

19

Re-purposed and Re-made: Exploring textile performance characteristics in pre-modern Finnish burials

Erika Ruhl

Abstract

When is a sock not a sock? There two types of burial clothing are represented in a series of premodern northern Finnish burials: (1) items used in life then re-purposed as burial clothes (2) re-made items crafted from second-hand materials specifically for burial. Despite ostensibly serving the same purpose, re-purposed items retain features that made them useful or valuable in life, while re-made items are often hastily assembled from less-suitable materials. While some items are consistently re-made or re-purposed, other items can be either, depending on location. Re-made items were knowingly crafted with different performance characteristics than their re-purposed counterparts, including warmth and fit, which raises questions about the difference between providing for the dead on practical and symbolic levels.

The differences in burial clothing choice highlights the malleability of textile use, re-purposing, and re-making in the past, offering a window into the lifecycle of archaeological textiles. Utilizing Design Theory as well as Material and Technological Choice to explore the crafts decisions inherent in this process, this paper explores the complicated picture presented in re-purposed and re-made items at the churches at Hailuoto, Haukipudas, Keminmaa and Oulu, and examines the decisions that lead to these items' entry into the archaeological record.

Keywords: burial clothing, Pre-modern, performance characteristics, re-use, Finland

19.1. Introduction

When we use things, we have certain expectations of how they will function. In terms of textiles, we may expect an item to be warm or cool, stretchy or stiff, smooth or rough. Such features – performance characteristics, as defined by Sillar and Tite (2000) – are the direct result of decisions made during the crafting process. The same material that would make a fantastic cap could make for a poor stocking, even if the material used to make the stocking could also have become a cap. Likewise, items which

fail to meet expected performance characteristics by using less-than-ideal materials or methods present a unique conundrum, and items which do not meet culturally based expectations must be placed into their social context to be understood (Trigger 2006: 451).

Within the collection of pre-modern Finnish burial clothes considered here, two categories of burial clothing exist: re-purposed items, which were used in life and whose performance characteristics indicate functionality; and re-made items, crafted specifically for the burial, and lacking the functionality of the former category. By considering the culturally constructed values of each of these items, this paper considers the deliberate choices made in crafting, and the difference between items that are "good" and "good enough".

It is, however, crucial to remember that those crafting these materials absolutely understood the performance characteristics of their raw materials, and the result produced by various crafting techniques; as such, the resulting burial clothes examined here represents a deliberate and conscious choice on the part of the crafters, intended to serve a different role than the item it represents (Caple 2006: 101).

The material from the four sites considered here – Hailuoto, Oulu, Keminmaa and Haukipudas – include both textiles that were excavated traditionally and burials which were surveyed *in situ*. Materials from Hailuoto and Oulu were excavated traditionally, while those from Keminmaa and Haukipudas were surveyed *in situ* (Alakärppä and Paavola 1997; Kehusmaa 1997; Ojanlatva and Paavola 1997; Paavola 1988, 2009; Sarkkinen and Kehusmaa 2002; Väre 2017). Except for the materials from Oulu Cathedral, these burials originate from below-floor burials located within the structure of the church itself. These locations were considered more prestigious, and as such, these generally represent wealthy or high-status burials (Alakärppä and Paavola 1997: 3; Paavola 2009: 244; Väre 2017: 34).

While the earliest possible burials at these sites date from the 15th and 16th centuries, most of the material originates from the 17th century and later. Burials at Hailuoto started as early as the 1400s; however the materials date predominantly after the 17th century, as burials ended in 1756 (Paavola 1989). Materials from Oulu Cathedral likewise date from the 17th and 18th centuries, with burials ending with the establishment of a new cemetery in 1780 (Niskala 2005: 140; Sarkkinen 2005: 154). While the old church at Keminmaa saw burials from 1520 until the 1870s (a gap from 1768–1790) (Paavola 2009: 242; Ojanlatva and Paavola 1997: 4), and Haukipudas saw burials from 1649–1765 (Alakärppä and Paavola 1997: 7), materials from these sites are impacted by the accessibility of materials during the surveying process.

During this time, custom stipulated that the dead were to be buried warmly, and that items used in burials were to be in good repair (Hagberg 1937: 187–194; Kuokkanen and Lipkin 2011: 155; Lipkin 2016: 45; Lipkin et al. 2015: 211). Generally, these burials include "false" robes, folded, pinned, and stitched from recycled textiles to look like fashionable clothing (Kuokkanen and Lipkin 2011: 150). Many burials also include a cap and stockings, and several burials also include gloves (Lipkin et al. 2021b). Sumptuary laws dating from the 1600s specified that burial robes should be crafted of linen, while forbidding silk, gold, silver, and lace; subsequent laws also specified that individuals must dress according to their status in life (Kuokkanen and Lipkin 2011: 150; Rimpiläinen 1971: 198–191, 194, 198–200, 207–208; Salmi and Kuokkanen 2014: 183). Such laws were generally poorly enforced, and exceptions certainly exist. Additionally, while burial robes were regulated, accessories often fell outside such laws (Andersson 2019; Kuokkanen 2016: 6–66; Salmi and Kuokkanen 2014: 182, 198).

19.2. Crafting Choice: Re-purposed or Re-made?

In addition to Sillar and Tite's Material and Technological Choice (2000), Design Theory approaches these materials by exploring the "niche" a particular artefact is crafted to fill (Caple 2006: 8–12; Ingold 2001: 22). While ideally items are crafted using the "best" known methods and materials, this is not always the case. In the context of raw materials, plentiful materials may not last, and high-quality materials may be costly, require additional skill or time, or result in a more fragile product. A similar pattern is seen in crafting methods; the method which may produce the best quality product may be time consuming or not suited to the available materials. The limitations of both materials and methods highlight the cultural construction of the crafter's priorities. Again, this calls into question the difference between "good" and "good enough" within a crafting process (Caple 2006: 12, 94) and addresses questions beyond the crafting "hows" the methodological "whys" in a world increasingly impacted by both globalization and industrialization (English 1969; Kirby 2014; Lipkin 2011).

Within this collection, burial clothes fall into two categories (Table 1).

Table 1: Re-purposed	vs Re-made Iter	n Characteristics.
----------------------	-----------------	--------------------

Re-purposed: Used in life, then interred	Re-Made: Crafted specifically for the burial
 High quality craftsmanship:Well-stitched seams, raw edges concealed, intended to be used multiple times Includes features like buttons / linings / laces / ties / layering / quilting / efforts to reinforce for repeated use May show evidence of neat, functional repairs May include evidence for use and/or wear 	 Hasty craftsmanship: Items are hastily assembled, held together with pins, raw edges accessible, etc. Utilizes recycled materials Not functional in its current state Lacks functional features for rewearing and/or comfort Does not meet necessary performance characteristics for a comparable item for everyday use

Re-purposed items are defined here as items used in life and then interred in the burial in the same manner they were used in life. While these items may be repaired or fixed to ensure they were in good repair, they are not taken to bits and crafted into something new or re-assembled in a new configuration. They are identifiable based on their high quality of craftsmanship, the time investment required to make them, their durability and functionality.

They feature construction elements such as linings, solid seams (such as flat felled seams and rolled hems, which conceal raw edges to decrease wear and tear), and features such as hooks, buttons, ties, or lacings (Grömer and Ullermann 2020). Examples of such materials include well-stitched and lined caps and hats and knit stockings from both Hailuoto and Oulu.

Re-made items are crafted specifically for burial, and are hastily constructed, or held together with pins. Like re-purposed materials, the raw materials for these items are not new, but instead of utilizing them in the same manner as they were used in life, they are taken to pieces and reformed to fulfil a new purpose. In some ways, this is an interesting process because the essentially "raw" materials originate from other/second-hand/already-made products and materials. Overall, items crafted from less-optimal materials using sub-par methods are likely intended to represent the item, and earlier work in Design Theory indicates that such items serve ritual purposes (Caple 2006: 101).

While there are a range of questions which can be asked of re-made versus re-purposed burial clothing in this collection, two key questions here highlight the differences between these two categories: (1) Is a particular garment warm? (2) Is this garment fitted? The first criteria was selected based on local practices which required the dead be buried warmly (Hagberg 1937: 187–194; Kuokkanen and Lipkin 2011: 155; Lipkin 2016: 45; Lipkin et al. 2015: 211) to explore whether this stipulation was actually followed in practice; both criteria examine functional aspects of everyday clothing which are unlikely to be incorporated into hastily-crafted re-made burial clothing.

These questions address the schism between re-made and re-purposed items by considering the actual features of the material and product in light of the stated cultural performance characteristics. Although the existence of both re-made and re-purposed items is not a new observation (Grömer and Ullermann 2020), the overarching question here is whether both types conform to the expectations of items used in life, and subsequent expectations for burial items provided for the dead. By narrowing the wide range of approaches to material and technological choice to the performance characteristics associated with a given item, this work focuses on ways re-purposed and re-made items conform to or sidestep stated cultural expectations to explore both symbolic and literal meanings in burial contexts.

The identified performance characteristics are certainly culturally constructed; additionally, there are multiple ways to achieve the same ends. In many ways, this starts with raw material selection. For extant garments, wool and silk were classified as "warm" based on their material properties, while bast fibres and cotton were not (Babu 2015: 63; Harris 2010: 106; Rast-Eicher 2016: 89). Despite the availability of warmer fibres, linen or nettle can be adapted to be warm with additional effort through processes such as layering or quilting. Silk presents an interesting exception, as it is warm in cool weather and cool in warm weather (Babu 2015: 63), but the materials present here, including tapes, ribbons, and parts of caps, seem to serve a decorative rather than functional purpose, with limited exceptions such as silk stockings. The use of silk is further complicated by its restricted use due to sumptuary laws (Andersson 2014). Additionally, while very little cotton is present (e.g., Keminmaa's Vicar Nikolaus Rungius: Lipkin 2011; Väre et al. 2021), this is consistent with cotton's restricted availability for much of the period in question (De Vries 2008: 134–138), and as such this represents an exception rather than a rule within this collection.

Likewise, materials were considered "fitted" if efforts were made to shape the item to the body and avoid irritants such as poorly placed or stitched seams. In this case, re-made items are what Grömer and Ullermann referred to as "optically correct," without the practicalities required of functional clothing (2020: 127), while re-purposed items often include: well-stitched stitches (e.g., backstitch or hemstitch) and seams (e.g., flat felled or rolled hems); attempts to reinforce material (e.g., bar tacks) designed to limit wear and tear (Clayton 2008: 13, 112; Grömer 2016: 219-221, 224-225; Knight 2007: 29, 41, 126); the use of linings, which contribute to warmth, comfort, wearability, and durability (Clayton 2008: 96); and the use of buttons/buttonholes, hooks, laces, and other items designed to facilitate multiple dressings and undressings (Clayton 2008: 79; Grömer 2016: 2, 22; Grömer and Ullermann 2020). In many ways, this represents the contrast between the dynamic nature of re-purposed garments and the static nature of burial clothing. This contrast can also be seen in the expediency of the crafting methods selected. After all, if one considers stockings, it takes far less time to stitch a hasty seam in recycled fabric from knee to the ankle than it would take to knit a tube to cover the same area. Likewise, folding and pinning a re-made cap is much more expedient than the overall time investment a re-purposed lined and quilted cap requires. In both cases, the latter item will wear better over time, but already exists at the time of burial, while the former items take an overall shorter time commitment but require effort prior to the burial.

These features were known quantities when the items were made, and the decision to craft items that do not meet the performance characteristics of an item used in life represent a deliberate choice. This introduces wider questions about the symbolic nature of these actions and the intent behind providing burial clothing that is not, for example, warm or well-fitted (Caple 2006: 101).

19.3. The collection

While the acidic soil biases finds at the traditional archaeological sites towards animal fibre products (Harris 2010: 106; Janaway 1987; Lipkin et al. 2021b), burials from the inventoried sites present a much more complete picture, and a number remain particularly well preserved (Lipkin et al. 2021b). The disadvantage, however, is that inventoried sites are generally limited to a much more restricted time frame, as only the most recent burials are accessible.

Of the nearly 430 burials at these four sites, 73 burials containing a total of 112 textiles were considered relevant materials and were analyzed as part of this research. This collection was considered and analyzed for warmth and fit as previously outlined. Efforts to compensate for less-warm fibre selection utilizing crafting methods were considered (e.g., a quilted cap, Haukipudas Burial 1; Alakärppä and Paavola 1997: 19–20), while bearing in mind that the resulting product will also exhibit different performance characteristics in other areas.

19.3.1. Stockings

Stockings were generally re-purposed, as seen at Hailuoto, Oulu, and Keminmaa. While a majority of stockings from these sites were crafted from wool (e.g., Hailuoto: KM86088:526, 544, KM87131:114b, 311, 395l, 594c; Oulu: PPM12161:24, 36, 60, 213), several were also crafted from silk (Hailuoto: KM87131:419c, 442a; Oulu: PPM12161:271). The wool stockings exhibit a range of evidence for fitting stockings to the leg (e.g., heel turns: KM87131:311, PPM12161:191; increases or decreases: KM86088:526, PPM12161:213; knit ribs: KM87131:311, PPM12161:244; Figure 1A). Additionally, their construction suggests that these wool stockings were knit in the round (KM87131:311).



Figure 1. Two examples of stockings from Hailuoto: A) wool stocking with knit rib (KM57131:114b); B) silk stocking with evident seam – note also the lack of rib along the border (KM8131:419b). (Photographs: E. Ruhl)

In contrast, the pair of silk stockings from Hailuoto (KM87131:419c, 442a; Figure 1B) were knitted flat using filament silk, then seamed. These stockings lack a rib or stabilizing stitch, and likely would have "rolled" on the wearer. The extant seam is the only evidence for "fit", which is consistent with machine knit materials from early stocking frames (ca. 1600–1769; English 1969: 16–18; Spencer 1989: 10). While the wool stockings were considered warm based on their fibre selection, these silk stockings may have been layered to achieve a similar level of warmth (Väre et al. 2021).

The presence of two re-made stockings at Haukipudas (Burials 1, 10; Lipkin et al. 2021a; 2021b) suggests exceptions existed. When compared with the knit wool or rarer silk stocking finds, re-made stockings lack the warmth and fit of their counterparts elsewhere. Likewise, two examples of children's silk slippers from Hailuoto and Oulu Cathedral (KM86088:544, PPM12161:83; Kuokkanen and Lipkin 2011; Lipkin 2011) may not be as warm as knit wool or silk slippers, although it is possible children's attire may have different warmth requirements than adult garments.

19.3.2. Caps

Caps also appear in both re-made and re-purposed forms. At Hailuoto, caps were consistently repurposed, while at Oulu and Haukipudas both re-made and re-purposed caps were present. Caps in this collection range from the finely-quilted and lace-trimmed cap in Haukipudas Burial 1, to pinned and folded versions, such as that of Haukipudas Burial 10 (Alakärppä and Paavola 1997; Lipkin et al. 2015); other examples from Hailuoto include a lined velvet child's cap with tape binding one edge (KM86088: 536) and woollen men's caps (e.g., KM87131:546; Figure 2). Some of these caps bear evidence of mending, and tradition required burial garments be in good repair (Hagberg 1937: 187–194; Lipkin 2016: 45; Pentikäinen 1968: 54–55). Children again represent a possible exception; a number of such burials exhibit excellent textile preservation, but lack a cap (Haukipudas Burials 3, 11; Keminmaa Burials 6, 20, 21, 22, 53, 55). While several of these burials include re-made decorative flower crowns common in children's burials, they nevertheless do not address concerns about the warmth of the deceased (Lipkin et al. 2021a).



Figure 2. Men's woollen cap; note neat tape around lower edge and lining. (Photograph: E. Ruhl)

In contrast with stockings, caps serve as a highly visible and often decorative portion of the burial. While both re-purposed and re-made items are among the collection, it is also possible that preservation bias plays a role, as re-made caps at the inventoried sites are often made of plant-based materials.

19.3.3. Gloves

Of the materials considered here, gloves remain among the smallest sample size, with data available for only six examples (Hailuoto items KM86088:564b, KM87131:118, 465a–b; Haukipudas Burials 10, 11, 14; Figure 3). These items were consistently re-purposed and generally take the form of leather gloves with silk or metal-wrapped silk stitching. While gloves seem to provide clear evidence for the importance of warm clothing for the deceased, the limited sample size identified across these four sites makes them an exception in most cases, rather than the rule.

19.3.4. Robes

In contrast, the burial robes are – with a few rare exceptions (e.g. Oulu Burial 1996:10; Lipkin and Kuokkanen 2014) – re-made. While several examples from Oulu and Hailuoto utilize warm fibres (e.g., silk PPM12161:70, 140, 154; wool PPM12161:60, 78, 130), most robes were crafted from less-warm plant-based materials, in line with both earlier sumptuary laws and practices dating back to the Iron Age (Riikonen 2011; Rimpiläinen 1971: 189–191, 194, 198–200, 207–208). They are hastily (although not sloppily) fitted, often folded from larger pieces of fabric to resemble "real" clothes, and are pinned into the coffin lining (e.g., Keminmaa Burials 4, 6, 53, 56, Haukipudas Burials



Figure 3. Leather glove with metallic-wrapped silk stitching (KM86088:564b). (Photograph: E. Ruhl)

1, 3–6, 10, 11,14). As the primary garment covering the body, the lack of warmth in burial robes alone would support the symbolic role of clothing in burials. Such burial robes came into fashion in Finland during the 18th century; with other burial practices in both earlier times and abroad, the decision to use re-made burial robes represents a conscious choice (Kuokkanen and Lipkin 2011: 150–151; Rimpiläinen 1971: 189–191, 194, 198–200, 207–208).

19.4. Results: Re-purposed or re-made?

In considering the performance characteristics and material investments addressed here, several patterns emerge among and between these sites. While a total of 65 items were generally identified as "warm" across these sites (cf. 42, which were not), the percentages of items that prioritized this feature are telling: over 80% of both caps and stockings, and all available gloves, were considered warm; in contrast, under 30% of burial robes and other items achieved a similar level of warmth, and those that did were generally warm based on their fibre content, not crafting methods. Warm stockings were a priority, while warm robes were not.

When considering whether items were fitted, nearly half of the items examined exhibit features suggesting this is the case, but again this includes a large percentage of the caps, stockings, and gloves.

Overall, this suggests that re-made items generally lacked the warmth and fit valued in re-purposed items used during the wearer's life. Although re-made items used costly materials in their creation, they derive their value from these materials, not from the time invested in their creation. As such, it seems that there is a highly symbolic act inherent with these burials – it is about the appearance of providing for the dead, not an active concern for their actual warmth. This is about "providing well" – even if the items themselves do not do what they are supposed to "do".

Item	Site	Re-made/Re-purposed
Caps	Hailuoto	Re-purposed
	Oulu Cathedral	Both
	Keminmaa	Re-made (N=1)
	Haukipudas	Both
Stockings	Hailuoto	Re-purposed
	Oulu Cathedral	Re-purposed
	Keminmaa	Re-purposed (N=2)
	Haukipudas	Re-made (N=2)
Gloves	Hailuoto	Re-purposed
	Oulu Cathedral	N/A
	Keminmaa	N/A (N=2, no data available)
	Haukipudas	Re-Purposed
Robes	Hailuoto	Re-made
	Oulu Cathedral	Re-made
	Keminmaa	Re-made
	Haukipudas	Re-made

Table 2. Re-Purposed or Re-made? Item types by site.

19.5. Discussion: Item by item, or full burial?

While examining these materials on an itemby-item basis provides information about how individual items were viewed, examining these materials from the burial-level perspective explores the interplay of these items with one another. Although the inventoried sites contain several relatively complete burials, the archaeological sites often include burials with only a single relevant textile item.

The available material indicates that warm and well-fitted attire focused on the extremities - heads, hands, and feet; warmth seems less important for the torso, arms, and legs, which at the inventoried sites were covered with a re-made plant-based burial robe (Table 2). Although several burial robes crafted from wool and silk are part of the material examined here, the only burial robe among the multiitem archaeological burials is Oulu Cathedral's Burial 1996:13 (Kuokkanen and Lipkin 2011). Stockings also represent an interesting conundrum, as they generally remain unseen beneath burial robes. If these burials were only about visual accuracy or symbolically providing for the dead, these unseen stockings would seem to be an excellent candidate for re-making

in the burial processes; however, the prevalence of re-purposed stockings (with the exception of two examples at Haukipudas) suggests that selecting items for the dead can have deeper significance beyond visual compliance or addressing symbolic needs.

While the excavated sites are likely missing items due to preservation bias, the inventoried sites include a series of burials where absent items – children's caps – represent a deliberate choice. Eight of the children's burials at Keminmaa (Burials 6, 20, 21, 22, 27, 36, 53, 55) include a burial robe,

while another (Burial 53) contained a pillow, and two more (Burials 6, 20) included burial crowns, but no caps (Lipkin et al. 2021a; Ojanlatva and Paavola 1997). This suggests children's caps may hold different standards within the burial; one possible explanation was that families were preserving existing christening caps for later children (Lipkin et al. 2021a).

In the end, all the materials here are reused; while re-purposed items are first used in life and then reused as burial clothing, re-made items are crafted from recycled second-hand cloth to craft new garments for burial. Although tradition stipulated that burial clothes ought to be warm (Hagberg 1937: 187–194; Lipkin 2016: 45, 2020; Pentikäinen 1968: 54–55), the tendency for re-made items to lack warmth and fit indicates that the stated characteristics are not the priority. With most burials containing a mix of re-made and re-purposed items, some of which would have been warm while others were not, they emphasize that providing for the dead, on a symbolic level, is the crux of these materials. The symbolic nature of these items would have been known by contemporary populations; they were aware that re-made items do not provide warmth and would fit poorly. Nevertheless, it was still important to do the job right and provide well for the dead. This included not only visible items such as caps and gloves, but also items which were only seen while dressing the dead, such as stockings.

19.6. Conclusions

In many ways, this all comes back to the idea of symbols, attachment, and performance. This goes beyond an item-by-item materials analysis to consider the overall burial and the wider role and significance of burials and burial clothing. First and foremost, this recognizes that burials function as symbols of the individual, their family, and their community. These symbols – while recognized as based on individual meanings mitigated through experience (Blumer 1986) – also come together into wider cultural conceptions of the features of a burial.

Although the burial was ostensibly about the individual's identity, burials are also a picture of the community's perception of individual identity (Lipkin 2020). Burials are a social act, which goes beyond the identity of the deceased alone and are instead a "dressing" of the community's perception of their roles and identity (Lipkin 2020). Despite a stated need to provide for the dead and ensure their warmth in the grave, this does not seem to be the driving force in what was selected for internment. In many ways burials may be about the dead, but are for the living and the process of their grief and mourning.

In many ways, these symbolic acts are about both memory-making and memory-keeping. While re-purposed items encourage remembrance of the past, re-made items are about making new memories and providing for those who are gone (Lipkin 2020). In doing so, both re-made and re-purposed burial clothing ensures the properties are met, while also allowing space and time for grief and mourning. These acts are also about reassurance, not only that the dead rest peacefully and quietly, but also that they will not return to haunt the living, ideas that are not necessarily mutually exclusive. These memories, made on a personal level and based on individual experience, nevertheless represent wider cultural conceptions and tie into individuals' understandings of how they, too, will one day be laid to rest.

Erika Ruhl received her PhD from SUNY at Buffalo in 2020 and is a Fulbright-EDUFI Alum. Her dissertation research and ongoing work focuses on material and technological choice in archaeological textiles. She currently teaches at two local colleges in the Buffalo area.

- 244 -

RUHL

References

Alakärppä, J. and K. Paavola 1997. *Haukiputaan kirkkohaudat* [Church Burials of Haukipudas]. Oulu: Oulun yliopisto, arkeologian laboratorio.

Andersson, E.I. 2014. Foreign Seductions: Sumptuary laws, consumption and national identity in early modern Sweden. In T. Engelhardt Mathiassen, M-L. Nosch, M. Ringgaard and K. Toftegaard (eds): *Fashionable Encounters: Perspectives and Trends in Textile and Dress in the Early Modern Nordic World*, pp. 15–30. Oxford: Oxbow Books

Andersson, E.I. 2019. The dangers of luxury in Swedish sumptuary law. In G. Riello and U. Rublack (eds): *The Right to Dress Sumptuary Laws in a Global Perspective, c. 1200–1800*, pp. 143–164. Cambridge University Press. https://doi.org/10.1017/9781108567541.006

Babu, K.M. 2015. Natural textile fibres: Animal and silk fibres. In R. Sinclair (ed.): *Textiles and Fashion*, pp. 57–78. New York: Woodhead Publishing.

Blumer, H. 1986. Symbolic Interactionism: Perspective and Method. University of California Press.

Caple, C. 2006. Objects: Reluctant Witnesses to the Past. Routledge.

Clayton, M. 2008. The Ultimate A to Z Companion to 1,001 Needlecraft Terms: Applique, Crochet, Embroidery, Knitting, Quilting, Sewing and More. Macmillan.

De Vries, J. 2008. *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present*. Cambridge University Press.

English, W. 1969. The Textile Industry: An Account of the Early Inventions of Spinning, Weaving, and Knitting Machines. Harlow: Longmans.

Grömer, K. 2016. *The Art of Prehistoric Textile Making: The Development of Craft Traditions and Clothing in Central Europe*. Vienna: Naturhistorisches Museum Wien.

Grömer, K. and M. Ullermann 2020. Functional Analysis of Garments in 18th Century Burials from St. Michael's Crypt in Vienna, Austria. *Acta Universitatis Lodziensis. Folia Archaeologica* 35: 123–135. <u>https://doi.org/10.18778/0208-6034.35.08</u>

Hagberg, L. 1937. *När döden gästar: svenska folkseder och svensk folktro i samband med död och begravning* [When death comes for a visit: Swedish folk customs and Swedish folk beliefs related to death and burial]. Stockholm: Wahlström and Widstrand.

Harris, S. 2010. Smooth and Cool, or Warm and Soft: Investigating the Properties of Cloth in Prehistory. In E.B. Andersson Strand, M. Gleba, U. Mannering, C. Munkholt and M. Ringgard (eds): *Northern European Symposium for Archaeological Textiles X*, pp. 104–112. Oxford: Oxbow Books.

Ingold, T. 2001. Beyond art and technology: the anthropology of skill. In M. B. Schiffer (ed.): *Anthropological Perspectives on Technology*, pp. 17–31. Albuquerque, New Mexico: University of New Mexico Press.

Janaway, R. C. 1987. The preservation of organic materials in association with metal artefacts deposited in inhumation graves. In A. Boddington, A.N. Garland, and R.C. Janaway (eds): *Death, Decay and Reconstruction: Approaches to Archaeology and Forensic Science*, pp. 127–148. Manchester University Press.

Kehusmaa, A. 1997. Oulun tuomiokirkon kaivaukset 1996 [Oulu Cathedral's Excavations 1996]. Report. Oulu: The Northern Osthrobothnia Museum.

Kirby, D. 2014. Northern Europe in the Early Modern Period: the Baltic World 1492-1772. London: Routledge.

Knight, L. 2007. The Sewing Stitch and Textile Bible: An Illustrated Guide to Techniques and Materials. Iola, Wisconsin: Krause Publications.

Kuokkanen, T. 2016. *Vaatetuksen luokka ja sukupuoli 1600–1800-lukujen Oulussa: Historiallisen ajan arkeologian näkökulma* [Class and gender of clothing in Oulu in 1600–1800: The perspective of historical archaeology]. Acta Universitatis Ouluensis, Humaniora B 137. Doctoral dissertation.

Kuokkanen, T. and S. Lipkin. 2011. Hauta-asut elämän kuvaajina – Oulun tuomiokirkon kuolinpuvuista [Burial clothes as images of life–Oulu Cathedral's funerary attire]. In J. Ikäheimo, R. Nurmi and R. Satokangas (eds): *Harmaata näkyvissä. Kirsti Paavolan juhlakirja*, pp. 149–163. Oulu: Oulun yliopisto.

Lipkin, S. 2011. Sukkasillaan, jalat lämpiminä hautaan [Socks on, with warm feet into the grave]. *Muinaistutkija* 3/2011: 49–59.

Lipkin, S. 2016. Hautatekstiilien valmistus ja käyttö varhaismodernissa Suomessa – Näkökulmia uskonnollisiin ja sosiaalisiin merkityksiin [The manufacture and use of grave textiles in early modern Finland – Perspectives on religious and social meanings]. In P. Häkälä (ed): *Arkeologipäivät 2015. Teollisuus perintö ja Teknologiat ja niiden tutkimus*, pp. 42–55. Helsinki: Suomen arkeologinen seura.

Lipkin, S. 2020. The Clothed dead body in Northern Ostrobothnian Finland between the 17th and mid-19th centuries. In. In T. Äikäs and S. Lipkin (eds): *Entangled Beliefs and Rituals. Religion in Finland and Sápmi from Stone Age to Contemporary Times*, pp. 54–69. Monographs of the Archaeological Society of Finland 8. Helsinki: Suomen arkeologinen seura. http://www.sarks.fi/masf/masf_8/MASF8-3-Lipkin.pdf

Lipkin, S., K. Vajanto, T. Kallio-Seppä, T. Kuokkanen, S. Niinimäki, T. Väre, and M. van Bommel. 2015. Funeral dress and textiles in 17th and 19th century burials in Ostrobothnia, Finland. In K. Grömer and F. Pritchard (eds): *NESAT XII, the North European Symposium of Archaeological Textiles 21st–24th May 2014*, pp. 209–222. Budabest: Archaeolingua.

Lipkin, S., S. Niinimäki, S. Tuovinen, H. Maijanen, E. Ruhl, J. Niinimäki and J-A. Junno 2021a. Newborns, Infants, and Adolescents in Postmedieval Northern Finland: A Case Study from Keminmaa. *Historical Archaeology* 55(1): 30–48. https://doi.org/10.1007/s41636-020-00265-1

Lipkin, S., E. Ruhl, K. Vajanto, A. Tranberg and J. Suomela 2021b. Textiles: Decay and Preservation in Seventeenth- to Nineteenth-Century Burials in Finland. *Historical Archaeology* 55(1): 49–64. <u>https://doi.org/10.1007/s41636-020-00270-4</u>

Lipkin, S., and T. Kuokkanen. 2014. Man buried in his everyday clothes–attire and social status in early modern Oulu. In S. Lipkin and K. Vajanto (eds): *Focus on Archaeological Textiles: Multidisclipinary Approaches*, pp. 40–53. Helsinki: The Archaeological Society of Finland. <u>http://www.sarks.fi/masf/masf_3/MASF3_03_Lipkin_Kuokkanen.pdf</u>

Niskala, K., 2005. Kirkko Oulun kaupunkikuvassa [The church in Oulu's cityscape]. In Titta Kallio and S. Lipponen (eds): *Historiaa kaupungin alla: Kaupunkiarkeologisia tutkimuksia Oulussa*, pp. 137–143. Oulu: Pohjois-Pohjanmaan museo.

Ojanlatva, E. and K. Paavola. 1997. Keminmaan kirkkohaudat [Keminmaa's church burials]. Report. Oulun yliopisto, arkeologian laboratorio.

Paavola, K. 1988. Domus pro templo: Hailuodon kirkon varhaisvaiheet [A house for a temple: The early stages of the Hailuoto Church]. In K. Julku and R. Satokangas (eds): *Hailuodon keskiaika*, pp. 9–34. Oulun yliopisto.

Paavola, Kirsti 1989. Hailuodon kirkkohaudat [Hailuoto's church burials]. Report. Oulun yliopisto.

Paavola, K. 1991. Hailuodon kirkon arkeologiset tutkimukset vuosina 1985–1987 [The archaeological studies of the Hailuoto Church in 1985–1987]. Report. Oulun yliopisto, historian laitos, arkeologia.

Paavola, K. 2009. Hautaamatta haudatut–tietoja, havaintoja ja kuvauksia Keminmaan vanhan kirkon kirkkohaudoista [The unburied graves–information, observations, and descriptions of the church burials of Keminmaa's Old Church]. In J. Ikäheimo and S. Lipponen (eds): *Ei kiveäkään kääntämättä: Juhlakirja Pentti Koivuselle*, pp. 241–250. Oulun yliopisto.

Pentikäinen, J. 1968. The Nordic dead-child tradition: Nordic dead-child beings. *FF Communications*, pp. 202–203. Helsinki: Suomalainen tiedeakatemia – Academia scientiarum Fennica.

Rast-Eicher, A. 2016. Fibres: Microscopy of Archaeological Textiles and Furs. Budapest: Archaeolingua.

Riikonen, J. 2011. White Linen: Cloth of Luxury. In J. Harjula, M. Helamaa, and J. Haarala (eds): *Times, Things & Places: 36 Essays for Jussi-Pekka Taavitsainen*, pp. 198–221. Masku: J.-P. Taavitsainen Festschrift Committee.

Rimpiläinen, O. 1971. *Läntisen perinteen mukainen hautauskäytäntö Suomessa ennen isoavihaa* [Western funeral customs in Finland prior to the Great Wrath]. Helsinki: Suomen Kirkkohistoriallisen Seura. Doctoral dissertation.

Salmi, A.-K. and T. Kuokkanen. 2014. Bones, buttons and buckles: negotiating class and bodily practices in early modern Oulu. *Post-Medieval Archaeology* 48(1): 182–206. <u>https://doi.org/10.1179/0079423614z.0000000052</u>

Sarkkinen, Mika. 2005. Oulun tuomiokirkon kaivaukset [Oulu Cathedral Excavations]. In T. Kallio.Seppä and S. Lipponen (eds): *Historiaa kaupungin alla: Kaupunkiarkeologisia tutkimuksia Oulussa*, pp. 151–156. Oulu: Pohjois-Pohjanmaan museo.

Sarkkinen, M. and A. Kehusmaa. 2002. Oulun tuomiokirkon kirkkotarhasta: Arkeologinen tutkimuskertomus [From Oulu Cathedral's Graveyard: Archaeological research report]. Report. Oulu: Oulun ev.lut. Seurakuntayhtymä.

Sillar, B. and M.S. Tite. 2000. The challenge of 'Technological choices' for materials science approaches in archaeology. *Archaeometry* 42(1): 2–20.

Spencer, D.J. 1989. *Knitting Technology: A Comprehensive Handbook and Practical Guide to Modern Day Principles and Practices.* 2nd edition. Oxford: Pergamon Press.

Trigger, B.G. 2006. A History of Archaeological Thought. Cambridge University Press.

Väre, T. 2017. Osteobiography of Vicar Rungius: Analyses of the Bones and Tissues of the Mummy of an Early 17th-century Northern Finnish Clergyman Using Radiology and Stable Isotopes. Acta Universitatis Ouluensis, Humaniora B 150. Doctoral dissertation.

Väre, T., S. Lipkin, J.A. Suomela, and K. Vajanto 2021. Nikolaus Rungius: Lifestyle and Status of an Early Seventeenth-Century Northern Finnish Vicar. *Historical Archaeology* 55(1): 11–29. <u>https://doi.org/10.1007/s41636-020-00268-y</u>