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The Late Medieval church and graveyard at Ii Hamina, Northern Ostrobothnia, Finland: Pollen and macro remains from graves

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The historical Ostrobothnian (Finland) burial tradition is poorly known, particularly when discussed from the environmental archaeological viewpoint. This article examines Late Medieval burial methods in Ii Hamina village using both micro- and macrofossil analyses incorporated into archaeological work. This research provides information on the continuity of burial methods that were sustained through the medieval period and into modern times. Burial tradition patterns in the Northern Ostrobothnia region exhibit widely recognised characteristics, but also contain some local features.

Keywords: Ii Hamina, Finland, medieval, burials, archaeobotany

Introduction

Parts of a medieval graveyard and church site in Ii Hamina (Northern Ostrobothnia, Finland, Figs. 1–2) were excavated during the summer of 2009 (Kallio-Seppä 2010; Kallio-Seppä et al. 2009; 2011a; 2011b). Ii Hamina was a medieval trading place at the mouth of the Ii River and an important centre of trade, possibly as early as the 13th century. Archaeological data suggest that the influence of different cultural traditions may have affected the local use of plants in burial customs on the site. The aim of this study is to examine the evidence for funeral ceremonies. The starting point of the original sampling was based on different objectives, the investigation of the last meals of the deceased. This paper focuses on the palaeobotanical and palaeoentomological work from the Ii graves.

Approximately 9% of the total graveyard area and only a limited part of the church was excavated. The excavation revealed the skeletal remains of at least 290 individuals, of which 65 were archaeologically excavated from *in situ* graves. The remainder of the bone material was collected from a 1.9 metre diameter pit, filled with disarticulated bones from earlier (1960s) excavations of sewer trenches. Of the *in situ* graves, 18 were situated inside a church building and the rest

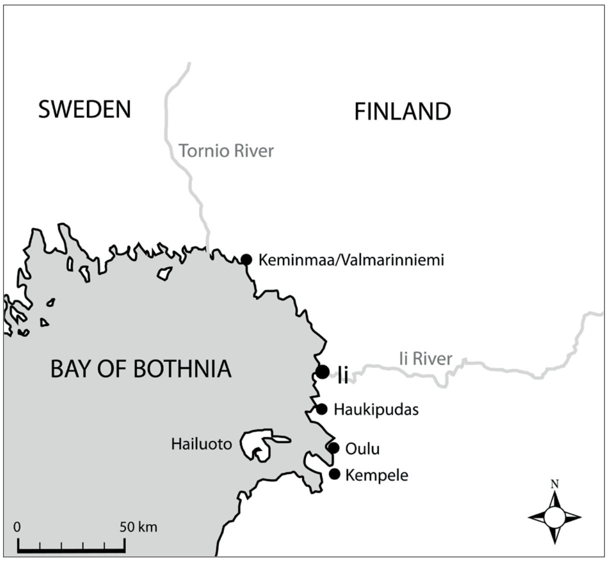

Figure 1. The coast of Northern Ostrobothnia today. Map by Terhi Tanska.

Figure 2. The parish of Ii in a map from 1648 by Claes Claesson (Digital Archives of the National Archives of Finland, MHA F 1 107–108, Uhlaborgz Lähn Iiå Sochn [Etelä-Ii]). The research area is situated north-east of the church.

in the northern part of the graveyard (Figs. 3–4). Radiocarbon dating of the deceased and coin finds from graves indicate that the graveyard was probably in use from the 15th century until the early 17th century, when a new church building was erected in a different location (Kallio-Seppä 2011).

A number of medieval and early modern period graveyard studies were undertaken in the coastal area of Ostrobothnia during the 1980s (Fig. 1). The graves from Hailuoto churchyard were dated from the 15th to 18th century (Paavola 1988; 1995; 1998), and the oldest burials from Valmarinniemi, Keminmaa (Koivunen 1997) dated to the 12th century. However, the oldest cremation graves at Valmarinniemi are dated to 1030–1160 cal. AD (Taavitsainen et al. 2009). No pollen or macrofossil analyses were conducted at Valmarinniemi, but some pollen analyses were undertaken on material from Hailuoto, although no samples were taken from inside the graves. The churchyard and graves of Oulu Cathedral were excavated in 2002 and a number of soil samples were taken from 17th and 18th century graves for environmental archaeological analysis (Sarkkinen 2005; Sarkkinen & Kehusmaa 2002). Archaeobotanical analyses have been conducted on Late Iron Age and medieval graves in Southern Finland (Lempiäinen 2002), but from the perspective of the history of medieval graveyard research in Finland and northern Fennoscandia in general, the pollen and macro remain studies at Ii Hamina are new.

During the time when the graveyard was in use, Ii was an important place for religious activity and trading in the North. Ii Hamina was a market place at least as early as the 13th century and the parish was established around the middle of the 14th century. People went there to take part in church services and trade. It was a region where people from many different directions met, and the residents and merchants were Karelian, Swedish, Norwegian and Finnish from the Häme and Satakunta regions (Itkonen 1951; Luukko 1954; Julku 1985:93–94; Vahtola 1998; 2008). The area was thus subject to different cultural influences, with numerous practices and beliefs. This is clearly reflected in Ii Hamina church and its graveyard, which was originally Catholic and became Lutheran following the Reformation, but excavations revealed material remains that also indicate the influence of the Greek Orthodox Eastern Church (e.g. Atkinson & Tanska 2011).

Material and methods

In order to investigate the possible use of plants in local burial customs at Ii Hamina, soil samples (approx. 2 kg) were taken from five *in situ* graves during the excavation process (Fig. 5). These were dated to the 15th and 16th centuries. More exact dates, e.g. from burial registers, were not available. The graves represent different age and sex groups: two graves were of adult men (CH2b, CH56), one an adult female of about 30 years of age (CH55), one shared grave of a child and an adult (CH46), and one child of about 15 years of age and indeterminate sex (CH47). All of the graves

Figure 3. The geography of Ii Hamina village today and the whole excavated area. Map by Terhi Tanska.

are situated within 10 metres of each other, with one adult male (CH56) inside the perimeter of the old church site and the rest located in the graveyard to the northern side of the church building.

Most of the bodies in the Ii Hamina graveyard were buried in wooden coffins, as evidenced by the presence of iron nails and wood remains, found on the sides and under the remains of the deceased. A total of 13 coins, most of which were bracteates – thin, one-sided silver coins used in the medieval period – were found in nine of the graves inside the church. Few other objects were found in the graves, and no traces of shrouds or other textiles were found; one grave contained a cross pendant (Kallio-Seppä et al. 2009; 2011b). All of the five sampled graves had indications of coffins, but no lids; no signs of discolouration were encountered in these graves, which would indicate decayed wooden lid structures. However, the use of a birch bark cover cannot be ruled out. It is highly unlikely that the deceased were buried without some kind of cover. Based on ethnography and archaeological studies, usually bark, fur or moss covers were used.

Samples were taken from the inside of the graves at the position of the corpse´s abdomen, located by the skeletal remains. The coffins of all the sampled graves had preserved wooden floors. Therefore, the soil inside the coffin had not mixed with the soil underneath, although some mixing with the soil filling the grave is not totally ruled out. Whether the results encompass only the actual coffin furnishing or include evidence from the filling of the graves is uncertain. This can be debated by comparing graves, which have similar dates. Exceptionally rich pollen residues might indicate grave offerings or coffin furnishing.

Soil samples of the graves were water-floated and the flotant sieved over 0.125 mm mesh to separate insects and seeds from finer debris. The organic matter was examined under a stereo microscope (Leica S4E, 6.3–30× magnification) and macrofossils identified with the help of insect and seed reference collections held at Oulu University´s Department of Biology and Umeå University´s Environmental Archaeology Laboratory. Identification and ecological literature (Hämet-Ahti et al. 1998; Väre et al. 2005; Neef et al. 2006) was also used to aid identification and interpretation, as was the BugsCEP software (Buckland & Buckland 2006).

Subsamples of 1 cm^3 were taken for pollen, charcoal and other analyses (Bennett & Willis 2001), to which KOH and HF treatments were applied (Berglund & Ralska-Jasiewiczowa 1986). Safranin-stained glycerine was added to the pollen subsamples for staining and mounting. Pollen concentrations (grains per cm^3) were determined by adding *Lycopodium* tablets (Stockmarr 1971) to the samples. Identification of pollen and macro-remains was based on publications by Erdtman et al. (1961), Faegri & Iversen (1989), Moore et al. (1991), Reille (1992; 1995), Van Geel (1978) and Van

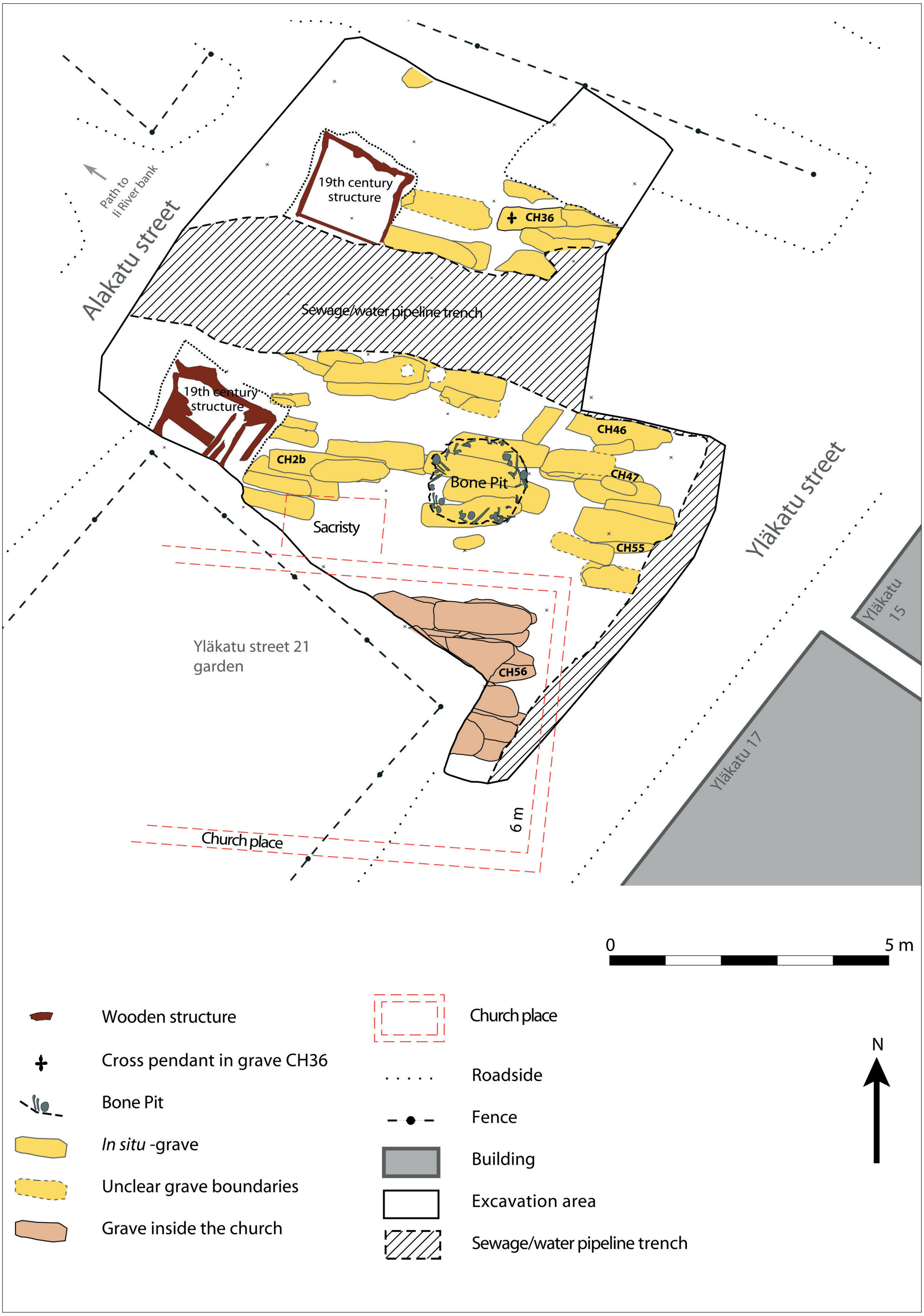

Figure 4. Plan of the excavation area, with the studied graves indicated. Drawing by Terhi Tanska.

Table 1. Number of macroscopic remains in the analysed graves. X indicates presence.

	CH2B	CH46	CH47	CH55	CH56
Seeds					
Brassica rapa ssp. (turnip)					1
Carex spp. (sedge)					1
Chenopodium album (fat hen)	1			1	
Rubus idaeus (raspberry)	1				1
Insects					
Otiorhynchus ovatus (strawberry root weevil)	1	2			1
Formicidae spp. (ant)		1			
Fungal spores					
Gelasinospora	1				1
Sordaria		3		2	
Sporormiella		4			
Other organic matter					
Bone fragments		x		x	
Picea abies (spruce), needles	2				
Betula sp. (birch), bark	x				
Unidentified plant parts	x	x			
Charcoal	x	x	x	x	x

Geel et al. (1983; 2003). Calculations for pollen and spore percentages were based on the sum of terrestrial pollen grains.

Results

Insects and seeds

The graves produced only a small number of seed and insect fossils (Table 1), and preservation was poor as a result of the sandy graveyard soil. The insects represent fairly common taxa for the region, and the seeds indicate typical vegetation for the medieval surroundings. The weevil and ants are abundant in a variety of environments. *O. ovatus* thrives in vegetable gardens or fields and is polyphagous and eurytopic (Palm 1996), the larvae feeding on roots and pupating in the soil, raising the possibility of later intrusion into the graves. The map of the mid-17th century village reveals that there was a field near the graveyard, and with the addition of the nearby sandy bank of the River Ii, it is not surprising that the samples produced *O. ovatus*. Modern Finnish records extend north to Leipee (66.2°N; GBIF 2012: Finnish Museum of Natural History), and Swedish records extend similarly, north to Arjeplog (c. 66°N; Species Gateway 2012). The milder coastal climate of Norway probably allows species to survive slightly further north, which is reflected in individuals from Melbu on Vesterålen (68.5°N; GBIF 2012: Natural History Museum, University of Oslo). The species has been introduced to North America where experimentally derived thermal limits have been used to suggest that the species is unlikely to breed north of 50°N (Fisher & Edwards 2002), although the artificially warmed habitats provided by human vegetable rubbish and manuring is likely to extend this range.

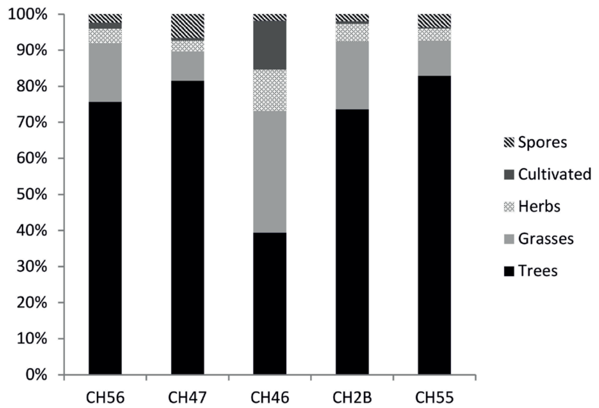

Figure 5. Bar charts showing the relative composition of the main pollen groups in each grave: trees, grasses, herbs, cultivated cereals and spores.

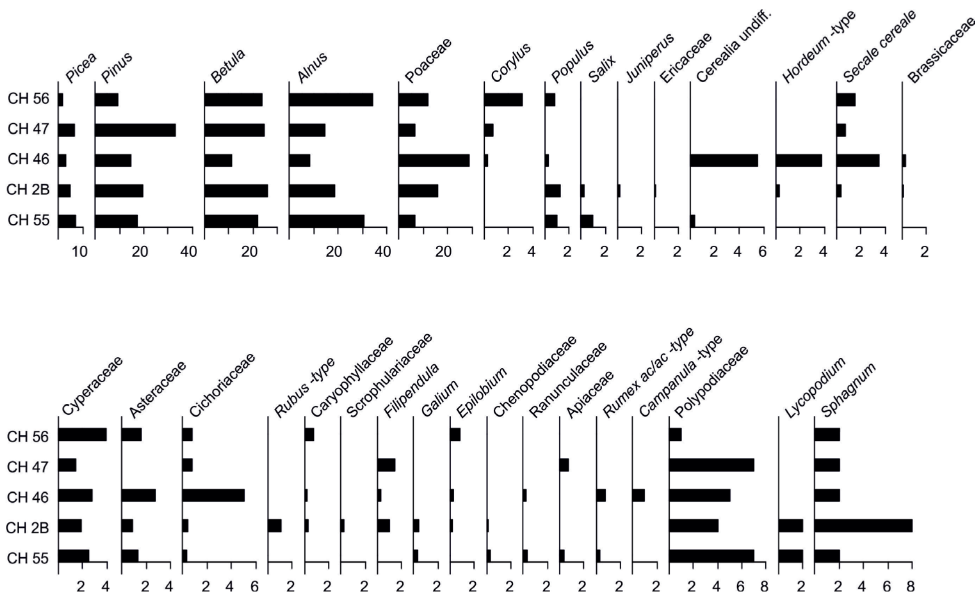

Figure 6. Diagram showing the relative percentages of pollen and spore taxa, based on the sum of terrestrial pollen.

Table 2. Number of pollen grains counted, pollen concentration and charcoal particle concentration per cm³ sample.

	Pollen grains counted (n)	Pollen concentration (grains/cm³)	Charcoal concentration (particle/cm³)
CH56	120	1,587	301,720
CH47	126	1,597	136,681
CH46	369	4,310	351,561
CH2B	684	6,580	336,894
CH55	289	4,655	330,300

O. ovatus has been recovered from a variety of archaeological sites in northern Europe, including medieval Novgorod (Hellqvist 1999) and Oslo (Kenward 1988), as well as on Iron Age and Romano-British sites and Holocene sites in the UK (Buckland & Buckland 2006).

The fossil seeds indicate weed plants that could also be used as food, which is common for most medieval village sites (Karg & Robinson 2002:133). Seeds, such as those of raspberry (*Rubus idaeus*) and fat hen (*Chenopodium album*) in archaeological contexts may indicate food waste or local vegetation (Hämet-Ahti et al. 1998; Väre et al. 2005). An understanding of the archaeological stratigraphy and taphonomy is thus important in distinguishing natural or random deposition from deposition resulting from cultivation or collection. Turnips (*Brassica rapa)* and raspberries were common food plants used in the Ii region (Luukko 1954:182, 196, 199), and there is documented evidence of fat hen having been used as a flour substitute, especially during famines (Lempiäinen 2009). These few seeds could easily have accidently found their way into the graves during the funeral ceremony and do not necessarily indicate burial customs.

Pollen, charcoal and other macro-remains

Pollen was generally reasonably well-preserved in the samples, although concentrations varied considerably. The number of grains counted per sample was between 120 and 684 (Table 2).

Pollen taxa where grouped into four mutually exclusive groups, plus spores, as follows:

1. Trees and shrubs, including the conifers *Pinus* (pine) and *Picea* (spruce), broad-leaved trees *Betula* (birch), *Alnus* (alder), *Populus* (poplar) and *Corylus* (hazel), and shrubs *Juniperus* (juniper) and *Salix* (willow).
2. Grasses and sedges (Poaceae and *Carex*).
3. Cerealia, including cereals of the genera *Secale* (rye), *Hordeum* (barley*)* and undifferentiated *Cerealia*.
4. Herbs.
5. Spores.

The relative proportions of the five main pollen groups are presented in Figure 5, and pollen percentages of all species identified in all five samples presented in Figure 6. There are a number of similarities between the pollen composition of samples CH47 and CH55, and likewise between CH56 and CH2B. Sample CH46, on the other hand, stands out as significantly different from the others. Samples CH47 and CH55 have total tree pollen percentages of 85% and 82% respectively; grasses constitute 8.5% and 10% of the total pollen; herb pollen makes up only 3% of the total pollen in each of the two samples. Only one *Cerealia*-type pollen grain was found in each of these samples. Also, grave CH46 had a high proportion of Cichoriaceae type pollen.

Samples CH56 and CH2B have a smaller proportion of trees (75% and 72%) and more herb pollen. Grasses make up 16% and 18% and herbs 4% and 5% of the total pollen. Cultivated pollen types are represented by only 2% and 1% of the total pollen respectively. Most species of the sample CH46 reflects species of the open environment, with only 38% trees, 32% grasses, 11% herbs and 13% cultivated pollen of the total pollen.

Charcoal particle concentration is relatively similar between samples, at around 300,000–350,000 particles/cm^3, with the exception of CH47, which has a concentration of ca 137,000 particles/cm^3. Other microfossils were rare and included the spores of *Sordaria*-, *Sporormiella*- and *Gelasinospora*-types (Table 2).

Figure 7. The grave of a young man (CH2B). Photo by Terhi Tanska.

Analysing soil sample information

When interpreting the pollen results, the origins of the sediment from which the sample was taken must be considered. Of particular interest in this case is the extent to which the pollen originates from the actual grave, i.e. plants purposely put into the graves, and the extent to which the pollen originates from soil that was used to cover the grave. If the pollen samples primarily contain soil that was used to cover the graves, then given their close proximity, the pollen composition of each sample should be similar and represent the local and regional vegetation. Pollen from wind-pollinated trees would have spread evenly throughout the cemetery, although the close proximity of individual graves to trees could potentially have influenced pollen concentrations in some contexts. Graves CH47 and CH55 contained a larger proportion of tree pollen than the other graves, although the results from CH47 should be considered as tentative due to the small amount of pollen found. The total proportion of grasses is 8.5% and 10%, with true grasses representing 6.9% and 7% in CH47 and CH55 respectively. It should be noted, however, that some plants, especially some trees, are generally over-represented in pollen diagrams due to their high pollen productivity and propensity for distance transportation. A consequence of this is that other groups, such as grasses and herbs, are often under-represented, their probable land-cover being higher than that which would at first appear evident from a pollen diagram based on the percentage of total land pollen (e.g. Broström et al. 2008; Sugita et al. 2010). Calculations on the Ii Hamina data show, however, that in this case the results would not be greatly affected by adjusting percentages to reflect differences in pollen productivity. The pollen composition in these two graves could originate from soil used to fill the graves.

For samples representing the contents of the coffin, including plants deliberately put into the grave, the pollen composition could be expected to differ from that representing the surrounding vegetation. It would most likely reflect a mixture of local vegetation and the use of plants in burial ceremonies. The shared burial of the Ii Hamina adult and child (CH46) produced significantly less tree pollen (38%)

when compared to the other samples, and despite its outdoor location. It is therefore a significant possibility that this unique pollen composition is a result of the burial ceremony. The most striking aspect of the pollen in grave CH46 was the dominance of Poaceae (true grasses), comprising about 29% of the total land pollen. Furthermore, the proportion of *Carex* (sedge) pollen was high (2.8%) in comparison to the other samples. It is possible that the true grasses (Poaceae) and perhaps sedges (*Carex*) were deliberately put into the grave, perhaps as bedding. Such a practice is evident from ethnographic and historical sources on the area, and indicates continuity from the medieval to modern times (Joona et al. 1997; Ojanlatva et al. 1997; Lempiäinen 1996; Paavola 1991).

Herb pollen is the second most abundant group in burial CH46, which was the only grave containing bellflower (*Campanula*) pollen. The grave also contained both barley (*Hordeum*) and rye (*Secale*) pollen. It is probable that flowers such as asters, chicory and bellflower were put into the grave with the deceased, together with barley and rye. This may be related to the custom of putting food into graves, a practice that has been documented into the early 20th century, when bread was put into graves in Finland (e.g. Waronen [1898] 2009). Cereal and bread offerings in earlier archaeological mortuary contexts indicate that this has been a historically persistent activity, and Late Iron Age finds are documented from Karelia and Finland. Evidence of late Iron Age food offerings has been found from Långänsbacken on Åland (Finland), where bread made of rough barley flour and fat hen was found in a grave (Kivikoski 1980:34; Lempiäinen 2009:126). The bread demonstrates that fat hen was at least used as food on medieval Åland, which suggests that it might also have been used as food at medieval Ii.

Sample CH46 also produced spores of *Sporormiella* and *Sordaria*. According to van Geel et al. (2003) most *Sporormiella* and *Sordaria* species are coprophilous (i.e. live or grow on excrement), and the relationship between *Sporormiella* frequency and livestock abundance has been used to indicate the abundance of grazing animals (e.g. Davis & Shafer 2006). It could therefore be suggested that the presence of these spores in CH46 is a result of covering the grave with soil that had dung in it, and that animals may have been pastured nearby. Also, the coffin material or material inside the grave could have been in contact with dung.

The low pollen concentration (1,587 grains/cm^3) and number of grains counted (120 grains) in sample CH56, makes interpretation unreliable. This grave was, however, once situated inside the church, and so the composition of its soil could be expected to be different from those situated outside. As nothing suggests that the graves inside the church have been covered with soil, or at most with very little soil, the greater part of the pollen could be expected to have originated from burial rituals. Indeed, the pollen composition has some characteristics that may be connected to these rituals. For example, far less coniferous pollen (pine and spruce) was found, as would be expected for an indoor depositional environment, but the majority of the tree pollen came from two broad-leaved trees, alder (*Alnus*) and birch (*Betula*). The proportion of hazel (*Corylus*) was also substantially larger than in other samples, and it is possible that the branches of broad-leaved trees were put into the grave. If the 6.9% and 7% of true grasses found in the graves CH47 and CH55 represent the vegetation of the surrounding area, then the significantly higher proportion of Poaceae (12%), and especially sedges (Cyperaceae, 4%) in CH56 could very well indicate the use of hay and sedges as a bedding material. The high proportion of rye (*Secale*, 1.6%) could also indicate the placing of cereals into the grave. Well-dated reference samples from outside of the archaeological site could help more clearly establish the surrounding vegetation and help strengthen this argument. This having been said, it is important to be aware of the potential effect on lower percentage values of an absolute reduction in pollen counts, and that the reconstruction of vegetation and other plant use from pollen, without inclusive data, is to a large extent a model based on approximation and intuition.

In addition to hay, white moss (*Sphagnum*) is known to have been used as bedding material in graves (Lempiäinen 2009), and all five pollen samples produced a few spores that may indicate its presence. The highest proportion of white moss was found in CH56 (1.6%). As there are no natural habitats for *Sphagnum* species in the graveyard, where the soil is dry and sandy, it may well be that the white moss was used in funeral ceremonies.

Discussion

Little is known about the environment of medieval Ii, and most of the historical documentation concerns the modern period. When English scientist and traveller Edward Clarke travelled in Northern Ostrobothnia in 1799, he described the marketplace of Ii as a place with granaries and warehouses (Clarke, transl. Ojala 2000), but neither Clarke nor earlier writers provided any detail about the region's environment. The landscape of Ii

Hamina was different to typical Ostrobothnian environments, and its sandy seaside was steeper than most of the seashores of the area. Consequently, the backyards of the village and graveyard were not wet and muddy like those of medieval Liminka or later Oulu, where the landscape was flat and the soil was more clayey. The livelihood of Ii during the early modern period was based on slash-and-burn cultivation, fishing, hunting and animal husbandry (Soininen 1974). The surrounding waterside vegetation created the natural basis for animal husbandry, with the seaside meadows producing fodder for livestock. We can surmise that the livelihood of medieval Ii was probably based on the same diverse pattern. Where local cultivation was based on a slash-and-burn technique, the fields were in a location removed from the actual village and marketplace.

When interpreting the palaeoenvironmental evidence, regional variation in the abundance and seasonality of plants in the landscape should be considered. Sedges were important fodder for dairy cattle and therefore significant plants to the Ii community, and the natural resources of sedges in Ii's surroundings, in fact, made it possible for the inhabitants to keep livestock. Sedges were thus both an important factor in food production and a dominant feature in the landscape, which may have influenced the use of sedges and reeds as coffin bedding (Paavola 1995). This kind of local variation in funeral ceremonies has been documented elsewhere (e.g. Klemperer 1992). Plants that were important to the deceased individual or their living relatives were put into graves, a practice highly dependent on the availability of plants.

The man´s grave (CH2B) contained birch bark residue that could indicate remains of a coffin's cover (Fig. 7). In addition, the pollen sample from grave CH2B contained a relatively high percentage of Poaceae when compared with the other samples, which supports the hypothesis that hay was also placed into the coffin with the deceased, perhaps as bedding. This grave also contained some unburned raspberry and fat hen seeds.

The use of birch bark for covering the deceased predates the use of wooden coffins (Lempiäinen 2009; Paavola 1995; Cleve 1978). Later, open wooden coffins were used, with a layer of bark to cover the coffin. Bark was still put inside coffins when closed coffins became the customary practice. The occurrence of *Gelasinospora* spores may be related to the presence of wood in the grave. Hanlin (1990) describes *Gelasinospora* from dung and dead wood. Van Geel (1978) found the highest frequencies of *Gelasinospora* in layers containing charcoal, which may indicate that it is carbonicolous. Charcoal particles in the soil samples may also reflect several church fires. According to written sources, the church building at Ii Hamina burnt down several times during the 15th and 16th centuries (AD 1454, 1461, 1478, 1496, 1582, and 1589) (Kallio-Seppä et al. 2011b).

It is probable that the high proportion of pollen originating from broad-leaved trees in grave CH56, from inside the church site and belonging to an adult man, is connected to burial rituals. Flowers and the branches of broad-leaved trees could have been used as decorative elements as well as for their odour and green-coloured symbolic representation of life (Tranberg 2011a; 2011b; Lempiäinen 2009).

Evidence suggests that offerings and decoration in graves have long been part of funeral ceremonies around the world since humans started to bury their dead (Lehikoinen 2011; Stringer & Gamble 1994:158; Leroi-Gourhan 1975; Clark 1977:105). Previous studies have indicated that plants were put into graves from the Bronze Age and into modern times (Paulaharju [1924] 1995; Lehikoinen 2011; Daniell 1998; Denison 1994). Grave offerings were believed to help the deceased move to the "other side", a belief that is undoubtedly older than Christianity. In Finland, it was also believed that the dead could interfere with the lives of the living (Paulaharju [1924] 1995; Sarmela 1994). In some cases, the oldest ancestors were considered protectors and guardians of later generations (Sarmela 1994). These pre-Christian beliefs were assimilated into Finland's early Christianity and during the medieval, Roman Catholic and early Lutheran periods it was believed that the dead lived inside graveyards and churches, where some of them were buried during the 17th and 18th centuries (Sarmela 1994). It was clear to contemporary people that these ancestors needed offerings and aromatic herbs; however, there is little evidence of what people put inside graves with their dead in Finland, and it is probable that equipping the deceased with plants and objects was more common than archaeology has yet demonstrated (Lempiäinen 2009).

The practice continued after the medieval period and was still in use in Ii during the 20th century. The deposition of *Asparagus* sp. and myrtle (*Myrtus communis*) into the coffins in Ii has been documented as late as the 1950s (Itkonen 1951). This had become rare by the 20th century, but was common practice in 17th and 18th century Ostrobothnia. It was also fairly common to put birch bark and fir needles into graves during the early modern period. This has been documented by Kirsti Paavola, who studied graves underneath the churches of Hailuoto, Kempele, Keminmaa and Haukipudas (Paavola et al. 1997; Joona et al. 1997; Ojanlatva et al. 1997). No clear pattern of using certain plants in certain types of graves is indicated in this research.

One particular grave at Ii Hamina, that unfortunately was not sampled, was interesting from the point of view of burial ceremonies: a 15th century woman´s burial containing the remains of a cushion underneath the head. This cushion was probably made from flax, *Linum usitatissimum* (Tranberg 2011c). The burial also contained a copper cross pendant of eastern origin (Kallio-Seppä et al. 2009; 2011a; 2011b).

From ethnographic descriptions we know that leaves, and most likely branches of birch, were used as cushions inside coffins in Greek Orthodox areas of late 19th century Eastern Karelia (Paulaharju [1924] 1995). In Eastern Karelian Greek Orthodox burial ceremonies, at least during the latter part of the 19th century, the coffin was taken into the graveyard open and the lid nailed down with iron nails just before it was laid into the grave. Coins were also thrown into the pit before the coffin was placed in it, and the coffin was, in some cases, covered with birch bark after it was lowered. The deceased were given money, and sometimes clothes, to be taken into the Kingdom of the Dead. Food was brought in ceramic pots or birch bark containers, which were left in the graveyard after the ceremony (Paulaharju [1924] 1995). The offering of food inside coffins has, however, been more characteristic of the Catholic and Lutheran church rather than Orthodox religion. These indications of furnishing the coffin or putting food offerings inside the graves at Ii Hamina are therefore most likely to reflect local traditions, at least as much as Eastern Church influences.

According to ethnographic sources, the offering of food was an important ritual in the Eastern Church's burial ceremony tradition (Paulaharju [1924] 1995; Sarmela 1994; Lehikoinen 2011). It also has a long tradition in heathen beliefs, and it is therefore not surprising that people in medieval Ii provided their deceased with food offerings. Similar to the food offerings, the use of cushions and covers in graves has a long tradition, and mosses, hay, grasses, birch bark and spruce twigs have all been used (Lempiäinen 2009; Paavola 1995). Numerous beliefs flourished in the village, and various offerings represented both the religions and structure of the community, but also the individuals themselves.

Medieval Ii was a place where the Eastern Orthodox and Roman Catholic churches were followed by Lutheranism, and all were influenced by local folk beliefs. The process of changing between these religions was nonviolent and un-regulated, and the customs of the old and new religions were mixed with each other. The custom of putting offerings or plants inside coffins continued in this environment.

Conclusions

Macro and microfossil remains were inspected from five graves at the Ii Hamina cemetery. The small number of macrofossils was expected due to the poor preservation properties of the sandy soil of the graveyard. This was also a reason for the low abundance and concentration in pollen samples CH47 and CH55. Pollen results were more satisfactory from samples CH46, CH55 and CH2B, all of which contained more organic material and had pollen concentrations of over 4,000 grains/cm^3.

The pollen results, especially from CH46 and CH56, suggest that true grasses (Poaceae), and perhaps to a lesser extent sedges (*Carex*), were used in the graves, most likely as bedding material. The abundant Poaceae pollen in CH2B suggests the use of true grasses in the grave.

The exceptionally high proportion of Cichoriaceae type pollen found in the dual grave CH46, suggests that these flowering plants were put into the grave in a summertime ceremony, together with flowers of the aster and bellflower families. The deceased were also most likely provisioned with food, as suggested by the strikingly high proportion of barley and rye pollen found.

Medieval Ii was an important place for religious activity and trading in the North. It was also a place where people came from different cultural areas with distinctive practices and beliefs. The pollen, plant macrofossil and insect data from this study give some differing results, and with only five samples it is difficult to draw any broader conclusions on ceremonial differences between the graves. The results indicating the decoration or bedding of the graves do, however, enhance our current knowledge of burial customs throughout Finland´s history. Traditionally, birch bark has been used as a shroud or to cover the body, and this study provides evidence for the practice at medieval Ii. Furthermore, the study provides evidence for continuity in the use of ornaments, such as flowers, inside graves as a part of funeral ceremonies from medieval to modern times.

Taphonomic processes, especially in sandy soils, have a significant impact on the preservation of organic material and reduce the available evidence from which we are able to draw archaeological conclusions. It is important to remember that, where preservation is poor, graves that produce no or only a few macro and microfossils might still have had plants in them when they were originally used. It is equally important to consider the non-linear relationship between vegetation coverage, plants used in ceremonies, and the relative and absolute abundance of pollen and other fossils in sediments. The choices made when quantifying and interpreting data constrain our ability to understand past activities.

To clarify the picture of the funeral ceremonies at Ii Hamina and the Middle Ages in general, it is essential that we study the contemporary environment. Pollen analyses, combined with macro fossil analyses, provide valuable information on the graves and their surroundings. This information is not available from other sources and the use of environmental archaeology methods should be considered an essential part of the archaeologist´s toolkit for examining past funeral practices.

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