

The aprondress from Haithabu harbour

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Various excavations of the former Viking settlement of Haithabu, near Schleswig Holstein in Germany, have yielded a large amount of 10th century textile material. A majority of the preserved fragments were found in the harbour, and had once been clothing that had been torn up, coated with tar, and used as ship's caulking ([Hägg 1984](#)). Excavations also uncovered textile fragments from the settlement and graves of Viking Haithabu ([Hägg 1991](#)).

Contents

- [The archaeological remains](#)
 - [The aprondress \(smokkr\) from the harbour](#)
 - [Other smokkr remains from Haithabu](#)
- [Interpretation](#)
- [My interpretation](#)
 - [Deciding on a shape](#)
 - [The smokkr loops](#)
 - [Decoration](#)
 - [Conclusion](#)
- [Other reconstruction patterns](#)
- [Bibliography](#)

The archaeological remains

Due to the presence of tar, Haithabu harbour yields unusually well preserved textile fragments. However, the harbour finds provide no information on the position of each fragment on the body. Thus, identification of which garments each fragment belong to are based solely on their shape. Each garment that can be identified however, provide a fascinating glimpse of how everyday clothing may have looked.

Many of the garments found at Haithabu appears to have been cut to fit the body. Hägg (1984, p. 214) points out that not only does each garment fill a specific function, but the tailoring craft have grown even more advanced. Patterns are no longer solely based on the rectangular fabric coming off the looms, but instead uses pieces cut on the diagonal, in curved shapes etc. in order to create garments tightly fitting the body. The many remnants of cut-offs confirms the impression of more sophisticated cuts and shaping.

De många efter kroppens former snävt skurna plaggen i Hedeby, t.ex. skjortan och byxan i mansdräkten eller tunikan och hängselkjolen i kvinnodräkten, visar att den dräkthistoriska utvecklingen nu nått en nivå, där dräktens olika delar genom tillskärning och sömnad givits olika, mycket bestämda funktioner. <...>

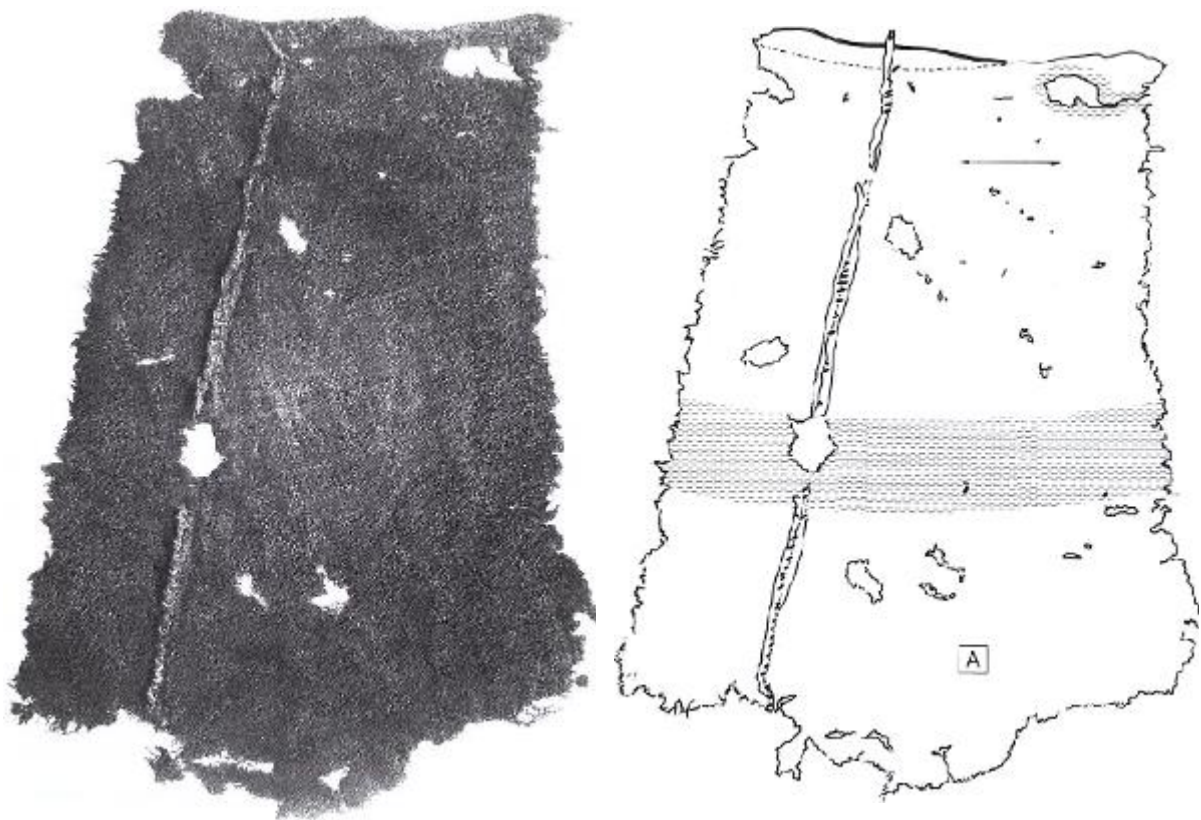
Klädesplagg, som huvudsakligen är sammansydda av större och mindre fyrsidiga tyglängder kan i och för sig vara funktionsbestämda, men kan inte betecknas som produkter av en avancerad tillskärarkonst. I sådana fall baserar sig mönstret på den i vävstolen givna formen. När emellertid inte de fyrsidiga och rätvinkliga tyglängderna bildar utgångspunkten för mönstret utan kroppens former, så att stoffytorna måste skäras till på diagonalen, i bågförm, i kilstycken osv. uppkommer en i princip helt ny uppbyggnad av snittmönstret. De här analyserade mönstren vittnar om stor erfarenhet i tillskärningskonsten: såväl fastheten som elasticiteten, olika på

tygets olika ledder, har utnyttjats maximalt i hängselkjolen, att döma av de bevarade fragmenten (Nr. 14A-B). <...> Exempler av detta slag är många, de här anförda torde räcka till för att visa, att dräkten i Hedeby befunnit sig på ett högt utvecklat stadium. De många resterna av tillskärningsspill bekräftar detta intryck.
Hägg 1984, p. 214

The aprondress (smokkr) from the harbour

The harbour yielded two large fragments of fine repped wool that had been dyed brown (Hägg 1984, p. 38). These were identified as potentially belonging to a smokkr.

The largest fragment (**H14A**) is 30 cm high, 16-23 cm wide and 0.1 cm thick. The fragment is roughly wedge-shaped with one side that has been cut in a straight line, and one that curves slightly. Both sides have stitch holes, thus confirming that the fragment was originally attached along the sides to other pieces of the garment it was a part of.



Illustrations from Hägg (1984, p. 39)

The upper edge (16 cm) has been created by turning over 1 cm of the selvedge towards the inside and stitching it in place with "Ösenstich". There is a hole (2.5 x 1 cm) close to the top, surrounded by a felted area. The bottom edge (23 cm) is torn (Hägg 1984, p. 38).

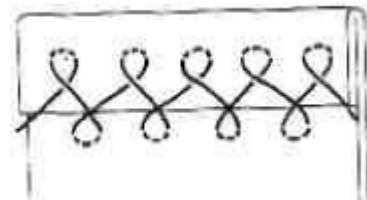


Illustration from Hägg (1984, p. 150)

A dart (26.5 cm long) runs parallel to the straight side of fragment A, from 7 cm below the upper edge down to the tear at the bottom. Unlike modern garments, the ridge of the dart appears to be on the outside of the smokkr. The width of the dart varies (2-5 mm), and the

widest point is about 15 cm below the top edge. Here the garment shows traces of wear; the cloth is felted in a band across the garment and a hole has been worn through at the dart.



A thin piece of braid has been stitched in place on top of the ridge formed by the dart on **H14A**. The braid extends beyond the dart up to the top of the smokkr. It has deteriorated considerably but appears to be 1-2 mm wide, made of six two-ply threads (Z-spun, S-plied), three red and three yellow (Hägg 1984, p. 38).

Illustrations from Hägg (1984, p. 39 and 41). Red line added to illustration of braid for emphasis.

The other fragment (**H14B**) is 12 by 25 cm and is torn at both the top and the bottom. One of the side edges has been preserved, complete with stitch holes (1). The other side is less preserved, and there is no stitch holes. Traces of the dart (2) remain, although not of the braid. This fragment is wider than **H14A**, leading Hägg (1984, p. 38) to postulate that it would have been positioned a bit lower on the body.



Other smokkr remains from Haithabu

Only 1% (16) of the examined graves at Haithabu graveyard contain "tortoise" brooches. This is a clear indication that while the smokkr was still in use, it was definitively not the only type of garment worn by the Haithabu women (Hägg 1991).

The only fragments from the Haithabu graveyard that can be clearly identified as belonging to a smokkr is the loops, usually made from a fine linen cloth (e.g. grave **159/1960** and **182-185/1960**). In addition grave **159/1960** contain fragments of a two-shaft woollen cloth that may have come from the smokkr, if the layering of the grave has been interpreted correctly (Hägg 1991).

Av hängselkjolen finns bare bandöglorna från hängslene bevarade (t.ex. grav 159/1960 og 182-185/1960) och små fragment, om vilka man inte med säkerhet kan säga att de verkligen härrör från kjolen. Bandöglorna är mycket fina (...), i regel av linne. Av vilket material övriga deler av kjolen bestod är oklart. En ripsartad tuskaftsväv av ylle från grav 159/1960 (...) kan, av mikrolagerföljden att döma, möjligen härröra från hängselkjolen.

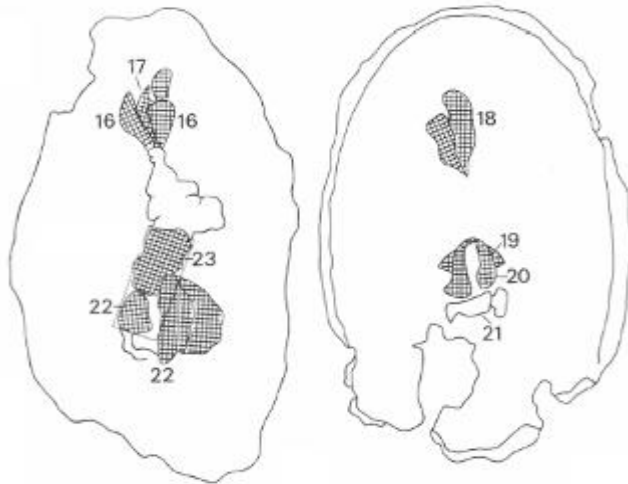
Hägg 1991, p. 277 (illustration numbers removed or exchanged for grave numbers)

Grave 159/1960

A girl was buried with two oval brooches, a rectangular bronze fibula and a knife with a leather sheath and wooden handle. There were several textiles in the grave, but here the focus will be on possible smokkr loops.

Both oval brooches had loops made from a smooth linen tabby and loops of a tabby with stripes made by alternating between z- and s-spin in the warp threads. There were at least three loops in each brooch, possibly more (Hägg 1991, p. 135-148).

Illustration Hägg 1991, p. 143



The right brooch had one thin loop of tabby-woven linen (18) at the top of the brooch and two at the bottom (19 and 20). There was a third band (21) that lay across the needle. However, this band is made of a material that is probably taffeta silk (untwisted weft threads, dense weave and glossy surface), which together with the transverse position makes it likely that it was sewn along the upper edge of the smokkr as decoration. A loose fragment of an iron needle that probably belongs to the

brooch has preserved a part of a linen band (159:27), with warp threads that alternate between z-spun and s-spun.

The left brooch had two thin loops of finely woven linen tabby (16 and 17) at the top of the brooch and a wide, particularly fine loop (22) from a fabric with warp threads that alternate between z- and s-spun, at the bottom of the brooch, underneath a fragment (23) probably belonging to a linen serk.

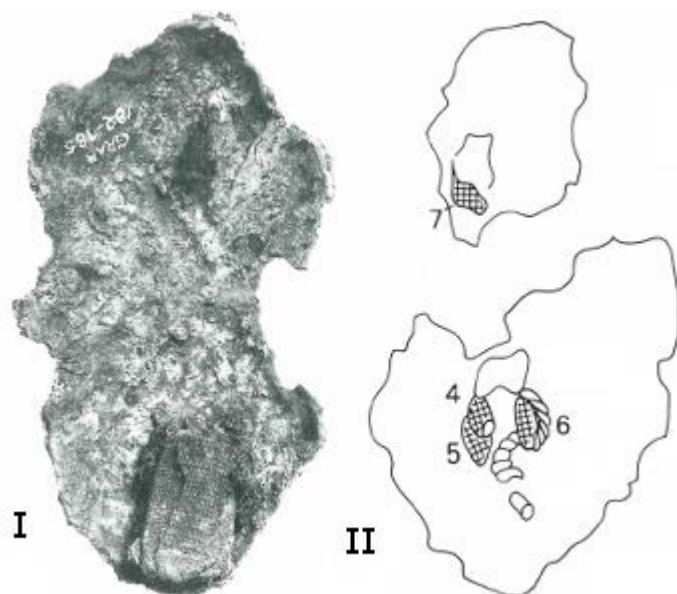
Finally, there are some loop fragments that have been detached from the brooches and stored separately. One of these (159:25) have remains of stitches along one side, another (159:24) have the same alternately z-spun and s-spun warp threads as mentioned above. However, it is uncertain which of the brooches these fragments belonged to.

Grave 182-185/1960

Woman's grave with two oval brooches. There were several textiles in the grave, but here the focus will be on probable smokkr fragments.

Brooch I has a loop (182-185:3) of very fine tabby weave at the bottom. Brooch II is very fragmented, but the bottom of the brooch has two remaining loops (4 and 5) of a similar fine weave, in addition to a cord (6) of 6-8 z-spun threads in s-ply that may have been used to hold beads. Traces of a strap (7) in tabby weave lie by the broken needle holder in brooch II (Hägg 1991, p. 148).

Illustration Hägg 1991, p. 149 and 151, slightly modified.



In addition, there is a part of a linen band detached from one of the brooches (182-185:12). The band is 7 mm wide and has seam along one side. The fabric is

very fine, possibly blue, with tightly woven individual (currently) red threads in warp and weft, which together form a check pattern. A part of this band is rusted onto (182-185:13) a second, loose, needle fragment, on which there are also traces of shirt linen (182-185:14). Similar fabric remnants, small but recognizable, adhere to two other needle remnants.

Von einer der Fibeln abgelöst ist auch ein Bandrest (182-185:12; z 29 F/10 mm x z 8 F/5 mm) mit Seitennaht. Die Breite beträgt 7 mm, das Gewebe ist sehr fein, eventuell blaufarbig, mit engewebten einzelnen (jetzt) rotfarbenen Fäden in Kette und Schuß, die zusammen ein Karomuster bilden. Ein Teil dieses Bandes ist an ein zweites, loses Nadelfragment angerostet (182-185:13, z 8 F/3 mm x z 4 F/2 mm), auf dem außerdem Spuren von Hemdleinen (182-185:14, z 8 F/4 mm x z 6 F/5 mm) erhalten sind. Ähnliche Stoffreste, klein, aber doch erkennbar, haften an zwei weiteren Nadelresten.
Hägg 1991, p. 152

Interpretation

The fragments **H14A-B** from Haithabu harbour were found as part of a ship's caulking. Thus there were no accompanying tortoise brooches that could identify them as part of a smokkr. Instead, identification must be made based solely on their shapes.

According to Hägg, the shapes indicates that **H14A-B** are smokkr fragments. The hemmed edge would be at one end of the garment, as it could not have been stitched to another fabric piece. The wedge-shape would have been pointed with the slimmest part (16 cm wide) upwards. Additionally, the fact that the dart is deeper in the middle than at the edges, indicates that the fragments are not part of a completely different type of pattern, like a sleeve (Hägg 1984, p. 38-39).

Provided one accepts this identification, the fragments provide a wealth of information about the shape of the smokkr. Together, the two fragments form a wedge-shaped piece that once was stitched to other pieces along both sides, as indicated by the traces of seams.

Hägg (1984, p. 42) observes that the narrow cut and the dart indicate that the garment fit closely to the upper part of the body, and then flared out over the hips. In other words, this was a tailored garment. This places the Haithabu smokkr firmly among more complex garments with a defined function (Hägg 1984, p. 169). The tailoring makes it unlikely that it was left open, whether in side or in front, and thus strongly indicate that the smokkr was forming a closed tube around the body.

Photograph: Hilde Thunem, reconstruction at the Historical museum in Oslo.

The piece formed by the surviving fragments is only wide enough to have covered part of the body, e.g. the side or half of the back. According to Hägg (1984), a placement in front is less probable, as the



dart is very shallow (p. 42). Due to the narrow cut, she believes there might have been an opening or slit, possibly closed by lacing, to allow the wearer to put the smokkr on (p. 170). Her reason for suggesting lacing as a possible solution is that according to old Norse clothing terminology, there was a type of tunic - dragkyrtill - that were "laz at siðu", that is, tied together along the sides (Falk 1919, quoted in Hägg 1984 p. 170). Finally, she suggests that the smokkr *may* have been constructed from four parts, although this is necessarily guesswork as there is no evidence beyond the two fragments **H14A-B** (Hägg 1984, p. 213).

Även resterna av en hängselkjol i tuskaftat ylle visar ett snävt snitt, som tillsammans med intagningarna kring livet starkt framhäver kroppens former. Plaggets slanka linjer betonas ytterligare genom en prydnadsfläta, som fästs över en av sömmarna i dess längdriktning. Kjolen, som förmodligen bestått av fyra separat tillskurna tyglängder vidgade sig nedåt på samma sätt som tunikorna.
Hägg 1984, p. 213

She believes that the widest point of the dart was placed at the waist, and that the worn hole and the felted area indicate that a belt had been worn with the smokkr (Hägg 1984, p.40). While the fragments are torn at the bottom, making the total length of the smokkr unknown, the distance from the waist area to the bottom of fragment **H14B** is roughly 25 cm (Hägg 1984, p. 170).

The hole at the top, probably caused by wear, may have been used as a temporary mechanism to attach a strap, e.g. by passing it through the hole and tying it (Hägg 1984, p. 40-41). It is possible that the Haithabu fragment, while originally part of an upper class smokkr, would have been passed on to a servant or slave when it became worn. This second wearer of the garment would not have owned brooches, but would probably simply have tied a strap to the front of the smokkr ([Hägg 1996](#), p. 14).

Från detta fyndkomplex kommer ett hängselkjolfragment som säkert ursprungligen hört till en välsituerad kvinnas dräkt. Yllematerialet och väven är av utmärkt kvalitet. Men när kjolen blev nött och trasig har sannolikt en trälkvinna fått överta den. Kvinnorna på samhällets lägre nivåer ägde inga dräktspännen. <...> Hedebykjolen hade av sin andra ägarinna helt enkelt fästs över axlarna genom att hängslena knutit fast direkt i framstycket.
Hägg 1996, p. 14

The smokkr finds from the Haithabu graves are too small to either confirm or dispute the interpretation Hägg build on the harbour fragments. However, the fact that the graves **159/1960** and **182-185/1960** had at least one brooch each that contained more than two loops, is an indication that the Haithabu smokkr may not have differed that much from the smokkr at Birka in Sweden (described by [Hägg 1974](#)), where multiple loops inside the brooches is not unusual. More than two loops per brooch is also known from several smokkr finds in Norway; Sandanger ([Holm-Olsen 1976](#)), Veka, Hyrt and Hopperstad ([Lukešová 2011](#)).

My interpretation

When talking about reconstructions different people mean different things. Is it a reconstruction only if the same measurements have been used, or can you adapt it to fit your own body better? What about using different fabric? Or a different dye? Must it be worn and torn in the same places as the original to be a proper reconstruction? Use the same stitches?

All the practical issues aside, there is a larger one concerning how we reenactors and history nerds look as a group. If we all strive to our outmost to only copy exactly what is found, we will each of us be as historically correct as possible. Put us together however, and we will

give the impression that the Vikings all wore uniforms. With that in mind, I study the evidence in order to understand the range of alternatives I have to play with, and then create my own garments inspired by the finds.

This is the first smokkr I created (in 2010), using the smokkr fragments from Haithabu harbour as my point of departure. It is still not entirely finished, as I lack the braids that should be running along the top of the darts.

Deciding on a shape

Although the fragments found at Haithabu are large compared to most fragments from Viking Age graves, they are far from a complete garment. Thus my interpretation is one of many that fits the available evidence.

Photograph by [Fotofashion](#). The smokkr is made from a red, industrially dyed red (madder-like) woollen tabby instead of the walnut-dyed tabby found in the harbour.

A dress that encloses the body

As the finds from the harbour were not accompanied by accessories, the position of the tortoise brooches in relation to this specific smokkr must be inferred from evidence from other relevant finds. Evidence from several graves indicate that such brooches were worn on the upper area of the chest ([Hägg 2009](#)), and there is no reason that the Haithabu smokkr should be different in this respect.

There are several competing theories regarding the generic shape of smokkr, all originating in diverging interpretations of archaeological evidence from Birka. Agnes Geijer (1938, paraphrased in Hägg 1974) interprets smokkr as rectangular pieces of cloth wrapped around the body, leaving an opening at one side. Inga Hägg (1974) proposes that smokkr were closed around the body, while [Flemming Bau](#) (1981) believes that they were open in the front.

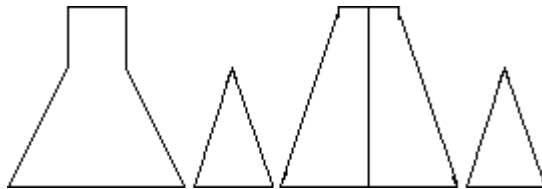
Fortunately, as Hägg (1984) points out, the smokkr fragments from Haithabu harbour have several key features that provide information about the shape of this particular smokkr. As mentioned above, they form part of a wedge-shaped piece that once was stitched to other pieces along both sides. The top of the fragment was only 16 cm long, and its slimness as well as its shape (wider at the bottom than the top and) indicates that this was a tailored garment, probably with several panels. The tailoring makes it unlikely that it was left open, whether at the side or the front.



In conclusion, the archaeological evidence from Haithabu harbour clearly indicate a smokkr that enclosed the body of the woman wearing it, with no openings either in the front or sides.

Proceeding from a small fragment to a whole garment

While the shape of fragment **H14A** and **H14B** suggest that the smokkr was tailored to fit the body, we don't know how many pieces were used to create it, or where the fragments we have found would have been placed on the body.



The wedge-shaped piece created by the surviving fragment is very narrow, and would not give sufficient circumference around the top if I was to use four such pieces symmetrically placed around my body. Of course, I could have chosen to use more pieces, or to combine the one piece that has been found with e.g. wider rectangles in order to fit me. In this specific reconstruction however, I decided to keep the shape of the piece, but to increase the dimensions of it sufficiently to allow me to have two such pieces in the back, combined with one larger shaped piece in the front (pattern by [Glæsel](#), 2005). An argument against such a pattern is that the use of three pieces (instead of four, or two) is not seen in other surviving Viking garments. On the other hand, few Viking garments are preserved to such a degree that we can be sure of their symmetry.

In addition to the pieces already mentioned, I added side gores, similar to the ones found at Haithabu (Hägg 1984, fragment **H55A**; Hägg 1991, fragment **S29**).

I did not do any extensive fitting and shaping of the smokkr to fit it further to my body. Thus the final garment is fitted, but not tight. I have no need of lacing in order to put it on and there is even room for a five-months-pregnant belly inside it.



Female figure from Oseberg tapestry. Ewing 2006, p. 38



Picture stone from Låbro, Sweden. Ewing 2006, p. 37.

While the Haithabu smokkr fragments reaches roughly 42 cm down from the top of the smokkr, other finds (e.g. Bj. 464, Hägg 1974, p. 39-40) indicate that the smokkr was at least hip-length. Aside from that, we only have the pictorial evidence, which unfortunately is inconclusive. In the absence of other evidence, I decided on the probably-below-the-knees-but-above-the-ankles look shown on the Låbro picture stone. I made the back of the dress somewhat longer than the front, inspired by the trailing dresses from the Oseberg tapestries.

The smokkr loops

There are no smokkr loops connected to the fragments from Haithabu harbour. However, from other finds we know that such loops could be made from linen (Hägg 1974, [Zubkova, Orfinskaya, and Mikhailov 2010](#)) or from wool (Hägg 1974, Holm-Olsen 1976, [Rasmussen and Lønborg 1993](#)). Linen loops are found together with linen or woollen smokkrs, while woollen loops have so far only been found together with woollen smokkrs.

At the Haithabu graveyard, the loops that have been found are usually linen (Hägg 1991), leading me to choose linen loops for my reconstruction. This was partly because if the loops of the **H14A-B** smokkr were made of linen it would explain why there is currently no loops attached to the fragments, as no linen appears to have survived in the harbour. I also wanted the reminder that although woollen loops create more of a contrast against an undyed serk and appear to be more popular in the museum reconstructions I have seen, the evidence suggests that linen loops are an equally viable alternative.



My loops were created by folding a linen strip into four layers and whipstitching along the side. This is the same manner as the ones in grave Bj 835 from Birka (Hägg 1974). I chose a width of roughly 1 cm, in accordance with the loops from Køstrup (Rasmussen and Lønborg 1993) and Pskov (Zubkova et. al. 2010).

Illustration from Hägg (1974, p. 130).

Decoration

The Haithabu fragments have a shallow dart (2-5 mm wide) with a braid running on top of it. This feature appears to be purely decorative, as the dart is too shallow to be a large part of shaping the garment. I wanted to keep this feature for my smokkr, both because it is part of the specific find I am using for inspiration, and because it is a good demonstration that the Vikings used decoration differently than we would on a modern garment.

As we have only one panel of the smokkr, we have no way of knowing what, if any, decoration was present on the other panels. Unlike most reconstructions I have seen, I chose to use darts along the front piece as well as the two back pieces. On the original fragments, the darts starts 7 cm beneath the top, although the braid ran all the way to the upper edge of the smokkr. I decided to let the front darts start 11 cm beneath the top, so the darts begin on the lower half of my breasts.



I will eventually be adding a braid to the top of each dart, but with tendinitis in both hands I cannot make them myself. While waiting for someone that can do braid making for me, I first added a tablet woven band to the top of the smokkr. There was no tablet woven band on the Haithabu find, but grave 1090 from Birka (Hägg 1974), the Værnes find ([Blindheim 1945](#)) and grave C from Kaupang ([Ingstad 1979](#)) demonstrates that woven bands of different kinds could be used in various positions on the smokkr. However, I have later changed my mind and removed the band, to reflect the majority of smokkr fragments that are found without decoration.

Lining

We know that the smokkr could be lined. Several of the Birka smokkr appears to be lined, usually with linen (Hägg 1974). The fragments are too small to ascertain whether they were fully or just partially lined, although Geijer (1938, paraphrased in Hägg 1974) leans towards a partial lining.

There were no traces of lining on fragment **H14A-B**. However, the immersion in the harbour means that a linen lining - if it existed - would not have survived. Despite the lack of evidence for lining at Haithabu, I decided I wanted to try out the effect of partial lining, and thus lined the upper part of my smokkr with a finely woven linen tabby.

Conclusion

The main challenge with any reconstruction of the Haithabu smokkr is whether one believes that the large fragments from Haithabu harbour really belong to a smokkr or not. Although we cannot be certain, the shape of the fragments, and the presence of a hem, fits well with such an interpretation. In addition, other textile finds from Haithabu show that the tailoring techniques had grown more advanced at this point in time, and the fabric was not solely cut into geometric pieces any longer (Hägg 1984, 1991). While it is strictly

circumstantial evidence, it is not unreasonable to expect that the Haithabu smokkr would have been tailored, just like other garments made and worn by the inhabitants of the town.

Using the fragments to create a tailored smokkr results in a rather practical garment. It is warm (which is an issue when you are living in Trondheim) and doesn't snag on things when I am working, or swing forward over a fire.

It isn't tightly fitted, and thus allows for an increasing stomach. I have worn it without problem in early and middle stages of pregnancy, if not in the last I-have-swallowed-a-beach-ball months.



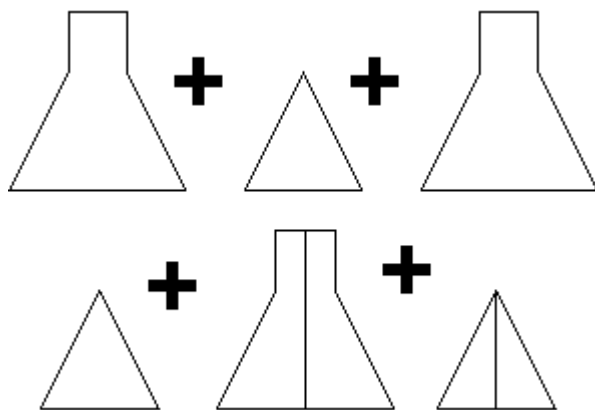
Later breastfeeding did not present much difficulty. I wore a serk with a long keyhole slit in the front. When the smokkr was worn on top of the serk, it covered the opening sufficiently to keep me warm (and preserve my modesty). Whenever I needed to feed the baby, I just sat down, opened the brooches and pulled the dress down towards my stomach so that I could get at the opening in the serk.

I am aware that my experiences does depend on body shape and tightness of dress, but my personal conclusion is that there was no need for a side opening or frontal opening in the smokkr to handle pregnancy or breastfeeding.

Other reconstruction patterns

As mentioned above, there are definitively more than one way to interpret the limited archaeological evidence of smokkr from Haithabu.

[Monica Cellio](#) suggests an interpretation where the haithabu piece would have covered only one sixth of the circumference of the top of the smokkr. By adding gores to the smokkr she increases the flare further.



She doesn't mention which pieces should be placed on the front, back and sides of the smokkr, but if Hägg's interpretation should be believed, the original fragment (lower row of Cellio's pattern overview) was at the back or side of the smokkr. The geometrical shapes in the pattern allows for efficient use of fabric and little waste.

[Vigdis Vestfirzka](#) (SCA) has published a slight [variation of Cellio's pattern](#) that allows for easier layout if your fabric isn't the same on both sides. The pattern requires the "Haithabu pieces" to each cover 1/3 of the circumference of the body, while the original fragment was fairly narrow (16 cm). The detailed measuring instructions still make this a good pattern for beginners.

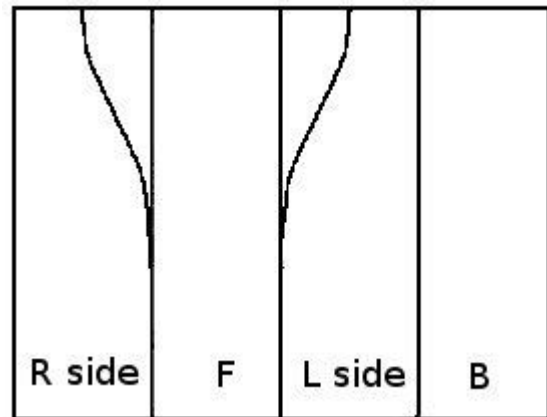


Another variation of Cellio's pattern, by [Diane S. Dooley](#), uses one additional body piece, and one gore.

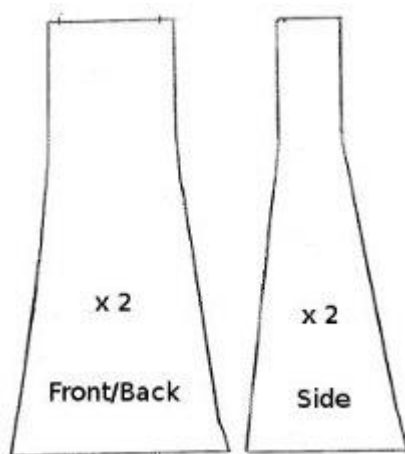
The reconstruction by [Peter Beatson and Christobel Ferguson](#) suggests significantly fewer pieces when reconstructing the Haithabu smokkr.

Beatson and Ferguson puts the piece created by the Haithabu fragments on the right and left sides of the body.

This changes the interpretation of the worn out spot near the top of the original fragment. Hägg believed that the spot was where a loop was attached, but in the Beatson and Ferguson reconstruction it seems more likely to be where the arm and body rubbed together. (The same pattern is also suggested by [Carolyn Priest-Dorman](#)).



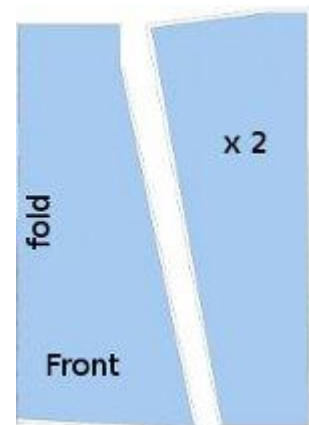
The next reconstruction is presented by [Historiska världar](#), a project run by the Museum of National Antiquities.



They say their reconstruction is of a 10th century smokkr, but doesn't set a specific geographic place. I have sorted them under the Haithabu reconstructions, since the smokkr they are presenting is tailored. While the pattern they suggest doesn't contain a piece shaped exactly like the Haithabu fragment, they do refer to the Haithabu find as evidence that the smokkr could be shaped.

Lastly, the pattern presented by [Nille Glæsel](#) as part of her report on Viking Clothing to the Viking museum in Lofoten, Norway provides yet another interpretation of the Haithabu smokkr.

She suggests a simple three-piece smokkr with no gores. Two of the pieces follow the same shape as the original Haithabu fragment. In addition, Glæsel suggests that the smokkr could have been shorter in front than in the back, just like the trailing dresses on the Oseberg tapestry.



The three-piece smokkr without gores is also used in the [reconstruction](#) at the Historical museum in Oslo, although their smokkr seems to have an even length in front and back.

More about the Viking apron dress (smokkr):

<http://urd.priv.no/viking/smokkr.html>

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Before the article was published in NESAT X, the authors temporarily published a preliminary article in Russian. Peter Beatson made a summary of the Russian article at <http://members.ozemail.com.au/~chrisandpeter/sarafan/sarafan.htm>, Lisa Kies has made a translation of the article (with all the original photographs) at <http://www.kieser.strangelove.net/Russia/PskovTranslation.html> respectively.

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