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The church cap and the crypt cap: Early modern knitted fragments found in Denmark

Abstract

Two Early Modern knitted caps are compared in terms of the quality of the fabric and way they were constructed. One is a flat cap which was probably knitted in the round on more than two needles. It was found in 2014 amongst rubbish on the site of a naval shipyard under a building dating to 1562. This suggests it is the oldest knitted fabric in Denmark known to date. The other cap is a brimless, head-hugging style which lay unnoticed in the National Museum of Denmark's collection for almost a century. The dating is uncertain but it is likely to be 17th century. This was probably not knitted in the round but worked back and forth with two needles or on a knitting frame.

Keywords: Cap, knit, grave find, early knitwork in Denmark, increase, decrease, knitted back and forth

Introduction

Evidence for early knitwear in Denmark includes an assortment of stockings, gloves, mittens and several caps and hats now on display at the National Museum in Copenhagen. There are also a number of stockings, some mittens, and nine examples of the so-called "sugar loaf" hats from excavation of layers dated to the 17th century in Copenhagen (Ringgaard 2017). Several fragments of 17th century *natttrøjer*, also known as waistcoats or petticoats, are held in a range of collections too (Ringgaard 2014). Two previously unpublished knitted caps from different locations in Denmark provide further evidence of knitwear in the Early Modern era and one dating to the 16th century may be the earliest known example of knitting in Denmark.

This article employs a proposed protocol and terminology for knitted items developed as part of the *Knitting in Early Modern Europe* project (see Malcolm-Davies et al. 2018, 10-24, in this issue).

The Holmens Church cap: description

One of the knitted caps currently housed in the National Museum of Denmark (inventory number X715 K387) was found near Holmens Church in Copenhagen.

The church is situated on what was a small islet called Bremerholm next to the island Slotsholmen on which Copenhagen Castle (Københavns slot) stands. The naval shipyard was located at Bremerholm from around 1500. In 1562, an anchor smithy was built on the islet by the king's master builder, Peter de Dunker. This building was converted to a church in 1617 and further altered to create the present Holmens Church in 1641.

The knitted cap was found amongst other rubbish under the remains of the part of the building dating to 1562, together with at least another 18 textile fragments, including scraps of silk, a gathered strip of wool cloth, and shaped pieces of a coarse 2/2 twill textile of a type often seen in medieval finds (*vadmal*). These demonstrate evidence of tailoring. All appear to be discarded oddments from repairs or reuse of old clothing.

After the excavation in 2014, the cap and some of the other textile finds were moved to the conservation department at the National Museum of Denmark and freeze dried in order to stabilise them.

What remains of the cap is irregular in shape. It measures approximately 470 mm × 330 mm with a large hole near the crown centre, which is 60 mm × 90 mm at its

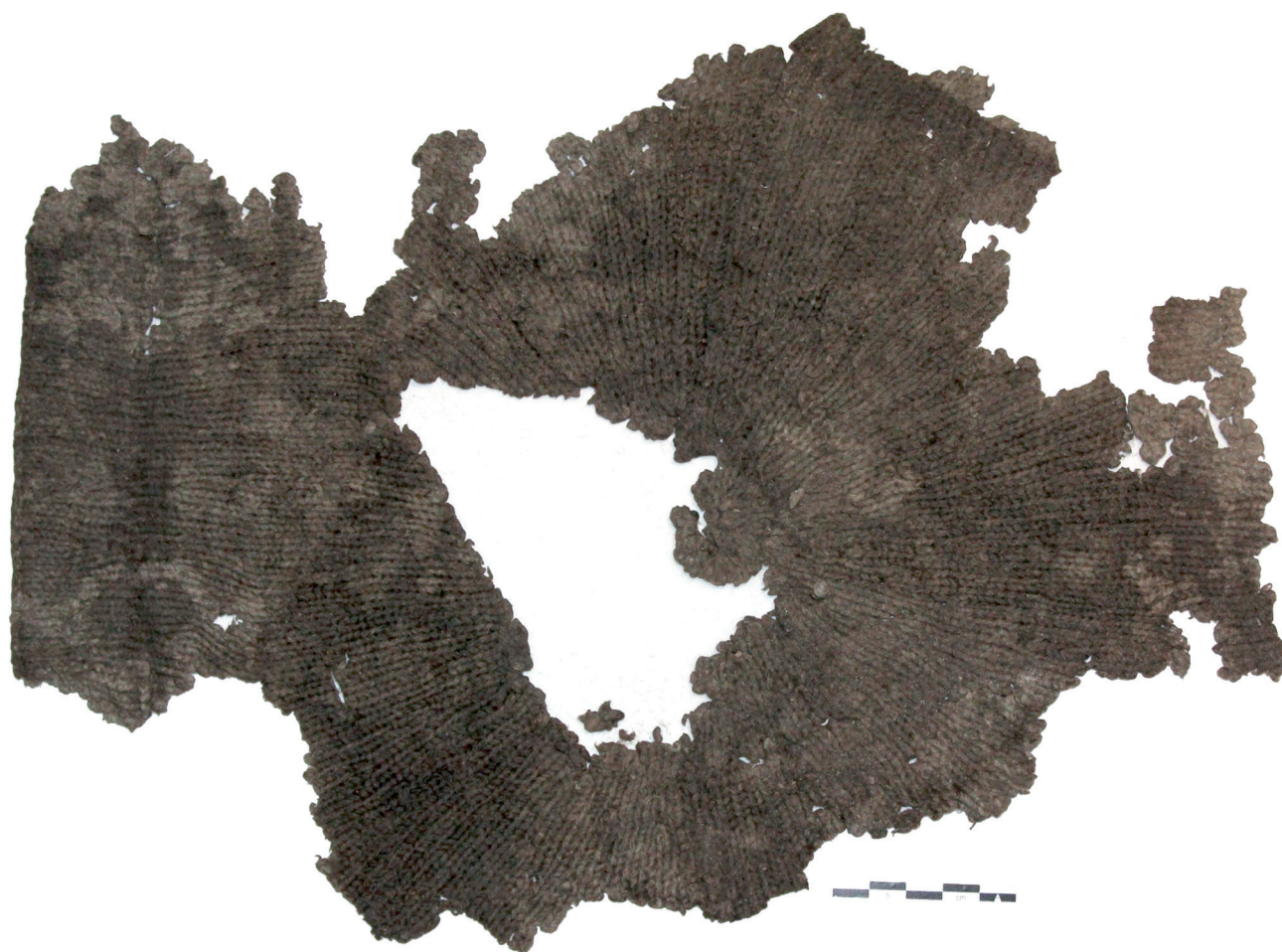


Fig. 1: The Holmens Church cap, inventory number X715 K387. Its find context makes it the oldest known knitted fabric in Denmark to date. What remains of the double edge is pictured at the left (Image: National Museum of Denmark)

maximum (fig. 1). As part of the edge is also preserved, it is possible to measure the crown depth (from the crown centre to the bottom edge) as 255 mm. The cap is single-layered apart from a 40 mm section at the bottom edge which is double-layered. One small section of the finished edge (80 mm in length) and the crown centre are intact whereas the outer edges of the cap are torn. The bottom of the cap is finished with a 16-course double-layered section finished with either a cast-off edge or a row of reverse loops.

It is not possible to know for certain which of the surfaces was worn towards the wearer's head but convention dictates that the reverse loops would be on the inside of the cap. The surface designated the recto for the purposes of clarity (and therefore the outside of the cap) is entirely composed of face loops, while the verso comprises the corresponding reverse loops. A knitted loop has a head and two legs (fig. 2). When a new wale of loops is added by increasing, the loop

head will be at the upper end of the first loop in this wale. If the number of wales is reduced by decreasing, the loop heads will be towards the point where the

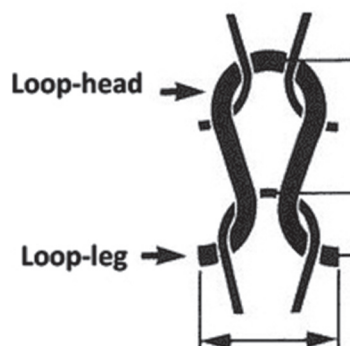


Fig. 2: A representation of a knitted loop showing the head and legs from Rikstermbanken, Swedish Centre for Terminology (available at <http://www.rikstermbanken.se/rtb/visallustration.html?id=1929&termpostId=53059>, last accessed 4 July 2017)

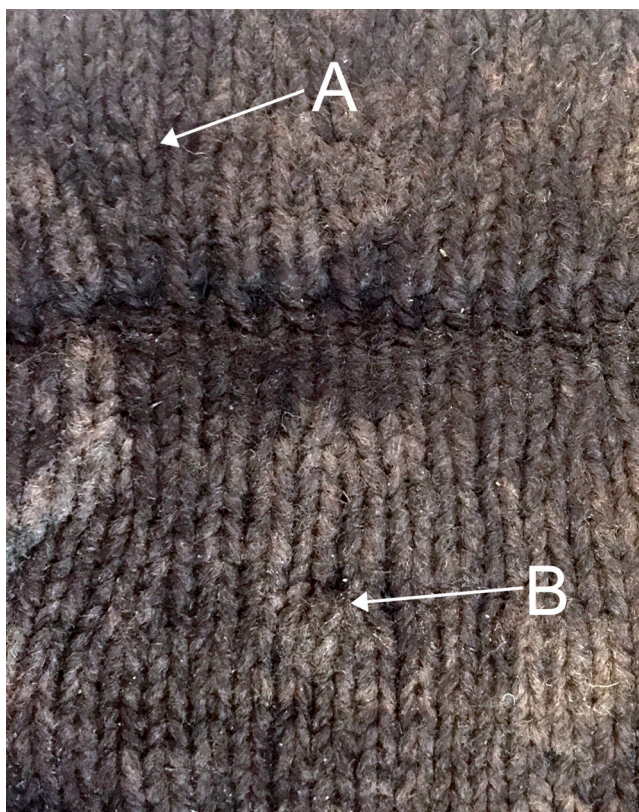


Fig. 3: The evidence indicating increases and decreases in the number of wales in the knitted fabric of the Holmens cap (inventory number X715 K387). Arrow A points to an increase and arrow B to a decrease (Image: Maj Ringgaard)

wale ends (fig. 3). Using these features, it is possible to note the location of irregularly placed increases and decreases in the number of wales observable in the knitted fabric. The irregular placement of increases and decreases means there are no lines on the top of the cap.

The knitted loops are on average 2.5 mm high and 4 mm wide. The gauge of the knitted fabric is different in the main part of the cap from the double-layered edge section. The number of wales in the former is 24 per 10 cm and the number of courses is 44 per 10 cm, while in the double-layered section the number is 28 wales and 48 courses per 10 cm. This indicates the edge section is knitted using finer needles than those used for the rest of the cap. (The course to wale ratio for the main part of the cap is therefore 2:1. The loop density of the fabric is 1056 per 100 mm²).

Microscope analysis confirms that the fibre is wool, which is 28.03 microns in diameter (average of 100 counts). This indicates the fleece is medium grade (Kott 1993, table 1). The z-spun yarn is 2.07 mm in diameter (average of 10 counts) and constructed of

two elements plied together. The spin angle of the yarn elements could not be determined.

There is some nap remaining on parts of the cap, which is darker in colour than the visible knitted loops of the ground fabric. This could be due to a different reflection of the light in the raised nap than in the smooth loops. The cap is now in various shades of "archaeological brown" the colour provided by the long sojourn in soil. The brownish colour is even and there are no obvious signs of pigmented fibres. As no dye analyses have been made it is not possible to say if the yarn was dyed (Ringgaard & Bruselius Scharff 2010, 221).

The Holmens Church cap: interpretation

Using the evidence for increases and decreases in the knitted fabric, it is possible to deduce that the cap was started at the crown centre.

Increases were made at every third loop in every three courses over 15 courses. Then, five courses were knitted without increases. After this, increases were made at every third loop in a single course. Then, seven courses were knitted without increases. After this, increases were made at every fourth loop in a single course followed by nine courses which were knitted without increases. After this, increases were made at every fourth loop in a single course. Then, 12 courses were knitted without increases. Decreases were then made by knitting every fourth and fifth loop together in a single course, followed by three courses which were knitted without increases or decreases. After this, decreases were made by knitting every fourth and fifth loop together in a single course.

The cap is finished with a 16-course double-layered edge. It is unclear if this was made as a separate knitted strip, where the face loops are on the verso, or if, after a course of reverse loops, another 16 courses were knitted and then turned back over the previous 16 courses and stitched in place. If the latter method was used, this resulted in a course of reverse loops finishing the bottom edge of the cap. But this cannot be seen because of the preservation condition. There are no visible sewing stitches at the top end of the strip, so the loops could have been picked up at the verso and cast off at the bottom edge.

The remaining nap on parts of the cap suggests that it was fulled, napped and sheared to create a raised surface, which originally obscured the knitted loops.

The Grindsted Crypt Cap: description

This fragmentary cap, which is currently in store at the National Museum of Denmark (inventory number



D10318), was found in Grindsted Church in southern Jutland in a crypt belonging to the manor Urup near Grindsted. The crypt was established at the beginning of 17th century and remained in use until the second half of the 18th century.

The cap was sent to the National Museum of Denmark together with a silk cap by a school teacher named Nielsen, who found them in the crypt when the church was rebuilt 1921. It is noted in the museum archives that the cap was found on the head of a man and was placed on the forehead and over the neck. Even though it was found on the head of a man, with some of the wearer's hair and skin still remaining inside, it is not now known to which body the cap belonged.

The wales radiate out from a central point. The number of and distance between the increases show that this was most likely originally a brimless, head-hugging style of cap (Malcolm-Davies & Davidson 2015, 226).

This style, though frequently seen in artworks of the period – for example, Pieter Breugel (1565) *Die Jäger im Schnee* (Kunsthistorisches Museum, Vienna) – is the least numerous in the archaeological record (Malcolm-Davies & Davidson 2015, 228) making this a significant find. Comparable caps are at the Museum of London, United Kingdom (inventory number 13049) and Memorial University of Newfoundland, St John's, Canada (inventory number 29631c). The former is double-layered throughout and the latter has an extant separate lining. Another similar cap dated to the 18th century has recently been found at Gårdby Church on Öland in Sweden but details of it are not yet available (Ahlström Arcini, pers. comm.).

The cap comprises a single layer of irregularly shaped knitted fabric. The partial remains of the cap are very damaged with pieces missing, torn or rotten edges, and broken yarns. Although the crown centre is intact, it is not possible to measure the crown depth



Fig. 4. The Grindsted crypt cap, inventory number D10318. (Image: National Museum of Denmark.)



Fig. 5: The crown centre of the Grindsted cap with the two-stranded yarns from what may have been the sewn stitches at the sides of the cap, which was probably knitted back and forth near the centre. Also pictured is one of the much finer single yarns in a different colour from the cap (Image: Jane Malcolm-Davies)

or estimate the original head circumference as too little of the bottom edge of the cap remains (fig. 4).

The fragment is 425 mm wide at its maximum. This may represent approximately three-quarters of the original cap. Likewise, the crown depth is incomplete at 180 mm. There are long, loosely twisted strands of yarn along one side edge which appear to have been sewn stitches at one time. There are no cut yarns on the edge of this part of the knitted fabric. There is also evidence of the crown centre having been drawn together with a single thread to tighten it. The loose sewing strands have a larger diameter than the knitted yarn. The structure of both the knitted yarn and the loose sewing yarn is Z2s (two s-spun yarns Z-twisted), but the knitted stitches have a matted appearance, whereas the sewing strands do not (fig. 5).

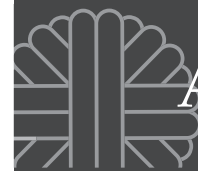
As there are still remains of skin and hair, it is possible to determine that the surface with reverse loops was worn towards the wearer's head. The surface designated the recto (the outside of the cap intended to be seen) is composed entirely of face loops, while

the verso comprises the corresponding reverse loops.

There are irregularly placed increases in the number of wales which shaped the cap to fit the head. All the increases are in the upper 50 mm. The knitted loops are on average 2.5 mm high and 2.5 mm wide. The gauge of the knitted fabric is consistent throughout the fragment. The number of wales per 10 cm is approximately 40 and the number of courses per 10 cm is 48. The course to wale ratio is therefore 6:5. The loop density of the fabric is 1,920 per 100 mm².

Microscope analysis confirms that the fibre is wool, which is 19.5 microns in diameter (average of 100 counts). This indicates the fleece is fine grade wool (Kott 1993, table 1). The yarn diameter is 0.81 mm (average of 22 counts). The twist degree of the two yarn elements is not possible to determine.

There are at least nine short (up to 25 mm) lengths of separate, very thin worsted yarns, of a much darker colour than the knitted fabric lying on top on one side of the fragment and a few elsewhere. These yarns have some crinkles in them indicating they were stitched



into something at one time. These may have come from another textile worn by the deceased or a pillow under his head.

There are traces of nap on the cap, which are a darker colour than the ground fabric where the knitted loops are exposed. The current colour of the cap is a light yellowish “archaeological brown” (Ringgaard & Scharff 2010, 221). It appears to be produced of white or almost white wool and was probably not dyed.

The Grindsted Crypt Cap: interpretation

The placement of the increases suggest that the cap was knitted starting from the crown centre, and their concentration in the upper part of the fragment indicates that it did not have a long pointed top but a more rounded shape. It was probably knitted from the crown centre to the bottom edge and then sewn up to create a tube. This cap was probably knitted back and forth as suggested by the evidence of what may

be a sewn edge, where there are broken yarns and stitch marks. The cap could have been knitted on two needles or on a knitting frame. The earliest knitting frames produced only flat items and the fabric could be as coarse as this cap is. The consistency of the gauge throughout the cap also suggests a frame-knitted garment (Rapley 1975).

Discussion of the Holmen and Grindsted caps

As Holmen housed the naval dockyards, it is tempting to interpret the cap found there as a mariner’s cap or as belonging to one of the workers in the shipyard. It could have been discarded well before the building was raised in 1562. Too little is known to support these suggestions. It is likely that it was knitted in the round on more than two needles as there is no evidence of a seam, which would indicate working back and forth with two needles. It may have been knitted from the crown centre to the brim. The shaping achieved



Fig. 6: The Danish King Christian II wearing a fashionable knitted cap in a somewhat more elaborate style than the find from Holmens Church; from an altarpiece dated 1520, *Helligåndshuset*, Nykøbing Falster, Denmark (Image: National Museum of Denmark)



by the arrangement of the increases and decreases indicates the cap had a flat crown. This is the most numerous Early Modern style of knitted cap found in the archaeological record (Malcolm-Davies & Davidson 2015). It was in fashion all over Europe in the 16th century and was therefore likely to be so in Denmark. It is not possible to be sure if caps depicted in artworks are knitted but there are some indications such as shapes not easily achieved with cut and sewn fabric. The cap worn by the King Christian II on the altarpiece from *Helligåndshuset* Nykøbing Falster is one example (fig. 6). Looking for these caps in probate records or inventory lists is problematic as it is not certain what they were called at the time. Examination of Danish probate records from the period 1550 to 1650 revealed very few caps, and knitted caps are not specifically mentioned. This could be because it was obvious at that time that a cap called a *hue*, *lue* or *møsse* was a knitted item.

The lack of detail about the discovery and the context in which the Grindsted crypt cap was found yields little evidence of the wearer. It is most likely the style of headwear called a *nathue* (nightcap) in Danish. It was often worn by sailors in 17th century and is found in some whalers' graves at Spitzbergen (Ringgaard 2010; Jensen 1990). During the 18th and into the 19th centuries, it became the typical headwear of Danish peasants. It is somewhat puzzling that this knitted cap was found in a noble family's crypt. In the 17th to 18th centuries, the deceased often wore a nightcap when laid in the grave (for his final long rest). Evidence for this comes from many crypt finds but these caps are mostly of fabric – velvet or satin in four or six triangular pieces decorated with gold ribbons covering the seams (Mikkelsen et al. 2015). The knitted type is not known in any graves belonging to the nobility.

An unusual thing about this Grindsted cap is that it appears to be knitted back and forth and not knitted in the round as most other caps are. Most knitted items from this period seem to be knitted in the round, and there is no obvious reason for a cap like this to be knitted back and forth. However, it is possible that it is a frame-knitted item. Maybe this is the reason why a knitted cap was in this noble family's crypt – it was made using the new frame-knitting technique? There is no certain evidence for the use of knitting frames in Denmark before permission to start a 'factory' was given by the king in 1680. Before this there were frames only in the duchies of Schleswig and Holstein (Ringgaard 2017, 310). Grindsted is situated in the part of Denmark near to these duchies and goods produced there would have been accessible for this noble family.

The 18th century cap found in at Gårdby Church on Öland, Sweden, is of similar type. It was placed on the head of a person buried in a prominent position in the church (Ahlström Arcini, pers. comm.). This cap matches the Grindsted cap in style and colour, but whether this cap corresponds in yarn type and gauge or if it is knitted back and forth is still unknown.

Conclusion

The context of discovery for the cap found near Holmens Church makes it the oldest known knitted fabric in Denmark to date. The knitted nightcap from the Grindsted crypt is unusual in this burial context. The Holmens Church cap and the Grindsted crypt cap provide little evidence of who wore them or how they were worn. The latter retains particles of flesh and hair which may yield new knowledge if they are analysed using techniques for identifying DNA. The yarns too may be more forthcoming with the application of isotope analysis to investigate their place of origin and carbon 14 dating might pinpoint their period of manufacture with greater accuracy.

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