possibly a coffin	Axe (type Petersen M), knife, oval firesteel, fragment of shears	M?	A?	Crusade Period		Not excavated by an archaeologist. The artefacts were found when widening a	NM 7219: 1–4

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial positon	Other notes	References
									road. The description in the find catalogue states: "Found from the left side of a human skeleton, from c. 60–80 cm deep, grave's soil black with some charcoal on the side, soil type coarse." The charcoal could indicate the remains of a coffin?	
2/1917	90			Axe			Crusade Period		Catalogue description: "Found alone at a depth of 90 cm."	NM 7221: 5
3/1917	80–90	Moderate/good		Axe, crossguard from a sword, sickle			Crusade Period		Not excavated by an archaeologist. Artefacts "found among the bones".	NM 7221: 6–9
4/1917		Good	Possibly a coffin	Half of a penannular brooch, bronze finger ring, flint			Crusade Period		Not excavated by an archaeologist. Found "beside a well-preserved skeleton." Charcoal was observed near the bones (remains of coffin?). Ring, firesteel, flint and "a spike-like object" were presumably found "in the hand", and the brooch at the chest. In the find catalogue the firesteel is not listed in this grave. It is not sure whether finds 6–9 belong to the same grave as finds 10–14, or whether some artefacts were not collected and sent to the museum. If they were all found beside the same skeleton, the "spike-like object" could be the crossguard.	NM 7221: 10–14
5/1917				Neck-ring and beads (6 camelian, 4 yellow glass, 1 silver foil)					Artefacts from likely several graves were found and sent to the museum. The beads and a neck-ring were reportedly found	NM 7260



Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
									together. The neck-ring was described as having been found "around a skull, the open terminals in the back of it."	
1/1971	50– 55	Poor (fragments of mandible)	Possibly a coffin	Knife, bead, two halves of bell buttons (see Rainio 2006), bronze finger ring, pottery sherds, cremated bones		A	Crusade Period		Size of grave pit c. 190 x 90 cm. The grave was disturbed recently, as indicated by a late-19th century penny found in it.	Lehtosalo-Hilander 1971; NM 18507: 1–23
2/1971	140	Poor (fragments of cranium)		Pottery sherds and an iron artefact, the end knob from a penannular brooch		A	Crusade Period		Partially destroyed in later activities. Orientation E–W. Secondary stones on top of the grave? Numbered as "feature 10" in the report.	Lehtosalo-Hilander 1971; NM 18507: 70–79; 329, 335, 336

## 27. Nokia (Pirkkala), Hakamäki (536010021)

In 1921, a penannular brooch, fragments of human femurs, and a whetstone (NM 7912: 1–3) were found when excavating a house foundation. Alfred Hackman inspected the site shortly after and found a dirham coin pendant (: 5) and a twin-spiral chain-distributor (: 6) in soil that had been piled beside the foundation. He also catalogued two soil samples taken from the presumed graves (: 7–8). Later, more penannular brooches, twin-spiral chain-distributors, an axe, a knife, and human cranium fragments (NM 7955) were found and sent to the museum. These finds were collected from six different locations at the site, possibly indicating at least six separate graves. According to Aarne Europaeus (1922), it was evident that the finds NM 7955: 1–3 had been located in the same grave (1/1921). In 1922, Europaeus excavated three more graves at the site. The excavation was conducted in difficult conditions, inside the house foundation which was full of wood chips. Moreover, the soil was frozen, but the graves were under the frozen layer. Europaeus also describes a thunderstorm and heavy rain turning the soil into mud, and himself being tired, impatient, and possibly distracted by the fact that his accommodation had parasites (Europaeus 1922).

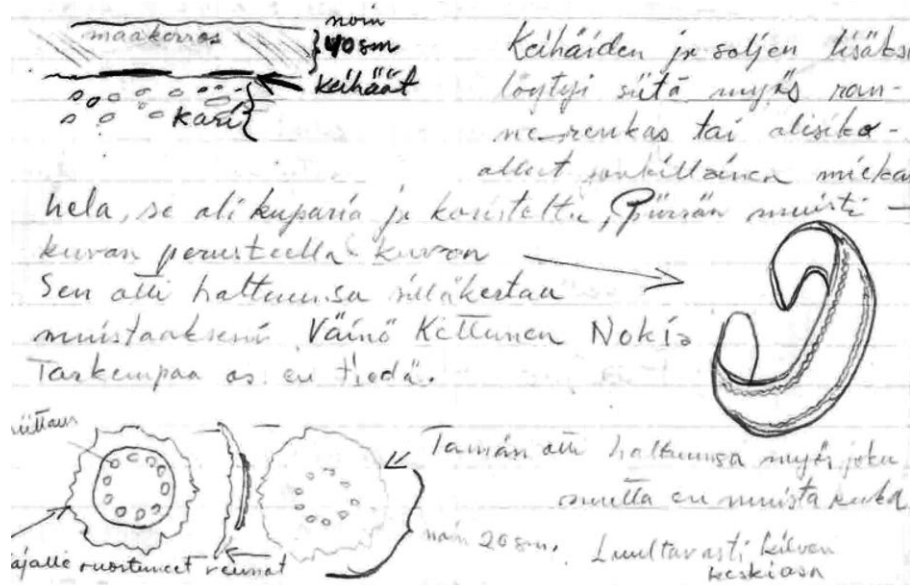
Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Dating	Body position	Other notes	References
1/1921	40–60	Moderate		2 penannular brooches, twin-spiral chain-distributor at the right side on the chest.			Crusade Period		Orientation SW–NE. Birch bark on the corpse.	Europaeus 1922; NM 7955: 1–3

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Dating	Body position	Other notes	References
2-6/ 1921				4 penannular brooches, twin-spiral chain-distributor, dirham coin pendant, axe, knife.			Crusade Period		Finds from approximately 5 different graves, based on the find locations. At least some of the finds originate from a cremation cemetery, since the pierced coin (Samanid dirhem c. 896/7) has been in a fire, according to Talvio (2002:189).	NM 7912; NM 7955
1/1922	60-80	Poor/moderate	Tree trunk coffin	Spearhead with a silver-inlaid socket (struck into the coffin [lid?]), knife, firesteel. Whetstone (7912: 3) possibly from this grave.	M?				Grave 'a' in the report. Orientation SW-NE. The spearhead was found first, and under it, the grave itself. The spearhead is bent, with wood attached to it. The spearhead may have been struck into the coffin. The spearhead is possibly older than the inhumation. Wood remains from coffin catalogued (NM 8037: 5).	Europaeus 1922; NM 8037: 1-5; Possibly NM 7912: 3
2/1922	80-85	Moderate/good		Sheathed knife with a handle made of wood and bronze sheet, penannular brooch. Both finds at the right side on the chest.	M			Supine, head on right cheek	Grave 'b' in the report. Orientation W/SW-E/NE. Large stones on the corpse. According to Europaeus, the femurs were large (42 cm) and he considered them to belong to a tall man. For the examination of teeth, see Suom. Hammaslääkäri-seuran Toimituksia XXVIII, 1923.	Europaeus 1922; NM 8037: 6-8
3/1922	70	Poor	Coffin	Two bronze spirals at chin, penannular brooch with a cross-motif (Fig. 38) on the left shoulder, penannular brooch with flat knobs on the right shoulder.	F?	A	Crusade Period		Grave 'c' in the report. Orientation SW-NE, length 170-150 cm. Stones on the grave in two layers c. 15-20 cm below surface. Corpse covered with birch bark.	Europaeus 1922; NM 8037: 9-14
4/1922		Poor (some teeth)		Chain-distributor, iron ring brooch with a bronze needle		YA	13th century		A destroyed grave. Teeth have been stained green (an indication of them having been in contact with a bronze object).	Europaeus 1922; NM 8037: 15-17



(type Petersen E) were sent to the Häme museum with a letter describing the find (Fig. 39). The assemblage had also included an axe, a bracelet (which was straightened and thrown away), and a possible shield boss with rivets. The finders had joked about having found “a grave of a knight” and had interpreted the shield boss as a shoulder-piece of a suit of armour. They had tried the object on their own shoulders and told that it “fit the shoulder well”, but that the item had broken and finally been thrown away.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1959	40–60			Iron penannular brooch, two spearheads (Petersen E), shield boss, axe, bracelet.			The spearheads and the shield boss could indicate a Viking Age burial or older artefacts in a grave?		Finds under a natural, rectangular stone.	Sarasmo 1959



**Figure 39.** The letter from Raimo Haapala to Esko Sarasmo describing the find at Ketolanmäki Nokio. The letter includes a drawing of the grave with spearheads, the bracelet (assumed as an “armband” or a “mount of a sword”), and the shield boss with rivets. The bracelet resembles Viking Age and Crusade Period objects pictured in Kivikoski 1973: Abb. 750 and Abb. 1086.

### 29. Pälkäne, Kokkostenjärvi (635010024)

The site consists of three earth-mixed cairns. In 1930, two of the cairns were excavated after several bracelets and unburnt human bones were found from one of them in the previous year. The finds NM 9120 were sent to the National Museum by the founder, and they included fragments of a human skull and two tibias (NM 9120: 12) (Hackman 1930). The artefacts from Hackman's excavation (NM 9221) can be typologically dated to the Late Roman Iron Age (c. AD 200–400) and Migration Period (c. AD 400–600). The unburnt bones have not been professionally excavated or documented, and it is unknown whether they can be associated with the artefacts (see Hackman 1930). The third cairn was excavated by Pälsi in 1930. He found two bronze fibulas, two spearheads, a shield boss, and an axe (NM 9250), but no unburnt bones. The objects from Pälsi's excavation are contemporaneous with the earlier finds. Small amounts of cremated bones have been found from all the cairns, which could indicate that there are older furnished cremations in them. The inhumations are possibly younger than the cremations, and could indicate the reuse of the cairns as a burial place.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1929 (cairn 1)	30	Poor/moderate	No	Eight bronze bracelets, two knives, arrowhead (NM 9120); bronze fibula, two spearheads, cremated bones, fragments of a burnt bone comb (NM 9221)					It is not known whether the artefacts and the unburnt human bones belong together.	Hackman 1930; NM 9120; NM 9221

### 30. Pälkäne, Rauniokirkko (635000002)

The stone church of St. Michael in Pälkäne was built between 1495–1505 and abandoned in 1839 due to its deteriorated condition. The roof collapsed in 1890, and the church has lied in ruins since then (e.g., Moilanen 2013: 10). The church has likely been preceded by wooden churches since the 14th century (Hiekkanen 2020: 408), and the Crusade Period finds (ear spoon, bronze spirals, penannular brooch [NM 2004045], oval convex brooch, twin-spiral chain-distributor [NM 2010063]) from the site suggest that the first church was established at the site of an Early Medieval cemetery. Dozens of graves have been excavated from the churchyard, and although some of them are undoubtedly medieval (e.g., the ones cut by the stone structures, and the ones containing coffins with handles at the corners, see e.g., Mikkola 2004: 36; Vuoristo 2011: 45), most of the graves likely date to the Early Modern Period. Because it is difficult to date some of the unfurnished graves, only the oldest furnished grave is presented here. The finds from the site also include cremated human bones (Vuoristo 2010: 46). They possibly indicate similar coexistence of cremations and inhumations like at Hollola Kirkkailanmäki (site nr 6).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
A13H6/2003	30	Moderate	Coffin	Knife with a bronze handle on the left side of the pelvis. Leather sheath, woollen textile remains, e.g., a fragment of a two-coloured tablet woven band.	F		<sup>14</sup> C 1210–1310 Cal AD (Hela-774) (Mikkola & Vuoristo 2004)	Supine, left hand on the knife.	The grave was only partially preserved (the left side of the pelvis).	Mikkola & Vuoristo 2004; Mikkola 2004; Vuoristo 2011; NM-hist 2004045: 1

### 31. Pälkäne, Ristiänmäki (635010011)

The first grave was found in 1934 when setting up a telephone pole. Some of the finds (NM 9848) were immediately sent to the National Museum. The next year, Ella Kivikoski inspected the site and collected more artefacts (NM 10069) which had been found from the same grave and had been kept at the local police station. In 1951, Kivikoski excavated two depressions, but they did not contain any evidence of burials. She suggested that the site had possibly been used as a temporary burial site from where the skeletons had been removed (Kivikoski 1951c). In 1954, two skeletons were found during work on a water pipeline. The skeletons and the skulls were so close to each other, that they were possibly a double burial. Esko Sarasmo inspected the find, but since no Iron Age artefacts had been found, he considered the burial to be Early Modern – possibly dating to the early 18th century, and therefore, he did not excavate nor document the grave (Luho 1954). Later, a firesteel, twin-spiral chain-distributor, and a knife (NM 13415: 1–4) were found from nearby, possibly from another grave, and Ville Luho came to inspect the site. He noted the same destroyed double burial that Sarasmo had already seen, and also noted that it contained well-preserved skulls, hip bones and limbs from two individuals. The other grave belonged to an animal, likely a calf, which had been buried c. 1.5 m deep (Sarasmo 1954, Luho 1954). Sarasmo inspected the site again in 1955, when dark features were observed while setting up fence poles. According to Sarasmo, these features were possibly graves, but no bones or artefacts were reported. They seem similar to the features Kivikoski had discovered earlier. The seven graves excavated in 1983 were likely dug at the NW corner of the cemetery (Bergström 1986). The catalogued finds from 1983 (NM 28081) include several soil samples and wood samples from the coffins.

There has been at least one double grave at the site, and at least one single burial in lateral, semi-flexed position. In the other graves, the preservation of bones has been too poor for determining the burial position. In grave 5/1983 Bergström (1986) noted a “poorly preserved toe” near the skull. Given the similarity of phalanges (and the lack of osteological analysis), it is also possible that the bone is from a finger.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1934	70	Poor/moderate		Two equal-armed brooches, twin-spiral chain-	F?		Early Crusade Period		Discovered in 1934 during the installation of a telephone pole. According	Kivikoski 1935; Luho 1954; NM 9848;

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
				distributor, penannular brooch with rolled terminals, a small bell with two rows of beads, bronze spiral.					to Luho (1954) this grave also included animal bones. The equal-armed brooches are often dated to the Viking Age, but similar brooches were still used in Cremation Period graves at Halikko Rikala (Purhonen 1998: 250)	NM 10069
1/1954	70	Moderate/Good		Twin-spiral chain-distributor, firesteel, knife	F? + M? (Purhonen 1998: 250)		Crusade Period		Double burial inspected twice by Sarasmo and Luho. Orientation SW–NE, heads in NE. Bones taken to the Anatomy department at the University of Helsinki.	Sarasmo 1954; Luho 1954; NM 13415: 1–4
2/1954		Moderate/Good		A saw blade and another iron artefact according to the workmen who found the grave.					Animal grave (a calf). The skeleton was buried with a “saw blade” and an “iron artefact”, according to the workmen who found the grave. The artefacts were lost.	Sarasmo 1954; Luho 1954
1/1955				No					Possibly a grave. No finds/documentation material.	Sarasmo 1955
1/1983	80	Poor	Coffin, size 175–180 x 45–50 cm	Twin-spiral chain-distributor, sherds from six ceramic vessels (one of them wheel thrown Karelian type).			13th–14th century based on the ceramics (see Uino 1997: 396)		Orientation NW–SE. The chain-distributor had been used as a pendant, as it still had a fragment of a leather string attached. The pottery sherds were likely on top of the coffin lid. None of the vessels were intact.	Bergström 1986; NM 22081: 1–16.
2/1983	100	Poor	Coffin, size 196 x 40 cm.	A small axe (87 x 43 mm), a knife		A	Crusade Period		Orientation NW–SE. Artefacts by the waist, on different sides.	Bergström 1986; NM 22081: 17–24

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial positon	Other notes	References
3/1983	90	Poor (only dental enamel)	Yes	A knife		A	Crusade Period		Orientation NW–SE. Size 160 x 70 cm.	Bergström 1986; NM 22081: 25–29
4/1983	80–97	Poor	Coffin, width c. 40 cm, length at least 115 cm; the other end could not be observed	A finger ring, a spiral ornament	F Osteological analysis by T. Formisto (Bergström 1986)	A Osteological analysis by T. Formisto (Bergström 1986)	Crusade Period		Orientation NW–SE. Size 200 x 60–75 cm. A skull located in the mid-section of the grave, and there was a femur on top of the skull. The observations could indicate (deliberate or accidental) disturbance of the grave, although Bergström (1983) stated that there was not any evidence of that. However, he noted that the other end of the coffin could not be observed, which could indicate mixed layers and therefore disturbance.	Bergström 1986; NM 22081: 30–34
5/1983	90–97	Poor/moderate	Grave pit covered with wood/lid?	Penannular brooch, spiral ornaments		A	Crusade Period	A “poorly preserved toe” near the skull, according to Bergström. Given the similarity of phalanges (and the fact that there was not an osteologist at the excavation), it is possible that the bone was from a finger. This could mean that one of the hands	Orientation NW–SE. Size 170 x 60 cm.	Bergström 1986; NM 22081: 35–44



Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
6/1983	85	Poor	Plank coffin (120 x 30–35 cm) with handles at corners.	Penannular brooch with rolled terminals, small axe (76 x 33 mm), rectangular firesteel		C (5–14 years) Osteological analysis by T. Formisto (Bergström 1986)	Crusade Period/ Medieval. The coffin structure could indicate a younger date.	was placed near the chin.	Orientation NW–SE. Birch bark above the brooch -> body covered with birch bark. The narrowing of the coffin led Bergström to think there could have been two coffins on top of each other. This is not supported by the find locations of the artefacts, wood remains, nor documentation.	Bergström 1986; NM 22081: 45–58
7/1983	65–70	Moderate	Coffin, size 205 x 40 cm	Coffin nails	M Osteological analysis by T. Formisto (Bergström 1986)	A Osteological analysis by T. Formisto (Bergström 1986)	Crusade Period	Semi-flexed lateral, on the right side	Orientation NW–SE. A fragment of partially cremated human femur on the cranium.	Bergström 1986; NM 22081: 59–74
8/1983	4–56			No					Uncertain grave based on dark-coloured soil (220x80/100 cm). No finds.	Bergström 1986

### 32. Sastamala, Kaukola (912010016)

Kaukola is a multiperiod site consisting of c. 400 Iron Age cairns, an Iron Age settlement site, and a Medieval village (see e.g., Moilanen, U. 2015). In 1913, an inhumation grave was found at the site, at the yard of the Vänniä house. The excavation finds also include animal bones (likely from the Medieval/Early Modern settlement) and broken bronze objects, melted beads, and cremated bones, which could indicate the presence of Iron Age cremation burials (either a cremation cemetery under flat ground or destroyed cairns) at the site. The inhumation grave was disturbed, and the human remains were not in an anatomical order. Some teeth and mandible were found above a wooden plank that Tallgren (1913) presumed to be the remains of a coffin, while unburnt pig teeth were found under it. It is uncertain whether all of the artefacts found in the vicinity belong to the inhumation burial, but the grave has likely contained at least bronze spiral ornaments, because the bronze spirals had unburnt textile fragments attached to them when found.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1913	42	Poor/moderate	Plank coffin	Penannular brooch with rectangular terminals, bronze spirals and textile remains, 24 glass beads and two bronze beads, a miniature axe.	F?	A	Crusade Period?		Orientation: NE–SW. A disturbed grave. It is not certain whether the artefacts can be associated with the unburnt human bones or whether they originate from the same grave. Birch bark inside the coffin.	Tallgren 1913; NM 6338: 23, 26 – 31

### 33. Sastamala (Karkku), Tulonen (912010031)

Tulonen is a Late Iron Age cremation cemetery, mostly excavated in the early 20th century. In 1911, Hackman found bronze spirals and textile fragments that he considered as originating from an inhumation grave that had been dug in the cremation cemetery. He considered the find younger than the cremations. The only documentation of the burial consists of a short description in the excavation report, and there are no illustrations or photographs of the grave. The textile fragments were found from the mesh, so the evidence of a possible inhumation burial is scant.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1911	34–42		Coffin?	Bronze spirals, textile fragments. Possibly iron nails.	F?		Crusade Period?		The bronze spirals with textile fragments attached to them were found from a mesh. Hackman possibly associated the iron nails found from the vicinity with a coffin, since according to the report, they belong to the inhumation burial.	Hackman 1911; NM 5853: 29, 32, 33

### 34. Tammela, Näkämaan kumpu (834010004)

In 1949, construction workers found human remains and reported the finds to the Archaeological Commission. Salmo (1949) inspected the find spot and found it completely levelled by a bulldozer. Leppäaho excavated the surrounding area without finding any other graves. It seems that the grave was never part of a larger cemetery. The site name translates as a “mound” (kumpu), but the documentation photography clearly reveals that the name refers to a small hill instead of an actual burial mound.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1949	100	Good. The finds have been recatalogued by K. Nurminen. According to her remarks, the occipital bone has a large (post mortem?) hole (32 x c. 22 mm) in it.		Knife, belt mounts, two strap dividers (so-called Gotlandic animal-headed type), and a buckle with leather remains.	M	A	11th–12th century		Never archaeologically excavated. According to the construction workers, the finds had been under a large stone.	Salmo 1949; Leppäaho 1950; NM 12036

### 35. Tampere, Vilusenhari (837010023)

The cemetery was once located on a high, sandy ridge. It was found during sand extraction in 1961 (NM 15175) and excavated in 1961–1962. In 1971, the soil bulldozed from the site prior to the excavation was sieved (NM 18556; Nallinmaa-Luoto 1971). The finds from the site include both Viking Age and Crusade Period cremation cemetery finds, and Crusade Period inhumation burials. Grave 9 is missing from Nallinmaa-Luoto's list of graves but found from Sarasmo's (1962) report. Graves 1, 3, 10, 17, 18, 19 and 22 are completely missing from the original reports. Instead, some graves have been marked with an added letter: 5a, 6a, 12a, 12b, 29a, 35a, 35b, 35c, 39a. Of these burials, 39 and 39a seemed to be a double burial, in which two individuals had been placed in the same grave pit. At least one of these individuals was placed in a coffin. There have been at least 52 inhumation burials in the cemetery, but several graves have been destroyed in sand extraction. Therefore, the exact size of the cemetery is unknown. If all the graves containing axes and arrowheads are interpreted as buried males, then males are over-represented in the cemetery. It could be possible that some of these graves belong to females (c.f. Lund & Moen 2019; Mägi 2002: 77–79), but due to the poor preservation of skeletal material, aDNA-based sex determination is currently impossible for most of the individuals. Due to the poor preservation of skeletal material, the exact burial positions are also mostly impossible to determine.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/ finds	Sex	Age	Date	Burial position	Other notes	References
2/1961		Poor. Only a fragment of cranium with hairs attached to it (see Kirkinen & Moilanen 2019)	Tree trunk coffin	Penannular brooch, silver finger ring, earspoon, bronze spiral ornaments and textile fragments. A burnt fragment of a cross pendant.	F		11th century		Mostly destroyed by a bulldozer. Orientation: NE–SW. Size of the grave pit c. 300 x 200 m. Coffin padded with a wild forest reindeer hide (Kirkinen & Moilanen 2019)	Kirkinen & Moilanen 2019; Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 618–648.
4/1961		Poor		No	F	A (Lahtip erä 1978;		Possibly supine extended.	Orientation: N–S. Sarasmo (1962: 8) interpreted the individual female "based on the position of femur". He	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 536

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/ finds	Sex	Age	Date	Burial position	Other notes	References
									may have meant the size of it, as he also presents a stature estimation of the individual (c. 160 cm).	
5/1961				Axe, rectangular firesteel, and a knife on the left side of pelvis. Axe.	M				Orientation S–N. Partly under grave 5a/1961.	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 531–535
5a/1961				No					Possibly an unfurnished grave over grave nr 5/1961. Orientation NE–SW.	Nallinmaa-Luoto 1978; Sarasmo 1962
6/1961		Poor		Firesteel and knife on the opposite sides of assumed pelvic area.	M				Mostly destroyed, possibly when digging grave 6a/1961.	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 529–530
6a/1961				No					Dark feature, size c. 180 x 60 cm, orientation N–S. Partly on top of grave 6/1961.	Nallinmaa-Luoto 1978; Sarasmo 1962
7/1961	60	Poor	Coffin	Cremated bones in the fill. Two oval firesteels, two knives, animal-headed strap divider (Gotlandic type)	M	A	AD 1050–1150 (typology)	A faint shape of the skeleton in the soil: supine, arms semi-flexed, hands on the pelvis.	Orientation: N–S. Size of the grave pit 210 x 65 cm. Sarasmo noted that the objects could indicate two individuals in the same grave, but because the objects were in the same level. both Sarasmo and Nallinmaa-Luoto considered this a single burial. Tomanterä (1978) has identified red wool fibres from cloth likely near the belt.	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 520–528
8/1961			Tree trunk coffin	Silver penannular brooch with knob-shaped terminals, eared tubular ornament, oval firesteel, axe.			12th–13th century (typology)		Orientation: S–N. Size of the grave pit 230 x 70 cm. Fragments of silk fabric and brocade band in silk and silver wire in the vicinity of the silver brooch (Tomanterä 1978: 17).	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 513–516

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/ finds	Sex	Age	Date	Burial positon	Other notes	References
9/1961				No					Orientation: NE–SW. Size of the pit 180 x 100 cm. Uncertain grave/Evidence of secondary disturbance. Missing from Nallinmaa-Luoto's (1978) list.	Sarasmo 1962
11/1961		Poor		Axe, knife.	M				Size of the grave pit 190 x 70–160 cm.	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 544–545
12/1961			Coffin	Knife, nail, and arrowhead. Axe on the corpse. In the grave pit but outside the coffin: two spearheads in a vertical position. Cremated bones and burnt fragments of a bracelet, knife, arrowhead, sword chape, kettle handle, disc-shaped sword pommel, sword, penannular brooch with rolled terminals, horse accessories, scythe, arrowhead with a transverse point, lyre-shaped firesteel.	M		Cremated finds: 11th century, inhumation: 12th century		Orientation: E–W. Size of the grave pit 280 x 100 cm. The spearheads in the grave 12/1961 have often been interpreted as struck into the coffin. However, the position in the grave and the horizontal and vertical relationship to other items in the grave suggest that they were placed outside the coffin, at the bottom of the grave pit in a vertical position. The bent knife has been struck into the coffin structure, based on the transverse wood fibres on it.	PAPER I Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 549–575
12a/1961				Oval firesteel in the fill. On the corpse: an axe. In the corner of the grave pit: sword; seven spearheads, trammel hook, cremated bones.	M				Length 170 cm. Items piled inside the grave pit have fire patina on them, and they clearly originate from the cremation cemetery. Tomanterä (1978) has identified remains of brickband from the grave.	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 576–592
12b/1961	40			Knife. Cremated bones in the fill.					Orientation: E–W. Width of the grave pit: c. 100 cm.	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 593–594

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/ finds	Sex	Age	Date	Burial position	Other notes	References
13/1961				On the corpse: an axe. Knife and possibly a firesteel on the right side of pelvis. Cremated bones in the fill.	M				Orientation: W–E.	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 595–600
14/1961		Poor	Possibly tree trunk coffin	On the corpse: round convex brooch (type Appelgren D), knife and oval firesteel. Axe possibly outside the coffin.		C or A?	11th century		Orientation: SW–NE. Size of the grave pit 170 x 50 cm. Sarasmo's estimation based on the cranium: c. 5-year-old child. According to an osteological analysis by Kati Salo, the bones belong to a mature adult, possibly female (Salo 2021a; see also Lahtiperä 1978: 2),	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 601–606
15/1961		Poor (remains of two skulls)	Coffin	On the corpse: round convex brooch: F-type (upside down). Rivets. Firesteel with wood remains under it. Knife, whetstone, axe. Bronze spiral ornaments by the N side of the skull. Broad-bladed battle axe (type Petersen M) and a cluster of six arrowheads at the bottom of the grave pit.	M + F?	A (Lahtiperä 1978: 3)	11th century		Orientation: E–W. Size of the grave pit: 170 x 80 cm. Initially interpreted as a double grave based on the remains of two skulls. However, some cranium fragments were found from the same level with the coffin nails and rivets, which have possibly closed the coffin. This could have been a case of a skull or cranium fragments on the coffin, and therefore, two burials made at different times. Reindeer hair in the grave (Tomanterä 1978: 18).	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 607–617
16/1961		Poor		Two penannular brooches with faceted terminals. Bronze chain between the brooches. Sheathed knife, which had possibly hung on the chain.	F (Salo 2021a)	YA (Salo 2021a; Lahtiperä 1978: 4)	11th century	Supine? Head on the left cheek.	Located c. 10 m from the other graves. Orientation: N–S. Size of the grave pit: 220 x 70 cm. Fragments of textiles (possibly linen and tablet-woven band).	Nallinmaa-Luoto 1978; Sarasmo 1962; NM 17208: 537–542

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/ finds	Sex	Age	Date	Burial position	Other notes	References
20/1962				Knife. Cremated bones in the fill.	M				Orientation: S–N. Size of the grave pit 220 x 70 cm. Sooty soil in the uppermost layers have led to the interpretation of a fire having been burnt on the grave after filling it (Nallinmaa-Luoto 1978:19).	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 499–500.
21/1962	60–80	Poor	Possibly	Axe, knife, rectangular firesteel.	M				Orientation: E–W.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 114–116.
23/1962		Poor		Knife, two arrowheads, oval firesteel, melted bronze	M	MA (Salo 2021a)		Head on the left cheek.	Orientation: NW–SE.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 125–130
24/1962		Poor	Possibly	Two penannular brooches, one at the shoulder, larger at the chest. Oval convex brooch on the other shoulder.	F	MA (Salo 2021a) + C? (Lahtiperä 1978)	12th century	Possibly supine.	Orientation: E–W. Birch bark on the corpse. Salo (2021a) has identified bones of a mature adult from the grave. According to an earlier analysis, the finds include bones of an adult and teeth of a child under 12 years of age (Lahtiperä 1978: 4).	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 131–137
25/1962		Poor.		Knife. Cremated bones in the fill.	M				Orientation: E–W.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 139
26/1962		Poor		Axe, knife, 3 arrowheads.	M				Orientation: NW–SE.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 140–145
27/1962		Poor		No					Orientation: W–E. Uncertain grave according to Sarasmo.	Nallinmaa-Luoto 1978; Sarasmo 1967
28/1962		Poor		Knife	M				Orientation: S–N.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 146–152
29/1962		Poor		Axe, knife. Nails with fire patina.					Orientation: S–N. Under grave 29a.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 153–165

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/ finds	Sex	Age	Date	Burial position	Other notes	References
29a/1962				No					Orientation: SW-NE. Uncertain grave on top of grave 29.	Nallinmaa-Luoto 1978; Sarasmo 1967
30/1962		Poor	Coffin	Small axe, knife, oval firesteel. Cremated bones and melted bronze in the fill.	M				Orientation: SW-NE. Coffin or body covered with birch bark.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 166-177
31/1962				Three penannular brooches, two at the shoulders, silver brooch in the middle. Knife, bronze beads, and a broken jingle bell, bronze spiral ornaments, silver finger ring.	F		12th century		Orientation: W-E.  Hair? Remains of a headband decorated with bronze spiral ornaments (Tomanterä 1978: 19-20).	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 178-198
32/1962		Poor	Plank coffin	Coffin nails, knife, a piece of flint, silver filigree bead.	M		Early Crusade Period		Orientation: E-W.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 199-207
33/1962				No					Orientation: N-S. Uncertain grave.	Nallinmaa-Luoto 1978; Sarasmo 1967
34/1962				No					Orientation: E-W. Uncertain grave.	Nallinmaa-Luoto 1978; Sarasmo 1967
35/1962				Iron artefact, possibly a brooch pin. Cremated bones.					Orientation: E-W. Uncertain grave, partly under grave 35b.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 208
35b/1962		Poor	Coffin	Small axe, knife, bronze belt buckle and an oval firesteel under it.	M				Orientation: E-W. Partly under grave 35c and over 35. Birch bark under and over the remains, corpse possibly wrapped in bark.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208:209-221
35c/1962		Poor	Coffin	Axe, knife, firesteel. Cremated bones.	M				Orientation: E-W.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208:222-224
36/1962		Poor		Knife, oval firesteel	M				Orientation: NE-SW.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 225-226



Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/ finds	Sex	Age	Date	Burial position	Other notes	References
37/1962		Poor	Possibly a tree trunk coffin.	Axe, knife, firesteel, iron belt buckle. Cremated bones, melted bronze.	M			Possibly supine	Orientation: NE–SW. Sooty soil. Possibly partly over grave 37.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 227–247
38/1962		Poor	Coffin	No					Orientation: NE–SW. Possibly partly under grave 37.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 248–250
39–39a/1962		Poor	Coffin	Three penannular brooches (grave 39), knife, firesteel (grave 39a)	F + M	YA (Salo 2021a)	12th century		Orientation: NE–SW. Double grave but separate coffins. 39 possibly a female in a tree trunk coffin. 39a possibly a male.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 251–274
40/1962		Poor	Coffin	Two penannular brooches	F		Crusade Period		Orientation: NE–SW.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 275–277
41/1962			Coffin	Knife. From the cremation cemetery: 2 silver coin pendants, horse accessories (bits), arrowhead, cremated bones, a filigree bead, fragment of a bone artefact, twisted penannular brooch.	M		11th century		Orientation: N–S. The cremation cemetery finds were found from the fill.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 278–319
42/1962			Plank coffin	Bronze kettle, scythe, Two transverse arrowheads, a lock, braided pouch (Fig. 40), 8 weights, scales, bronze spiral ornaments, two coins: a pierced German coin from a purse and an English coin from the fill (Talvio 2002: 190).	M		Coin date: AD 1106–1125 <i>terminus post quem</i>		Orientation: SW–NE. Animal hair (Phocidae?) identified from the grave (Kirkinen 2015; Tomanterä 1978: 22). Sarasmo's interpretations: male trader, based on the scale and the weights.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 320–351
43/1962			Possibly a coffin	Coffin nails, bone comb, sheathed sword (type Petersen Z), spearhead, trammel hook. Cremated bones, pottery fragments, bronze mount.			Crusade Period		Orientation: NE–SW. Animal bones at the other end. Evidence of secondary disturbance, artefacts commingled. Nallinmaa-Luoto (1978: 43) suggests that the corpse was exhumed and buried somewhere else, because	Moilanen, M. 2015: 409; Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 352–398

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/ finds	Sex	Age	Date	Burial position	Other notes	References
				The sword is typologically c. 100 years older than the spearhead.					no remains of bones were found.	
44/1962			Plank coffin	Two mounts with jingle bells, belt mounts, knife, scythe, bronze finger ring, bronze spiral ornaments, cremated bones. Spearhead (type Petersen G) outside the coffin in the grave pit.	M		c. AD 1100		Orientation: SW-NE. Evidence of secondary disturbance, artefacts commingled. Nallinmaa-Luoto (1978: 44) has suggested that the corpse was exhumed and buried somewhere else, because no remains of bones were found.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 399-461
45/1962		Poor	Coffin	Firesteel. Cremation cemetery finds: cremated bones	M	Juvenile (Salo 2021a)			Orientation: NW-SE.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 462-479.
46/1962		Poor	Plank coffin	Firesteel, silver finger ring, coffin nails.	M	A (Lahtip erä 1978)			Orientation: W-E. Round area of sooty soil on top of the grave. Fire on the grave after filling it?	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 480-491.
47/1962		Poor		Axe, firesteel	M				Orientation: W-E.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 492-495
48/1962			No	Oval firesteel, nail with fire patina.	M				Orientation: N-S.	Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 496-498
9/1962	70			Broad-bladed battle axe (type Petersen M), spearhead (type Petersen G), cremated bones.						Nallinmaa-Luoto 1978; Sarasmo 1967; NM 17208: 690-691



**Figure 40.** The remains of a braided pouch from grave 42/1962. Photo: Ulla Moilanen.

### **36. Valkeakoski, Kiiliä (908010002)**

The cremation cemetery under level ground at Kiiliä is dated to c. AD 500–1000, and there are at least three Crusade Period inhumation graves at the edge of the cremation cemetery. The first finds were made in 1908, in excavating a house foundation. The first archaeological excavation was conducted in 1913. The excavation finds (NM 6370) contained mostly cremation cemetery finds (Hackman 2013), but there are also unburnt human bones in the material (NM 6370: 206). In 1935, Voionmaa inspected the site on several different occasions, when construction works revealed more Iron Age finds. This time the finds included more unburnt bones and fragments of textiles, which clearly indicated inhumation burials (Voionmaa 1935). There have been at least three inhumation burials (four if Hackman’s find originates from another burial)

at the site, but none of the graves have been properly excavated or documented. According to Voionmaa, one of the graves also included animal bones. The finds from Kiiliä cemetery include a sickle (NM 10201: 13) which has been made for a left-handed individual. The graves are shallow, possibly because of the stones in the soil.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1913		Poor							Fragments of unburnt human bone.	NM 6370: 206
1/1935		Poor		Penannular brooch with textile remains on it.	F?		Crusade Period		Longbones from a human, also animal bones and teeth.	Voionmaa 1935; NM 10201: 1–3
2/1935	25	Poor		A pair of round convex brooches (type Appelgren D), bronze chain, bracelet, 19 glass beads in a semi-circular form in the soil.	F?	A (Salo 2019)	Early 11th century		Teeth stained green by bronze. The brooches were described as having been found from the same spot. This possibly means that they were located very close to each other, ruling out the possibility for them to have been located below the shoulders, unless the individual was placed in a lateral position.	Voionmaa 1935; NM 10201: 4–10
3/1935	30	Poor/moderate		Two penannular brooches, oval convex brooch (type Ailio C1), Scandinavian bronze artefact (possibly mount) with Urnes style animal ornament.	F? + ?	Possibly adult and a juvenile (Salo 2019g: 10)	Crusade Period		A double burial based on the bone finds.	Voionmaa 1935; NM 10201: 14–16, 20

### 37. Valkeakoski, Kokkomäki (908010038)

An inhumation burial was excavated from the cremation cemetery under level ground at (Jutikkala) Kokkomäki in 2001. The grave contained a stone at the head-end of the grave. Only fragments of bones from lower legs (NM 32916: 292–295) were found, and the upper body had not been preserved at all. Bone fragments from a cranium (NM 32916: 306–307) as well as teeth were found at the foot end, c. 20 cm above the leg bones. The grave contained a scythe and a blunt arrowhead made of bone, which have been interpreted as male items. Another grave

(2/2001) was observed during the excavation, but it was not excavated (Haggrén & Hakanpää 2001: 7–8; Haggrén et al. 2002: 7). The site is located c. 500 meters west from Muuntajamäki (site nr 38)

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Burial position	Other notes	References
1/2001	60	Poor	Plank coffin	Scythe, blunt bone arrowhead	M	A	Supine	Stone at the head end of the grave. Bones from cranium above the bones of lower limbs.	Haggrén & Hakanpää 2001; NM 32916
2/2001								Unexcavated	Haggrén & Hakanpää 2001

### 38. Valkeakoski, Moijanen (908010004)

The site has never been excavated or documented professionally. In 1932 an axe (NM 9580: 2) was found in the garden of Moijanen/Kaisti house while planting an apple tree. A human skull had been found c. 50 cm from the axe (Cleve 1933). A spearhead (type Petersen K) catalogued with the same number with the axe (NM 9580: 1) was found c. 200 meters north from the house. It is too far to have belonged to the same site, and Cleve (1933) considered it a stray find. According to Sarasmo (1945: 22), two spearheads were later found in the garden. He suspected them to have originated from the same grave that had been found in 1932. The location of these two spearheads, as well as the earlier found skull, is unknown, since they were never taken to a museum or catalogued. In 2016, a test excavation was conducted c. 55 meters from the find spot. No signs of graves were observed.

Grave nr	Depth	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1932				Axe, possibly two spearheads.			Crusade Period			Cleve 1933c; NM 9580:2

### 39. Valkeakoski, Muuntajamäki (908010029)

A test excavation was conducted at the site in 1987 (Hirviluoto 1987), followed by an excavation by Anna-Liisa Hirviluoto and Mirja Miettinen in 1990. The excavation report has been compiled by Katja Vuoristo in 2010. The site consists of burial cairns and a cremation cemetery (see also Hirviluoto 1997). Hirviluoto and Miettinen have estimated that one of the burial cairns excavated in 1990 contained possibly three Merovingian period cremation burials. The finds also included unburnt animal bones and unburnt human teeth. The age of these finds is not known, and it is difficult to determine the original context. The site is located c. 500 meters east from Kokkomäki (site nr 36).

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Burial positon	Other notes	References
1/1990		Poor (teeth)				A		Unburnt human teeth from a cairn that also contained cremated bones and Merovingian period artefacts. This might have been a younger inhumation in an older burial cairn.	Hirviluoto & Miettinen 1990 [Vuoristo 2010]; NM 26079

#### 40. Valkeakoski, Toppolanmäki

Several bones and artefacts were found during sand extraction in 1936. The bones were sent to the Anatomical Department at the University of Helsinki, where they were determined as at least three adult individuals (NM 10461). Jorma Leppäaho (1938) excavated two graves in the same autumn. In 1937, Sakari Pälsi excavated eight more graves and mapped several depressions that were considered as possible graves. In 1951, Ella Kivikoski excavated three possible, unfurnished graves (report written by Aarni Erä-Esko 1952). Two other irregular features were also found (C–D/1951). Although Paula Purhonen (1998: 154; 258) has interpreted these features as possible children’s graves, they are unlikely graves based on the documented information. At Leppäaho’s (1938) excavation, a small hearth was found, and there has also been a historical smithy at the site (Pälsi 1937). Therefore, other later human activities in addition to burials, may be visible at the site. At least 15–17 individuals have been buried at the site, all which seem to have been adults. At least two of the graves contained more than one individual, and because of the poor preservation of bones in some of the graves, the possibility of joint burials of adults and children cannot be completely excluded.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts	Sex	Age	Date	Burial positon	Other notes	References
1936		Moderate/good							Bones from the destroyed graves were sent to the Anatomical Department at the University of Helsinki. These bones belong to three adults, possibly one male and one female. The female mandible and one of the collarbones have been coloured green by a bronze artefact.	NM 10461
1/1936	60	Moderate/good	Coffin	Two wooden vessels, one in front of the face filled with cremated		A		Supine extended or possibly slightly lateral, on	Cremated human bones in a wooden cup in front of the face.	Leppäaho 1938; NM 10461: 6–9

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts	Sex	Age	Date	Burial positon	Other notes	References
				bones. An empty cup likely from the foot end. Small axe behind the right shoulder.				the left side. Face on the left cheek.	Large stone placed on top of the head and the vessel.	
2/1936	65	Moderate/good	Rectangular wooden container (coffin)	Iron object (sword tang?) struck through the coffin lid.	F + F + M	A + A + A	1165–1265 cal AD (95.4%) 1126–1220 cal AD (73%) 1036–1161 cal AD (95.4%) (Hela-4608, Hela-4609, Hela-4610)	Superimposed, heads in opposite directions.	Although Leppäaho found only three skulls, he thought the grave contained four individuals, who would have been tied together. Another interpretation is presented in paper I, which is again corrected in the summary of this dissertation after re-analysis of documentation material and the re-excavation of the grave in 2018. According to the osteological analysis (Salo 2019h) the grave contained three individuals (instead of four).	Leppäaho 1938; Moilanen 2019; PAPER I; NM 10461: 10; NM 41564
1/1937	50	Poor (Only teeth and finger bones inside and near the finger ring)	Coffin	Coffin nails, silver-inlayed battle-axe, silver brooch, finger ring, firesteel					An "empty" grave. with remains of decomposed wood from a coffin.	Pälsi 1937;
2/1937	100	Poor	Coffin	Axe (silver-inlayed type M) by the right shoulder, silver penannular brooch, silver finger ring, firesteel, knife (on top of the firesteel), nails	M?	A			Leather(?) on top of the finger ring.	Pälsi 1937; NM 10581: 2–7
3/1937	60	Good	No	No	M	A	1045–1085 cal AD (41.1%) 1121–1214 cal AD (51.4%) (Mannheim-35315)	Supine extended, left hand extended by the side, right hand semi-flexed on the stomach. Legs crossed at ankles.	Large stones on the corpse. Grave left in situ in 1937 and re-excavated in 2017. Sphagnum and Lycopodium annotinum spores were found from the soil in the pollen analysis. These indicate that moss was placed at the bottom of the grave pit.	Moilanen 2018b; Pälsi 1937; NM 41248

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts	Sex	Age	Date	Burial position	Other notes	References
4/1937	65	Good	No	Two round convex brooches (made of bronze plate), textile fragments, penannular brooch, two twin-spiral chain-distributors, bronze chain (Fig. 41).	F	A		Supine extended, arms flexed over stomach.	Narrow grave pit.	Pälsi 1937; NM 10581: 8–12
5/1937	40	Poor	Tree trunk coffin possibly with u-shaped bottom	No		A		Supine, possible adduction of bones due to the coffin shape.		Pälsi 1937
6/1937	43	Poor	No	Two penannular brooches, twin-spiral chain-distributor.	F + ?	A + A?		Supine. Heads close to each other. Individual on the left: legs possibly crossed.	Double burial. Birch bark in the grave.	Pälsi 1937; NM 10581: 13–16
7/1937	95–100	Moderate/poor	Coffin	Two penannular brooches at the shoulders, bent harpoon (or barbed spearhead) behind the skull, struck into the coffin wood.	F?	A			Stone setting in the grave fill. Harpoon (or a barbed spearhead) struck into the bottom of coffin.	Pälsi 1937; NM 10581: 17–18
8/1937	85–100	Moderate/poor	Coffin	Knife by the right femur, firesteel and broken shears by the left femur. Two spearheads with cut sockets in a vertical position on both sides of the waist, wood fibres in transverse direction on them.	M?	A		Supine extended.	Two spearheads struck through the coffin lid.	Pälsi 1937; NM 10581: 19 – 24
A/1951	100								Only a dark grave-like feature in the ground.	Erä-Esko 1952
B/1951	40								A dark feature, size c. 50 x 200 cm.	Erä-Esko 1952



Grave nr	Depth in cm	Preservation of bones	Container	Artefacts	Sex	Age	Date	Burial positon	Other notes	References
C/1951	20								Two small, round features in the soil immediately under the topsoil. The other feature had darker edges. Unlikely a grave.	Erä-Esko 1952
D/1951	3-5								A sooty irregular feature under the topsoil, width c. 50 cm. Unlikely a grave.	Erä-Esko 1952
E/1951	40								Dark feature, size c. 200 x 100 cm with a stone setting.	Erä-Esko 1952



**Figure 41.** The finds from grave 4/1937 at Valkeakoski Toppolanmäki included two round brooches, a penannular brooch, two twin-spiral chain-distributors, chain, and chain links. Photo: FHA.

#### 41. Vesilahti, Rukoushuone (922010003)

The site was found in 1955 when excavating a building foundation. Helmer Salmo inspected the site in 1955 and excavated several graves in the following summer. Ten graves (two of these almost completely destroyed in the construction work) have been found from the site, but the cemetery was presumably much larger (Salmo 1955). Salmo (1955) considered the cemetery having been used only for a short period of time, because the graves, which had been dug in a row, did not overlap each other, and the grave fills did not contain artefacts or remains of earlier graves. The preservation of organic material is extremely poor at the site. The furnished graves had been oriented approximately E–W, and the unfurnished graves N–S.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1/1955	70			Knife (NM 13740:2), shears (NM 13741).					Almost completely destroyed in digging the house foundation.	Salmo 1955; NM 13740; NM 13741
2/1955	70			Oval firesteel (NM 13740: 2)					Destroyed in digging the foundation. Only small remains left during Salmo's inspection.	Salmo 1955; NM 13740
1/1956				Convex brooch, "Karelian" bird pendant with jingle bells hanging from it (Fig. 42), knife.	F		Crusade period		Orientation: NE–SW.	Salmo 1956; NM 13939: 1–5
2/1956		Poor		Small penannular brooches with faceted knobs at the chest, two "Karelian" bird pendants, jingle bell, yellow glass beads, German silver coin (AD 1173–1203), small knife.	F? + C		Late 12 <sup>th</sup> – 13 <sup>th</sup> century (coin date, Sarvas 1972; Talvio 2002)		Orientation: E–W.  The grave has possibly been a double burial. Bones of a child (under 7 years old) have been identified in an osteological analysis (Salo 2019i: 5).	Salmo 1956; NM 13939: 6–15
3/1956		Poor (lower limb bones)	Plank coffin	Spearhead and knife at the waist. Iron belt buckle. Oval firesteel, flint, coffin nails.	M		Crusade Period	Supine extended?	Orientation: W/NW–S/SE.	Salmo 1956; NM 13939: 16–23
4/1956				Fragmentary bone artefact?			Crusade Period		Orientation: SE–NW.	Salmo 1956; NM 13939: 24

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial positon	Other notes	References
5/1956				Fragment of shears? Textile fragments, slag.	M		Crusade Period		Stone setting on the grave.	Salmo 1956; NM 13939: 25–31
6/1956			Possibly a coffin	No					Orientation: N–S.	Salmo 1956
7/1956				No					Orientation: E–W.	Salmo 1956
8/1956				No					Orientation: E/NE–W/SW.	Salmo 1956
9/1956				No					Orientation: N/NW–S/SE.	Salmo 1956
10/1956		Poor (remains of femur)	Possibly a coffin	No					Orientation: N/NW–S/SE.	Salmo 1956



**Figure 42.** The bird pendant with jingle-bells from grave 1/1956 at Vesilahti Rukoushuone. Photo: FHA.

## 42. Ylöjärvi, Mikkola

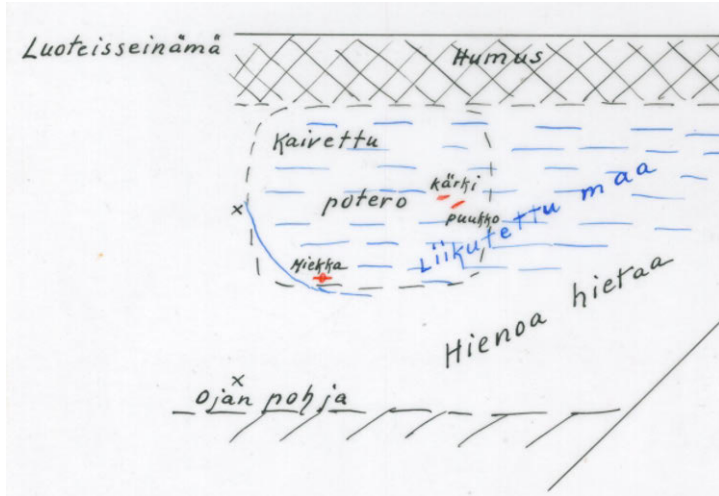
Burnt bones and Late Iron Age artefacts indicating a cremation cemetery were first found from the site in 1894 (Heikel 1895). The first inhumation burial (Fig. 43) was found when excavating a water pipeline in February 1959 (Meinander 1959). In the summer, Helmer Salmo (1959) excavated six inhumation graves and noted that the objects originating from cremations were only found in the grave fills, and not in the areas between the graves. This could indicate that the items were placed deliberately in the graves during the infilling, and not that the graves had been dug through the cremation cemetery layers. The next inhumation graves were found in 1972 in Pirkko-Liisa Lehtosalo-Hilander's (1972) excavation. She also located the cremation cemetery layers c. 50 meters north from the graves excavated in 1959. In 1975, two graves were excavated. Both were small, and at least one of them was an animal grave (Sarkki 1975). At least three more inhumation graves were found in 1976 by Seija Sarkki. Graves 2a–b/1976 and 3/1976 were located under a single, dark feature, with the size of 400 x 250 cm. At the depth of c. 70 cm, the feature separated into two different grave pits. Two harpoons or barbed arrowheads (NM 19901: 240–241) were struck into the earth between the pits. These objects have remains of wooden shafts on them. Graves 2a and 3 had almost identical grave goods, which were placed on the opposite sides of the individuals, as if mirroring each other.

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
1a/1959			Coffin	Sword, bent knife, arrowhead	M?	A			Unnumbered in the reports. Orientation: SW–NE. A bent knife and an arrowhead were found in the same grave pit, c. 50 cm higher than the sword. Both had transverse wood fibres on the blades, indicating they had been struck into the coffin lid.	Meinander 1959; Salmo 1959; NM 14553
1/1959		Poor	Coffin	Iron mount. Cremated bones in the fill.		A			Orientation: SW–NE Sooty soil, stones in the grave fill. Birch bark on the corpse.	Salmo 1959; NM 14622: 1–3
2/1959		Poor	Coffin	Firesteel, knife, whetstone on the corpse. Pieces of a bronze kettle, melted bronze, and burnt bone artefact in fill.		A		Supine extended, no constrictions.	Orientation: W–E.	Salmo 1959; NM 14622: 4–83

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
3/1959		Poor/moderate	Narrow coffin	Belt with bronze mounts (Fig. 44), finger ring, firesteel, knife, flint. Textile fragments. Coffin nails.	M	A		Supine extended, right arm flexed, hand on the chest/shoulder.	Orientation: W-E The bones belong to an adult male who had a possible trauma in the humerus (Salo 2021b).	Salmo 1959; NM 14622: 84–93
4/1959			Plank coffin	Bronze spirals, silver finger ring, penannular brooch, dirhem coin pendant with a loop, bead fragments. Cremated bones and fragments of a spindle whorl in the fill.	F	A	11th century  The pendant is an Uqayalid coin (c. 996–1000 AD) (Talvio 2002: 192).		Orientation: W-E Salmo considered the grave disturbed because of the scattered bronze spirals in the grave.	Salmo 1959; NM 14622: 94–319
5/1959		Poor/moderate	Coffin	Two penannular brooches, shears, knife, bronze spirals from the inhumation. Weights, fragments of burnt bone comb, German silver coin, and unburnt human mandible in the fill.	F	MA (Salo 2021b)	11th century  Coin (1020–1051 AD) in the fill.	Supine, arms flexed on the stomach.	Orientation: W-E Cremated bones, artefacts, and a fragment of unburnt mandibula (NM 14622: 337) in the fill. The mandible belongs to YA male (Salo 2021b).	Salmo 1959; NM 14622: 327–357
6/1959			Coffin	Cremated bones, melted bronze in the fill.		C		.	Orientation: NE–SW. Stones in the fill.	Salmo 1959; NM 14622: 358–369
1/1972	110–120	Poor/moderate	No	A belt with bronze mounts, knife, firesteel, whetstone. Cremated bones in fill and in the grave.	M	A		Supine extended. Possibly no constrictions, therefore not tightly wrapped.	Sooty soil. Size of the grave pit 215 x 65 cm. Animal hair (Cervidae) identified from the grave (Kirkinen 2015).	Lehtosalo-Hilander 1972; NM 19162: 347–354; 376
2/1972	110	Poor/moderate	No	Axe, knife, belt buckle made of bronze. Cremated bones in fill.	M	MA (Salo 2021b)		Supine extended, arms flexed over stomach. No constrictions, not tightly wrapped.	Size of the grave pit 230 x 75 cm. Animal hair (Bos taurus) identified from the grave (Kirkinen 2015). The cranial bones have numerous pathologies: endocranial woven bone formation, signs of sinusitis	Lehtosalo-Hilander 1972; NM 19162: 355–375, 377

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
									and mastoiditis (Salo 2021b).	
3/1972	130			Burnt clay in the fill.					Size of the grave pit 150 x 40 cm.	Lehtosalo-Hilander 1972;
1/1975	40	Poor		No		C?			Orientation: E-W. Size of the grave pit 100 x 60 cm. Animal bones at the W end of the grave. Animal grave or a child's grave?	Sarkki 1975; NM 19693:295
2/1975	40	Good		No					Size of the grave pit 120 x 50 cm. Animal (cattle) grave	Sarkki 1975; NM 19693:296
1/1976	65	Poor	Coffin, size 224 x 55 cm	Sword with the tip oriented towards the head. Two spearheads nailed through the coffin lid. A barbed spearhead bent and struck into the coffin at the foot end. One spearhead on the head. Knife at the left side of the pelvis. Cremated bones and pottery sherds in the fill.	M	MA (Salo 2021b)	12th-13th century	Supine extended, arms semi-flexed, hands on the pelvis. Head on the left cheek.	Two spearheads through the coffin lid, sword. Sword close to Oakseshott type G (Moilanen 2016: 413).	Sarkki 1976; Sarkki-Isomaa 1986; PAPER I; NM 19901: 195-209
2a-b/ 1976	90	Poor		Individual A: Three arrowheads with transverse points on the left shoulder. Axe on the left side of the pelvis, knife between the legs, by the right femur. Ring on the left hand.  Individual B: Two firesteels on the left	M? + M/F?	YA + YA (Salo 2021b)	Crusade Period	Both supine extended.	Double grave, two individuals. Size of the grave pit 250 x 80 cm. According to traditional sex determination based on artefacts (e.g., Sarkki 1976), both burials belong to males. However, individual 2b has been determined as a possible female in an osteological analysis (Salo 2021b). Both graves have been sampled for aDNA	Sarkki 1976; NM 19901: 210-229

Grave nr	Depth in cm	Preservation of bones	Container	Artefacts/finds	Sex	Age	Date	Burial position	Other notes	References
				side of the pelvis. Flint, two knives.					analysis in the SUGRIGE project for a genetic sex determination.	
3/1976	95	Poor		Three arrowheads on the right shoulder, axe and firesteel on the right side of the pelvis, knife and flint between the legs, by the left femur.	M?	A		Supine extended.	Connected with graves 2a-b.	Sarkki 1976; NM 19901: 230–239
4/1976	80			No					Size of the grave pit c. 200 x 100 cm. Stone setting. Possibly not a grave.	Sarkki 1976
5/1976	50								Listed as an uncertain grave in the report. Finds consisting of Early Modern material. Either a disturbed grave or not grave at all.	Sarkki 1976
6/1976	80								Size 200 x 60 cm, irregular shape. Unlikely a grave.	Sarkki 1976



**Figure 43.** (On the left) The profile section of grave 1a/1959 at Ylöjärvi Mikkola by Esko Sarasmo. The drawing shows the position of the sword (miekka) at the bottom of the grave pit, while the arrowhead (kärki) and the knife (puukko) were located in the upper layers. Both of the finds contain wood fibres in transverse direction. These items were likely struck into the coffin lid.

**Figure 44.** (On the right) Belt mounts from grave 3/1959 at Ylöjärvi Mikkola. Photo: FHA.



## Appendix 2: Summary of papers I–V

- I** Moilanen, Ulla 2020. Theoretical and Methodological Approaches to Non-Normative Burials in Finland in the Eleventh-Thirteenth Centuries AD. In: *The Odd, the Unusual, and the Strange. Bioarchaeological Explorations of Atypical Burials*, edited by T. K. Betsinger, A.B. Scott & A. Tsaliki, pp. 225–245. University Press of Florida, Gainesville.

Early Medieval (c. 900–1300 AD) inhumation burials in Finland include several cases that could be described as deviant. These burials include double and multiple burials, peculiar grave-goods and strange positioning of artefacts or the body. The precise treatment of bodies, as well as the choice of funerary practises and burial customs are inseparably linked to beliefs of the afterlife and myths, which might have been diverse and dependent on various events and incidents in real life. The interpretation of deviant burials should be context-specific, but when taking the notion of socially extraordinary death into account, the variations in burial customs might be understood in a wider context, sensitive to both social and religious factors.

- II** Koski, Kaarina & Moilanen, Ulla 2019. Kuolema ja tuonpuoleinen. In: *Suomalaisen kuoleman historia*, edited by I. Pajari, J. Jalonen, R. Miettinen. & K. Kanerva, pp. 61–98. Gaudeamus, Helsinki.

This paper describes the main points of how Christianization, the Catholic Church, the Reformation, and the Lutheran Church influenced folk culture of death and dying in Finland. The folk culture includes various beliefs and rituals connected with the preparation for death, the practices at the time of death, and the time of burial. The paper also describes how the dead person was perceived, and how the relationship between the living and the dead differed during history. Occasionally the dead may have been feared, but they were also commemorated in various ways and used as powerful tools in folk magic. This emphasizes the post-mortem agency of the dead, who could have had an active role in the lives of people even long after the burial.

- III** Moilanen, Ulla 2018. Facing the Earth for Eternity? Prone Burials in Early Medieval and Medieval Finland (c. AD 900 – 1300). In: *The Others – Deviants, Outcasts and Outsiders in Archaeology*, edited by L. Damman & S. Leggett, pp. 19–36. *Archaeological Review from Cambridge* 33.2, Cambridge.

Prone (face-down) burials are a worldwide phenomenon, and the motives behind them may range from punishment and humiliation to penitence and magical purposes. The evidence on prone burials in Late Iron Age and Early Medieval/Medieval (ca. 900–1300 AD) Finland is variable and problematic due to

poor skeletal preservation in the acidic soil. Still, prone burials seem to have been extremely rare in Finland. Some of the burials that have previously been misinterpreted as prone positions can be explained by post-depositional processes. The reliable examples of prone burials are located in the local village or congregation cemeteries, which suggests that the intention was not to exclude these individuals from the community. Given the rarity of the custom in Finland, it is likely that prone burials were not motivated by large-scale religious, social, or political changes but rather local, small-scale events and personal or individual experiences and emotions towards the dead individuals.

- IV** Moilanen, Ulla, Kirkinen, Tuija, Saari, Nelli-Johanna, Rohrlach, Adam B., Krause, Johannes, Onkamo, Päivi & Salmela, Elina 2021. A Woman with a sword? Weapon grave at Suontaka Vesitorninmäki Finland. *European Journal of Archaeology*, 1–19 doi:10.1017/eea.2021.30

In 1968, a weapon grave with brooches was found in Suontaka Vesitorninmäki, Hattula, Finland. Since then, the grave has been interpreted as evidence of powerful women, even female warriors and leaders, existing in Early Medieval Finland. Others have denied the possibility of a woman buried with a sword, and tried to explain it as a double burial. We present the first modern analysis of the grave, including an examination of the find context, a soil sample analysis for microremains, and an ancient-DNA analysis. Based on these analyses, we suggest a new interpretation: the Suontaka grave possibly belonged to an individual with sex-chromosomal aneuploidy XXY. The overall context of the grave indicates a respected person with non-binary social identity.

- V** Moilanen, Ulla & Hiekkanen, Markus 2020. Atypical burials and variations in burial customs in the church of Renko. In: T. Äikäs & S. Lipkin (eds.) *Entangled beliefs and rituals. Religion in Finland and Sápmi from Stone Age to contemporary times*: 40–58. Monographs of the Archaeological Society of Finland 8.

The stone church of Renko was built in the 16th century, abandoned and ruined in the mid-17<sup>th</sup> century, dismantled, and rebuilt in 1783. It was preceded by one or perhaps two consecutive wooden churches built at the same location since the beginning of the 15th century. Extensive archaeological excavations were conducted inside the church in 1984 when the wooden floor was replaced with a stone floor. Seventy-one graves dating from the 15th to the 18th century were found during the excavations. Grave sites under the church floor were expensive and usually reserved for individuals of high social status, such as priests, officials, and wealthy landowners. There is usually little variation in church burial customs, as they follow

Christian traditions and contemporary legislation. However, the graves in the Renko church include a few distinctive burials in terms of burial position and treatment of the corpse. This paper analyses these burials and explains them in the wider contexts of church burials and non-normative graves.



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