

Viking Clothing: hose and socks

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This article represents my attempt to collect archaeological facts and interpretations of hose and socks worn during the Viking Age.

Old Norse have several terms for garments covering the feet or legs. There is *leistr* (short sock), *sokkr* (long sock/stocking), *hosur* (what we would call hose - a fitted long tube of fabric for each leg, may be footed or footless). In addition, there is the *brók* that are leg coverings that (sometimes together with extra pieces) are sewn together at the crotch, creating a continuous garment. Finally, there can be strips of fabric or textile bands wrapped around the lower part of the legs (*spjorr*).

In this article I will focus on what the Vikings would have called *leistr*, *sokkr* or *hosur*, namely socks, stockings and hose. As usual, my intention with gathering the information is to be able to make my own best guess, which of course may differ from yours :-)

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Facts: Archaeological evidence

Birka

The main excavation of Birka was conducted in the 1870s by Hjalmar Stolpe, yielding a large amount of textile material from the 9th and 10th century. The textile fragments were stored, and later analysed by Agnes Geijer ([1938](#)) and Inga Hägg ([1986](#)).



Grave **905** contained the only remnants of leg and foot coverings that were found at Birka, with the exception of crampons that occur in some tombs (Geijer 1938, p. 145).

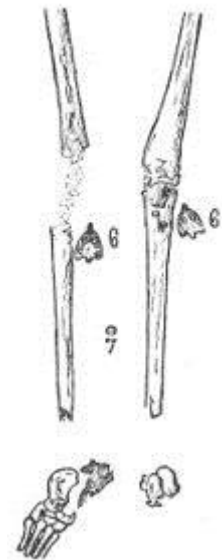
The grave contained a skeleton and various metal artefacts. Among them were two bronze hooks shaped as animal heads, found in a position just below the knees. The skeleton was osteologically determined as male (Linderholm, Jonson, Svensk, Lidén [2008](#), p. 452).

Photograph by [Christer Åhlin SHMM](#) 

Eine im Birkamaterial ganz einzig dastehende Erscheinung ist ein Paar tierkopfförmiger Bronzehaken, die wir versuchsweise Gamaschenschlüsse nennen wollen. Die unverrückte Lage im Grab 905 ergibt, dass die Haken Wickelgamaschen oder Unterbeinkleider aus starkem Wollstoff festgehalten haben, die in den leinenen Beinkleidern eingehakt wurden, welche letztere über das Knie hinabreichten. Abgesehen von Steigeisen, die in manchen Gräbern vorkommen, sind diese Haken die einzigen Überreste an Bein- und Fussbekleidungen, die vorgefunden wurden.

Geijer 1938, p 144-145

The animal heads were attached to garments covering the lower leg, possibly leg windings or some kind of hose (Geijer 1938, p. 144). These garments were made of a coarse woollen diagonal twill (Hägg, 1986, p.68). Each hook had been hooked into an iron ring, which had been sewn into the lower edge of a garment that reached just below the knees. On the iron rings are tiny remains of linen, leading Hägg to suggest that the knee-length garment would have been made of linen, or of wool with a linen lining (Hägg 1986, p. 68).



Für die Körperbestattungen einmalig sind die Bronzehaken des Grabes Bj 905, die dem Plan nach an den Waden, gleich unter der Kniekehle lagen. Auf der Rückseite der Haken sassen Reste von grobem, Diagonalkörper aus Wolle, wahrscheinlich von einem Paar Gamaschen. Die Haken waren an beiden Beinen nach oben gerichtet, um in je einen Eisenring zu haken, der an der Unterkante der bis über die Knie reichenden Beinkleider festgenäht war. An den Eisenringen sitzen noch Reste von Leinwand, die darauf deuten, dass diese Beinkleider aus Leinwand bestanden, oder vielleicht aus Wollstoff mit Leinwandbesatz.

Hägg 1986, p. 68

Illustration Geijer 1938, p. 147

Haithabu

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. These fragments were the remains of 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). Both sets of textiles have been analysed further by Hägg (2016).

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 garment each fragment belong to is 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 have become 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 firsidiga 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 firsidiga 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: <...>

Exemplen 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

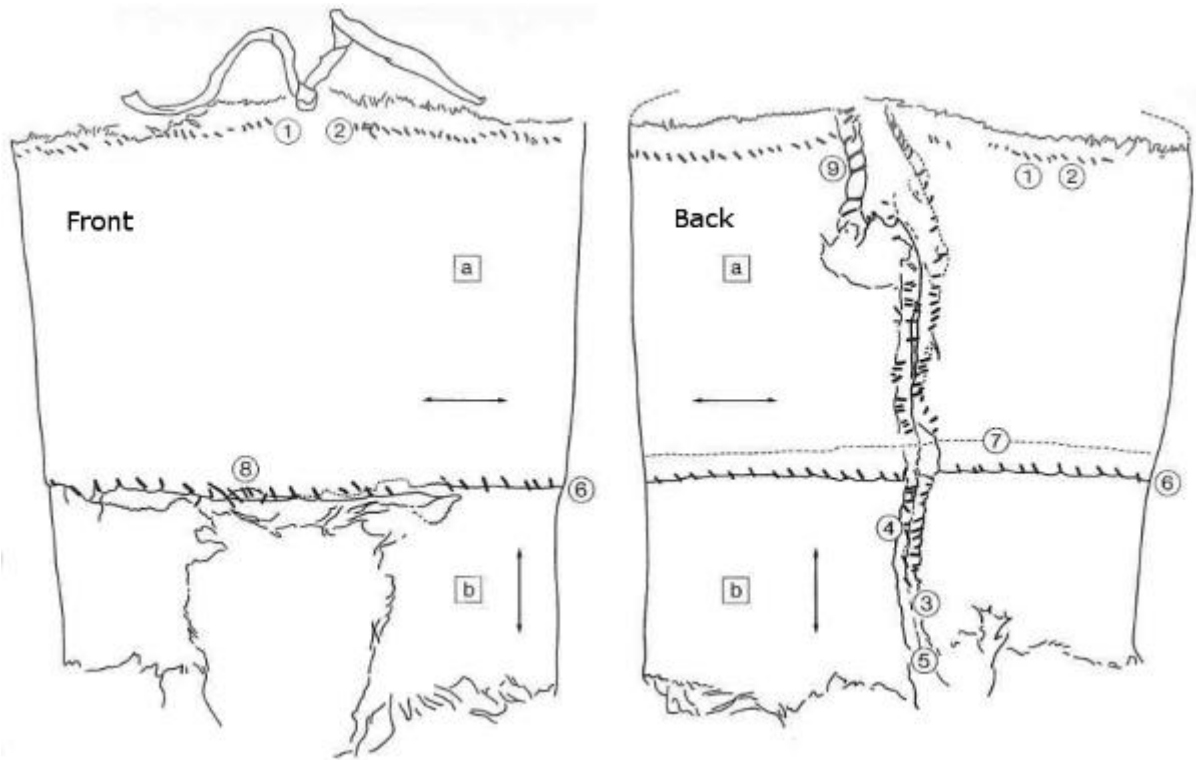
The hose fragments from the harbour

The harbour yielded a fragment (**H2**) identified as the upper part of a hose (*hosur*). It was made of medium-fine (0.15 cm thick) 2/2 twill in natural brown wool (Hägg 1984, p. 20). The warp is dark, and contains many covering hairs, while the weft is lighter and made from the inner wool of the sheep (Hägg 2016, p. 29).

The fragment consists of two pieces (**a** and **b**), that have been stitched together (seam 6-7 in the illustration) and folded and stitched into a tube (seam 3-5). (Hägg 1984, p. 20, 24).

- Fragment a: a band-shaped piece, cut with the warp running horizontally. Height 16-18 cm high and width 22.5 - 24 cm wide (when folded double). The upper edge of this fragment is hemmed (seam 1-2).
- Fragment b: The piece has been cut on the straight, with the warp running along the length of the garment. It is 21.5 - 22.5 cm wide (when folded double). Current height

is 11 cm, but the piece is torn along the bottom. There is a heavily abraded part of the fragment where it has been worn through.



Hägg 1984, p. 21, slightly modified

The total current height of the fragment is about 27 cm. The tube tapers slightly towards the bottom. To achieve this, the fabric has been lightly gathered along the horizontal seam (Hägg 2016, p. 29). The fabric is worn from use and there are two repair seams (8 and 9).

At the upper edge of fragment a, a leather band has been pulled through a hole and knotted. The ends of the strips are 12.5 cm and 13.5 cm long, and 0.4-1 cm and 0.8 cm wide respectively (Hägg 1984, p. 20, 24). The leather band is somewhat irregularly shaped, probably a leftover piece. This indicates that the arrangement is secondary, and that the hose originally was fastened by something else. The upper edge of fragment a has been cut at a slight angle to the weaving threads on both sides of the leather knot (Hägg 2016, p. 29).

Fragment 2. Oberer Teil einer Gamasche oder eines Langstrumpfes mit angeknüpftem Lederband. Aus naturbrauner Wolle, Kette dunkel, Schuß hell. Aus zwei Teilen (Teile a-b) mit einer Kappnaht (Naht 6-7) zusammengenäht, beide Teile in mittelfeinem Gleichgratkörper 2/2. Der Stoff ist umgebogen und röhrenförmig zugenäht (Naht 3-5), durch häufige Benutzung aber stark abgerieben. Nach unten ist das Stück unregelmäßig abgerissen. Es ist deshalb nicht mehr feststellbar, ob es sich um eine Gamasche oder einen mit Füßling versehenen Langstrumpf handelt. Erhaltene Höhe insgesamt etwa 27 cm. Stoffstärke 0,15 cm.

Teil a: bandförmig zugeschnitten, Höhe 16-18 cm, Breite (doppelt) 22,5-24 cm. Kette quer zur Höhe des Gewandstückes gelegt.

Teil b: Kette in Längsrichtung des Gewandes. Die Form dieses Musterteils ist folglich nicht mit der von Teil a identisch; es dürfte sich weiter unten am Bein erstreckt haben. Erhaltene Höhe max. 11 cm, Breite (doppelt) 21,5-22,5 cm. Es sind insgesamt 9 Nähte vorhanden, von denen wenigstens zwei (Naht 8-9) sekundär zugefügte Ausbesserungsnähte darstellen. Die übrigen gehören zu den beiden Verbindungsnahten, die das Stück in horizontaler beziehungsweise vertikaler Richtung durchqueren, und zum oberen Kantsaum (Naht 1-2). Das Lederband, eigentlich ein etwas unregelmäßig geformter, schmaler Streifen - wohl ein Zuschneiderest -, ist an

der oberen Saumkante der Gamasche oder des Strumpfes durch ein Loch gezogen und zugeknötet worden. Länge der Bandenden 12,5/13,5 cm, Breite 0,4-1/0,8 cm.
Hägg 1984, p. 20, 24

Das Exemplar aus dem Hafen ist rohrförmig und verjüngt sich leicht nach unten. Oben endet es in einer Saumkante, an der ein Lederstreifen - wohl ein Zuschneiderest - befestigt ist. Die provisorische Art der Befestigung und der zufällige Charakter des Lederbandes weisen diese Anordnung als sekundär aus. Etwa 20 cm unterhalb des an der oberen Saumkante angebrachten Lederbandes sind deutlich Abriebspuren vom Knie sowie Reste von Ausbesserungsnahten zu erkennen. Demnach befand sich die Befestigung an der Vorderseite des Beines. Unten ist das Stück abgerissen. Es bleibt deshalb ungeklärt, ob es sich um einen Strumpf handelt, der ursprünglich mit einem Füssling versehen war, oder um eine Gamasche. Als Material wurde in beiden Fällen naturfarbene Wolle in Gleichgratköper 2/2 benutzt. Die Qualität und die Fadenzahlen stimmen ebenfalls nahe überein: Kette dunkel mit vielen Deckhaaren, Schuss hell und wollig aus Unterhaaren.

Das Schnittmuster besteht übereinstimmend aus zwei miteinander waagrecht vernähten, bandartig um das Bein liegenden Stoffstreifen, die auf der Hinterseite des Beines ausserdem durch eine senkrechte Naht verbunden sind. Beim Stück aus dem Hafen ist die obere Saumkante an beiden Seiten des Lederknotens in leichter Schräge zu den Webfäden geschnitten. Um ihn nach unten zu verjüngen, ist der Stoff an der Verbindungsnaht mit dem anderen Teil leicht zusammengerafft. Die Musterteile sind so miteinander vernäht, dass die Kettfäden in unterschiedlicher Richtung liegen: im unteren Teil senkrecht, im oberen waagrecht. Diese Gliederung der Stoffflächen dürfte herstellungstechnisch nicht notwendig gewesen sein. Andererseits erlaubt das Muster durch die Addition eines oben um das Bein gelegten Stoffstreifens eine unkomplizierte Verlängerung und Erweiterung des Kleidungsstückes.

Hägg 2016, p. 29

Hose fragments from the settlement

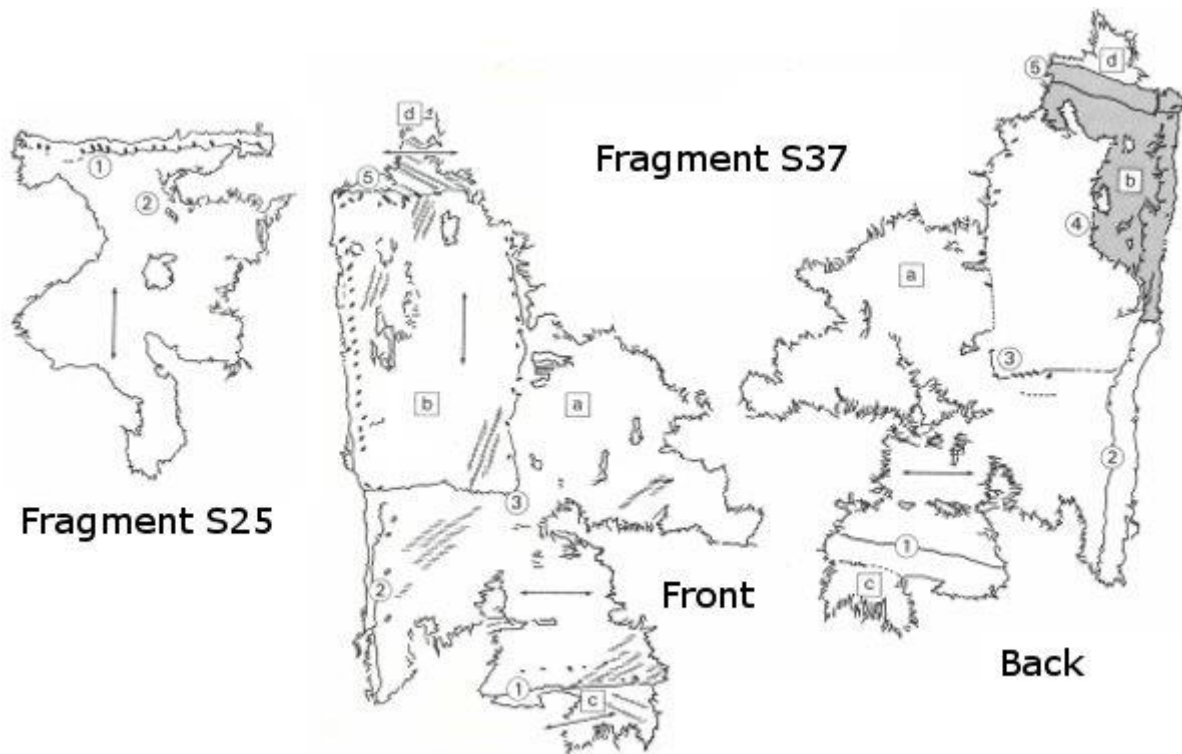
The Haithabu settlement and harbour have similar proportions of high quality weaves. However, remains from the settlement tend to be more worn and often show traces of being patched, unlike the garments from the harbour.

There are two fragments from the settlement (**S25** and **S37**) that are identified as possibly belonging to a hose. The fragments are made from medium fine 2/2 woollen twill, and are believed to come from the same garment due to the similar quality of their fabric, and the position of the finds in relation to each other (Hägg 1991, p. 29).

Fragment S25 is worn. Its surface is abraded by wear, but there is no trace of it originally being felted or roughened. One edge is folded and stitched in place (seam 1), creating a hem. There is also some light yarn left from where a patch has been torn off (seam 2).

Fragment S37 is also heavily worn. The main fragment (a) has remains of three straight edges that have been cut, folded and sewn to other pieces (c, d and e) with flat-felled seams (*Kappnaht*). Very little of these pieces remain, especially of piece e (attached by seam 2). The direction of the warp is the same for the main fragment and the adjacent pieces. The use of flat-felled seams to connect the pieces of the garment indicates that there was no lining.

There is a rectangular patch (b), whose edges have been folded twice and attached to the main fragment (a) by double rows of stitches (seam 3). Also, the frayed edges of the hole have been secured by stitching (seam 4) to the patch. The warp of the patch run perpendicular to the warp in the rest of the pieces (Hägg 1991, p. 29).



Hägg 1991, drawing modified from p 30

Fragment S 25: Zeretztes Gewebe aus mittelfeinem Gleichgratköper 2/2, stellenweise stark eingelaufen, mit abgeriebenen Oberflächen jedoch ohne Spuren einer ursprünglichen Walkung oder Rauhung. Ein Rand ist umgelegt und in Richtung der Schußfäden genäht (Naht 1). Daneben befinden sich noch helle Garne eines abgerissenen Flicklappens (Naht 2). Die Gratstreifen laufen von links nach rechts (z-Grat).

Fragment S 37: Stark abgenutzter Rest aus mittelfeinem Gleichgratköper 2/2. Das Fragment besteht aus einem größeren Teil (Teil a) mit Resten von drei geradlinig geschnittenen und genähten Rändern und einem angenähten, vierseitigen Flicklappen (Teil b). Die Randnähte - Verbindungsnahte vom Kappnahttyp (Naht 1,2,5) - haben Teil a an allen drei Rändern mit anderen Musterteilen verbunden. Die Breite des mittleren Teils zwischen den seitlich angenähten Stücken (Teil c-d) beträgt 25,5 cm.

Von den angrenzenden Musterteilen ist wenig erhalten: Bei Naht 1 (Teil c) und bei Naht 5 (Teil d) ist nur so viel übrig, daß die Richtungen der Gratstreifen deutlich erkennbar sind. In diesen beiden Teilen laufen die Gratstreifen auf der rechten Stoffseite einheitlich von links nach rechts (z-Grat), im mittleren Teil (Teil a) umgekehrt von rechts nach links (s-Grat). Die Richtung der Kettfäden ist dagegen in allen Teilen - abgesehen vom Flicklappen - gleich. Bei der geraden, etwa 25 cm langen Naht am Rande von Teil a (Naht 2) war ein weiterer Musterteil (Teil e), von dem fast nichts erhalten ist, angesetzt.

Die Kappnahtkonstruktion der Verbindungsnahte weist darauf hin, daß der Stoff kein Futter besessen haben dürfte. Die Ränder des in Rechteckform geschnittenen Flicklappens (Teil b) sind ebenfalls zweimal umgeschlagen und mit doppelten Stichreihen (Naht 3) an der Unterlage befestigt. Außerdem hat man bei Flickern auch die ausgefransten Ränder des Loches mit Stichen gesichert (Naht 4).

Hägg 1991, p. 29

The fragments are too small to provide a definitive identification of the garment they belonged to. According to Hägg (1991, p. 29) the patch in **S37** and the weave indicate that it was a simple garment. The quality of the fabric is comparable with the hose found in Haithabu harbour (**H2**). While this is not enough to identify them as the same type of garment, she argues that the dimensions of the fragments (fairly narrow pieces) and the use of flat-felled seams (very rare in the textile finds from Haithabu) indicates that this is a hose of some kind.

I have chosen to mention the fragments for reasons of completeness, but I find the identification too uncertain (and the fragments too small) for them to be of use when interpreting the possible shape and construction of Viking Age hose.

Skjoldehamn

In 1936 a body dressed in several garments and wrapped in a large woollen blanket was discovered in a bog on Andøya, Norway. It was dug up by a farmer, reburied in a different place, dug up again a few months later and sent to Tromsø museum. The textiles were first analysed by Gjessing ([1938](#)) and later by Løvliid ([2009](#)).

Based on the cut of the clothing, Gjessing (1938, p. 69-70) believed it to be from the late medieval period. However, the blanket has later been carbon dated twice; once in 1986, placing it in the period 1180-1280, and once in 2002, where it is dated to 936-1023 (Løvliid 2009, p. 21-22).

There is much uncertainty surrounding the gender and ethnicity of the person found at Skjoldehamn. Although the gender-specific parts of the skeleton are missing, Holck and Sellevold (paraphrased in Løvliid 2009, p. 20) both concluded that the slight build of the body made it unlikely that the person was a Norse man.

A DNA analysis carried out in 1999 by Arvidsson and Götherström (referenced in Løvliid 2009, p. 22) found neither a Y-chromosome nor the Sami-specific genetic marker. Based on this they suggested the body was probably a Norse woman. However, later developments in the field of genetics casts doubt on these conclusions. The lack of Y-chromosome could be explained by deterioration, and Sami identity is not only a matter of genetics (Götherström, quoted in Løvliid 2009, p. 22). There is several similarities also between the Skjoldehamn decoration and Sami clothing (Løvliid [2010](#)).

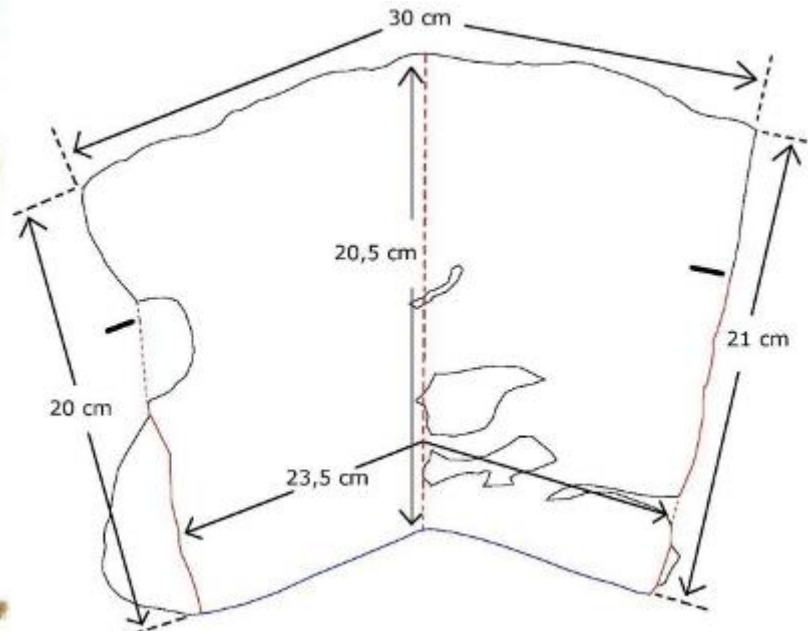
The uncertainty surrounding the identity of the wearer, and the dating, means that the find must be treated with caution. However, even if it should represent Sami fashion instead of Norse, it tells us something about tailoring techniques that would have been observed by the Vikings.

Short socks from Skjoldehamn

Three fragments from a pair of short socks (*leistr*) were found within the shoes; one almost complete shaft (**L1**), the upper part of the other shaft (**L2**), and part of a sock tip (**L3**) (Løvliid 2009, p. 123). All of the pieces were sewn from a woollen twill (Gjessing 1938, p. 51).

Fragment L1 is a fairly well-preserved shaft of one of the socks. It is 20-21 cm high at the front and 20.5 cm at the back. It has a circumference of 30 cm at the top and 23.5 cm at the bottom. The heel of the sock has been created by folding the shaft lengthwise (along the dashed red line in the drawing), and then sewing them together along the bottom edge (blue lines in the drawing), using woollen yarn and a running stitch (Løvliid 2009, p. 124-125).

The upper 2.5 cm of both sides has been preserved. The edge on the right side has been secured by a blanket stitch (possibly after folding it towards the inside). The edge on the left has been folded towards the inside and overcast. The leftmost 5.5 cm of the top edge has been overcast, while the rest is secured by blanket stitches.



Løvliid 2009, p 123, 127

A small fragment of 2/2 woollen twill (probably remains of the sock tip) is sewn on to the right side of the shaft, roughly 11.5 cm below the top.

Alle kantene på øverst på skaftet er sårkanter, så de har blitt sikret på forskjellige vis. De øverste 2,5 cm av høyre forkant (kanten er ødelagt nedenfor dette) har muligens blitt brettet inn noe før den har blitt påført tungesting i lyst gyllent Z- garn i par. Denne fortsetter 3 cm inn på overkanten før den avløses av grå tungesting i Z- garn. Denne avløses 5,5 cm fra venstre forkant av en kastestingsøm i gyllent Z- garn. Venstre forkant er brettet inn og kastesømmen går her over sårkanten på vrangen. Stingene kan delvis sees på rettsiden. Det er ingen spor etter leggtråd her. Sømmen har i hvert fall gått 2,5 cm ned på forkanten med under dette er forkanten delvis ødelagt.

Løvliid 2009, p. 125

Fragment L2 is the remains of the shaft of the other sock. The top edge is 26.5 cm long and has been overcast with a woollen yarn. (Løvliid 2009, p. 125).

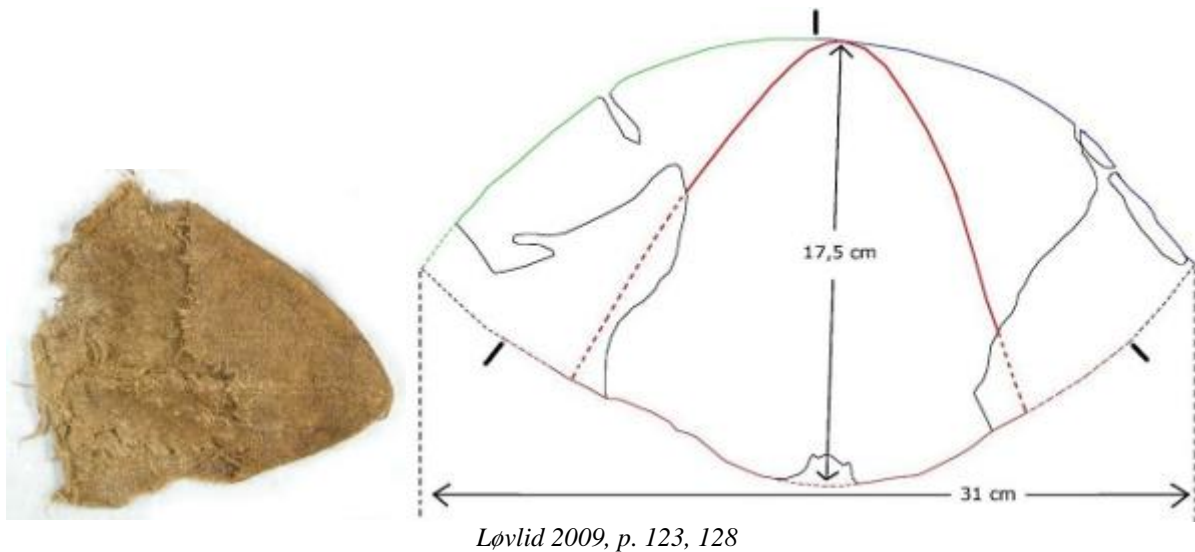
One side is torn 4,3 cm below the top, and the side edge has been overcast. A selvedge runs along the other side, and there is another fragment stitched to the side 6,5 cm from the top edge. The fragment is currently 5 cm high, and is probably the remains of the sock tip.



L2 har en konveks overkant som måler 26,5 cm. Den ene forkanten er en sårkant og en kastestingsøm i lyst gyllent Z- garn kan følges 4,3 cm ned fra overkant. Nedenfor dette er forkanten ødelagt. Sømmen fortsetter langs overkanten og ender 4,2 cm fra den andre forkanten, der en kastestingsøm i grågyllent Z2S- garn overtar. Den andre forkanten er en jarekant, der varptrådene ligger tett. Kanten er naturlig nok ikke overkastet. 6,5 cm ned fra overkanten finnes det på denne siden rester etter et påsydd stykke. En søm i lyst gyllent Z2S- garn kan sees både på rettsiden og vrangnsiden, og på vrangnsiden kan det virke som det er en leggsøm med leggtråd i samme garn. Det påsydde stykket kan kun følges 5 cm nedover fordi skaftet ikke er bevart nedenfor dette. Stykket er i likhet med stykket på L1 trolig rester av lesetuppen.

Løvliid 2009, p. 125, photo p. 123

Fragment L3 is only partly preserved. Extrapolating from the existing fragment indicates that the original piece may have been shaped like an eye. It was folded in two places (thick red lines in the drawing) and its outer edges (blue and green line) have been stitched together, creating a sock tip that would have covered the front of the foot (Løvliid 2009, p. 126).



The tip is currently 17.5 cm long. Along the lower edge (thin red line) the cloth has been folded inwards in places, which may indicate a seam once ran here. However, there is no remains of another sock piece fastened here, or in other places on L3. The original length of the tip is thus unknown.

L3 has a markedly different warp thread count and thread thickness than the small piece of the sock tip stitched to L1. It is thus very unlikely that these two fragments come from the same sock tip. Instead L3 and L2 must be part of the same sock (Løvliid 2009, p. 126).

In addition to the socks, a piece of woollen twill were wrapped around each foot (Gjessing 1938, p. 51). It is unclear whether these foot-cloths were found on the inside or the outside of the socks.

York

An excavation at 16-22 Coppergate in York in the period 1976 - 1981 yielded a significant amount of textile material from the Viking Age, including one of the few known pieces of leg wear.



Photograph: Hilde Thunem ([large version](#) 2.2 MB)

The remains of a woollen sock or shoe-liner were found in the backyard of one of the 10th century wattle buildings at Coppergate in York ([Walton 1989](#), p. 341-345). It was created using nålebinding (a technique worked with a coarse needle and a length of plied yarn).

The sock is 26 cm long from toe to heel, has a circumference of 32 cm at the ankle, and 27 cm at the broadest part of the foot. It is very worn in places, and has a large hole at the heel and a tear down the vamp throat. At the ball of the foot, there is an outline in wool stitching that probably once fastened a rectangular patch, covering the hole underneath the foot and wrapping round to the top of the sock. There is nothing left of the patch itself however, which suggests that it was made of flax or other vegetable fibre, which have deteriorated.



Photograph: Hilde Thunem, right side ([large version](#) 1.5 MB), left side ([large version](#) 2 MB) and back ([large version](#) 1.5 MB)

The sock has been made from a smooth and even (plied S2Z) woollen yarn, and currently ends at the ankle. The sock is undyed, with the exception of the last row at the top of the ankle, which is worked in a dark yarn dyed with madder.

Because this technique [nålebinding] does not unravel, no special finishing border is needed, and it is therefore uncertain whether this last row was a decorative edge or whether the sock continued into a stocking with a red-coloured leg.

Walton 1989, p. 343.

Peripheral finds

Most of the archaeological evidence for clothing from the Viking Age is fragmented and hard to interpret, and this is definitively the case for leg clothing. As the finds are so few, it may be useful to consider some of the well-preserved hose finds before and after the Viking Age. Although not from the Viking Age, they can show us something about construction techniques and clothing development in the nearby periods.

Martres-de-Veyre

In 1893 several graves were excavated at Martres-de-Veyre in France. Grave D contained the body of a young woman from the 2nd century AD who was wearing a pair of woollen hose (among other garments, possibly including a pair of cloth shoes or slippers).

The hose were ca. 55 cm long, reaching above the knee, and made from a woollen twill. Each shaft was made from a single piece of fabric, folded into a tube with a seam running along the back of the leg. A foot piece was sewn to the shaft, and there was a seam running along the bottom of the foot ([Kania 2010](#), p. 375).

The upper edge of the hose ended in fringes that may have covered a garter (if one was used).



Photo copyright of the professors [Michael and Neathery Fuller](#), published with permission.

Unter der einfachen Tunika trug die junge Frau ein Paar Strümpfe, die mehr als kniehoch waren. Die Beinlinge bestehen jeweils aus einem Stück Stoff, das auf der Beinrückseite zu einer Röhre zusammengenäht ist. Am unteren Ende ist ein Fußteil angenäht, das eine Naht unten aufweist. Der Abschluß oben ist mit Fransen versehen, die möglicherweise herunterfallen und damit ein eventuell verwendetes Strumpfband verdecken sollten.

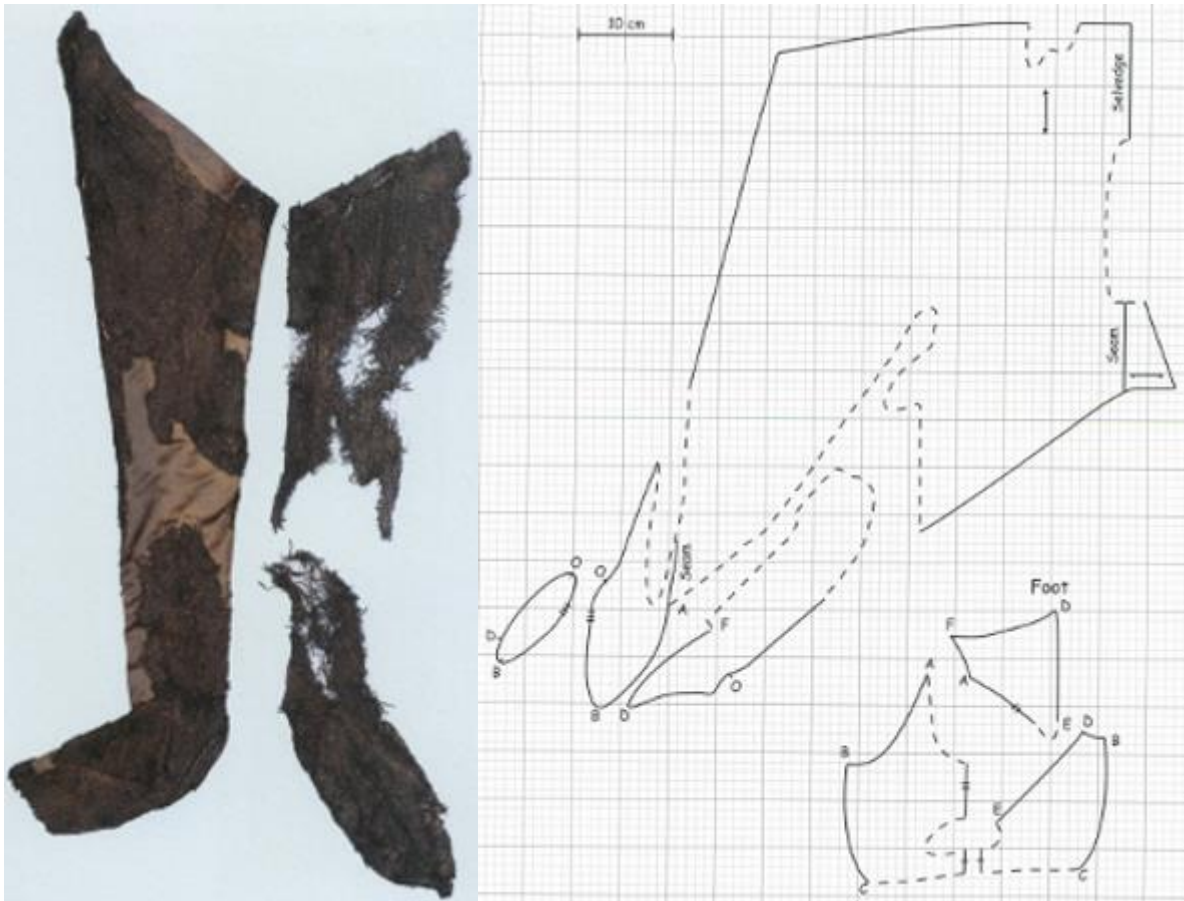
Kania 2010, p. 375

Herjolfsnes

More than 50 garments in various states of preservation were found in 1921 during an excavation of a churchyard in the Norse settlement of Herjolfsnes, Greenland. Many of the garments had been used as a shroud for the bodies, instead of a coffin. This meant that they did not necessarily fit the body of the deceased. The textiles were examined during the excavation by Nørlund, and were then repaired (by stitching fragments together) as part of the conservation process. The textiles were reexamined in 1997 ([Østergård 2004](#)). Radio carbon dating places the garments in the time period 1150 - 1530 AD.

Hose D10613 is sewn in 2/2 twill that originally was almost black. It is 88 cm long (from the top angle to the tip of the toe), with a circumference of 55 cm at the top. The shaft was cut on the bias, and there is a selvedge along one side of the top angle. Part of a narrow gusset has been preserved, sewn to the selvedge ([Østergård 2004](#), p. 223).

The seam of the hose would have been running along the back of the leg, and the top would have been fastened to a belt or a garment.



Østergård 2004, p. 223 (photo of D10613 and D10614), p. 295 (pattern of D10613)

The foot was created from several separate pieces. One should be aware however, that few of the original seams are preserved. In addition, it is doubtful whether the 1920 excavation managed to recover all the pieces (or assembled them correctly).

The foot consists of six pieces, the two longest of which continue from midway below the foot around the heel up into the leg. Three pieces start from one and the same point under the sole. The fourth is a "heel". (...) The stocking foot is open at the toes, but to what extent this is the original opening is difficult to decide.
Østergård 2004, p. 223-224

Hose D10614 is sewn in a 2/2 woollen twill, originally dark and light grey. Although the hose is poorly preserved, some information about the cut can be gleaned from the fragments. The largest fragment (48 cm long) is cut on the bias, has a selvedge along one edge of the top angle, and a sewn-on gusset, just like **D10613**. Another similarity is the construction of the foot, which has been pieced together from several pieces. The seams that remain are all original (*Østergård 2004, p. 224 - 225*).

The foot is composed of six largish pieces, the two longest of which continue from the middle under the foot around the heel up into the leg. The pieces are not sewn together above the foot. The other pieces are more or less sewn together leaving finished seam allowances towards the reverse side as well as torn-off edges.
Østergård 2004, p. 225

Due to the similarities in construction of the shafts and feet, Nørlund (referred in *Østergård 2004, p. 224*) suggests that D10613 and D10614 forms a pair, even though they have different colors.

Hose D10615 is sewn in (originally white) woollen tabby. The shaft is 45.5 cm long, with an upper circumference of 42 cm. The top edge have been overcast with 1,5-2 cm long stitches. The lower part is very fragmented, but there are two vertical vents 16 cm long. One of the vents has been cut parallell with the warp, while the other was cut diagonal to the warp (Østergård 2004, p. 225-226).



Østergård 2004, p. 224

A foot piece has been sewn on, but the seam is new (possibly from 1920) and the front piece is missing, making the whole placement of the piece very uncertain. According to Østergård (2004, p. 226), Nørlund believed the existing foot piece to have been a strap behind the heel, and that a real foot piece (now gone) once was sewn to the shaft.



Hose D10616 is a footless hose, sewn in 2/2 woollen (originally white) twill. It is 42-43 cm high, with a circumference of 36 cm at the top and 25 at the bottom (Østergård 2004, p. 227).

At the top of the stocking is a starting border, and a few centimetres of a selvedge has been preserved at right angles to the starting border.

At the bottom of the stocking there are two vertical vents roughly 7 cm high. Along the edges of the vents are remains of a seam allowance folded towards the reverse side.

Photo from Østergård 2004, p. 226

Nørlund (paraphrased in Østergård 2004, p. 227) described that the hose was sewn together at the back of the leg, with a strap probably used to hold it in place on the leg lying beside it. However, the current preservation of the hose is very poor, and no seams or strap remain.

Hose D10618 is another currently footless hose, made from 2/2 woollen (originally white) twill. It is 42-44 cm high, with a circumference of 34 cm at the top and 32 cm at the bottom. It is curved at the bottom, and the length at the top of the curve is 34 cm, The left side of the hose slopes inwards towards the foot (Østergård 2004, p. 228).

Photo from Østergård 2004, p. 228

Nørlund (paraphrased in Østergård 2004, p. 228) described a seam running along the back of the leg. No seam remains, but there is a narrow fold forming part of a seam allowance.



Bremen



An archiepiscopal grave in Bremen from the first half of the 1200s contained a pair of woollen hose (in addition to the symbolic silk hose and other garments for the Archbishop).

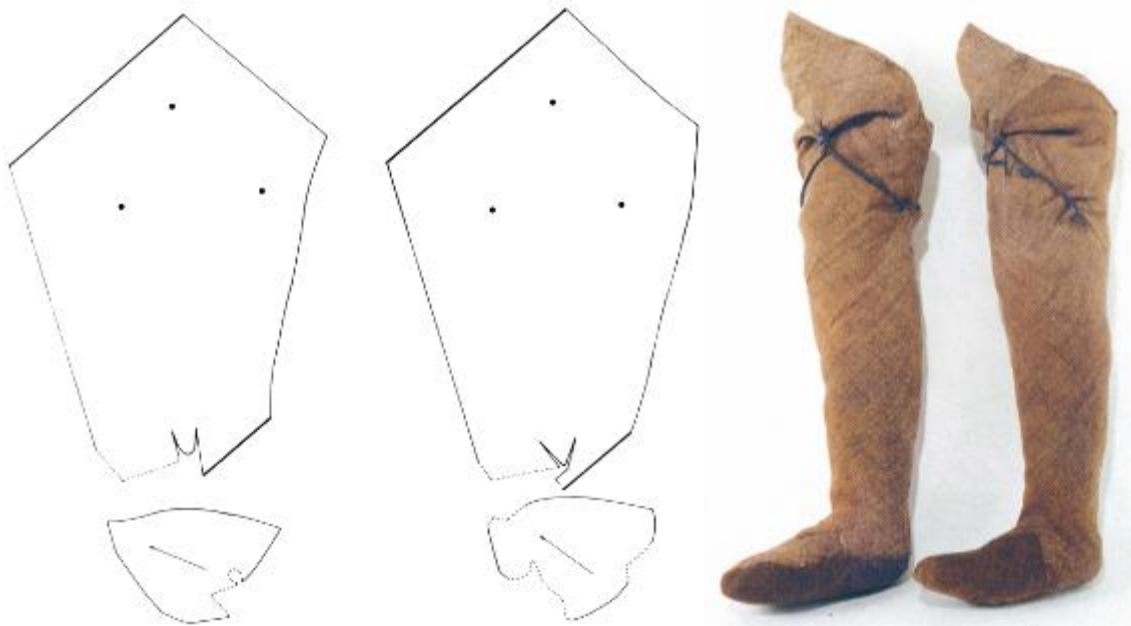
Illustration: Nockert 1985, p. 98

The hose has two shafts made from a single piece each, and with the seam running along the back. There is two vents at the bottom of each shaft, creating two side flaps and a small front flap. The upper part of each shaft is very wide and consists of several pieces of fabric before narrowing significantly towards the ankle. In addition to the shafts there are two foot pieces, one for each foot. The hose had a lining made of linen (Nockert 1985, p. 98).

Bocksten

The body of a man was found in a bog in Bocksten in Sweden in 1936. It was dug up by a farmer, and later taken into the care of Varbergs museum. The textiles were first analysed by museum director Sandklef, and later by Nockert (1985). The find is dated to about 1350.

The man was wearing tigh-high woollen hose, made from woollen twill. The cloth was originally fulled, but the fulling has been worn away on the outside. Each shaft was made of a single piece, cut on the bias and sewn together along the back of the leg. At the bottom, two vents were cut, creating two side flaps and a frontal flap. The edges of the side flaps have been folded, while the frontal flap have traces of stitches. A complete loom width was used for each leg, and both selvages are extant, one at the top of the leg and one beneath the foot of the right hose (Nockert 1985, p. 58).



Nockert 1985, p. 63.

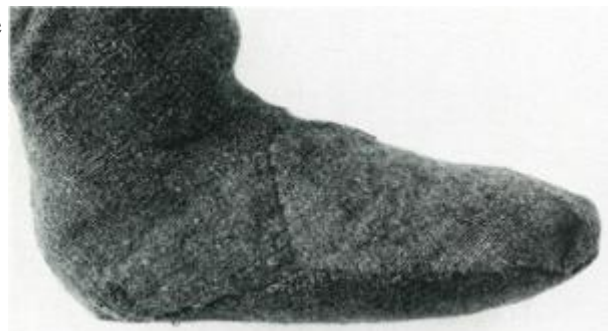
Hosorna har varit hopsydd med söm baktill. Nedtill är de uppklipta så att ett kilformat stycke på vardera sidan om kilen går ned på fotens sidor. Mittfliken saknar fällvikning men har stygnmärken runt om, ca 2 stygn/cm. De rektangulära styckena får båda fällvikningar mot rättsidan närmast mittfliken. Längs stadkanten under foten finns inga synliga stygnmärken.

Nockert 1985, p. 58.

A leather strip (left leg) or two twined leather strips (right leg) had been fastened on each side of the knees and at the top of the hose. Respectively 10 and 2.5 cm of the leather strips remained above the highest fastening point. According to Nockert (1985 p. 58) this part would originally have been at least 40 cm, in order to reach the belt of the wearer.

In addition to the shafts there were some extra fragments that appear to be part of the hose. While there were no seams left, there were stitch holes that allowed Nockert to place these fragments in relation to each other.

Both feet appear to have had a triangular piece that was folded and sewn together along two edges, creating a sock tip that would have covered the front of the foot. There is an impression of the front flap of the shaft in the fabric on top of each of the triangular pieces, showing that they were stitched to the shaft here.



This means that the seam creating the sock tip was running along the bottom of the foot. The side pieces of the shaft were laid with an overlap with the sock tip, and folded beneath the foot (Nockert 1985, p. 59-63, photo p. 61).

Mått: 78 cm långa från foten till spetsen fram och 65 cm från foten till lägsta punkten bak. Vidden nedtill är 31 cm, upp till 51 cm. Forlängd: ca 26 cm.

Nockert 1985, p. 64.

The right sock has a separate sole stitched to the bottom, possibly to protect the seams. The left sock tip is very worn at the bottom, but have no trace of a separate sole. The hose-clad feet were wrapped in foot cloths made from pieces of worn clothing.



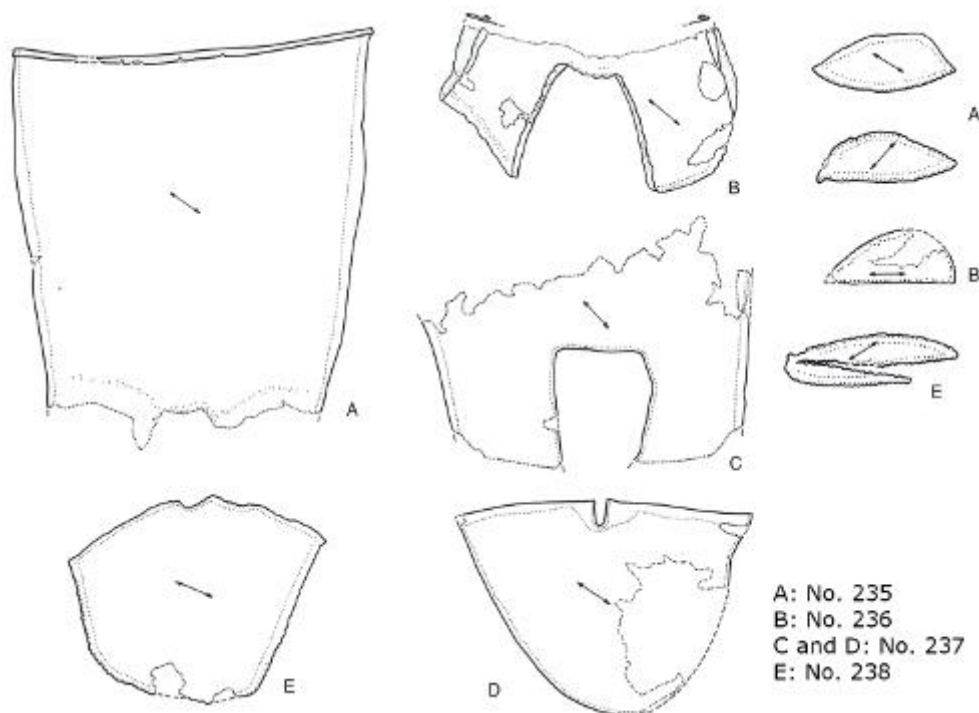
In addition there was a third hose, with a slightly different cut than the two worn by the Bocksten man. There was a large piece, forming the shaft and cut on the bias. 10 cm below the top of the shaft is an area that has been stretched and worn (probably from the knee).

The hose does not have a complete foot. Instead, the triangular piece at the bottom covered the foot and passed underneath it like a loop. It is currently impossible to discover whether the piece originally was sewn together beneath the foot. There are two wedge-shaped pieces that may have been part of the top of the hose, or may belong to a different garment (Nockert 1985, p. 65).

London

Archaeological excavations in the City of London during the 1970s and early 1980s yielded a large quantity of medieval textiles.

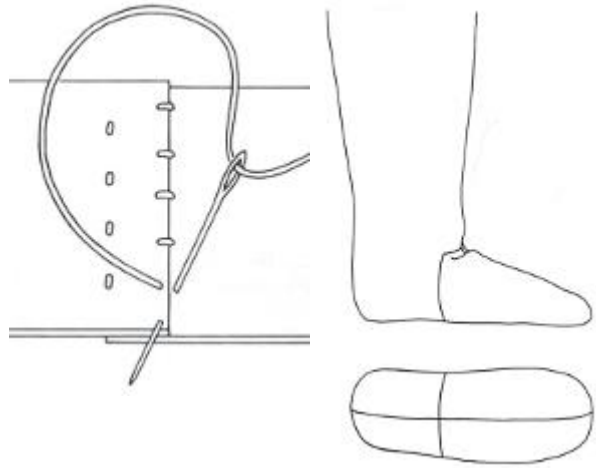
There was a group of well-preserved sections of hose from the late 14th-century, made of medium weight tabby-woven cloth dyed with madder (No 235). The top edge of the largest piece has been folded a single time and top-stitched with back-stitches. The width, measured along the hem is 28 cm, indicating that the hose was relatively short, and made for a slim leg. The remaining fragments shows that the section covering the front of the foot was attached at the centre and had additional pieces attached at the sides. (Crowfoot, Pritchard & Staniland 2001, p. 186-187).



Leg and foot pieces of hose from London: (A) No 235, (B) No 236, (C) and (D) No 237, (E) No 238. Crowfoot et al. p. 188 and 189, slightly modified.

Some 14th century fragments demonstrate the continuation of side flaps over the ankles and heel (No 236 and 237 C), while other pieces (No 237 D and 238) covered the instep and front of the foot (Crowfoot et al. 2001, p. 188, 190).

The foot sections were joined by overlapping edges whipstitched in place. This stitch is not found in any other fragments from London, and thus may have been used only for hose feet (Crowfoot et al. 2001, p. 153, 155).



Illustrations: Crowfoot et al. 2001, 189, 155.

The back of the hose was sewn with either running or back-stitches. The seam allowance of each piece was held in place by tiny running stitches, worked from the outside, 2-3 mm from the seam (Crowfoot et al. 2001, p. 187).

Interpreting the facts

That is the end of the hard evidence, and we're entering the land of interpretations. Due to the limited and fragmentary archaeological evidence for Viking Age hose and socks, we need to combine it with other (and less reliable) sources, like poetry and illustrations, when attempting to reconstruct these garments.

Hosur, sokkr and leistr sewn from cloth

Hose, with or without a foot, were in use both before and after the Viking Age, as shown by the finds at [Martres-de-Veyre](#), [Herjolfsnes](#), [Bremen](#), [Bocksten](#) and [London](#). All of these finds appear to share a basic construction pattern.

Each hose have a shaft, usually created from a single piece of fabric (with the addition of a small gusset for [D10613](#) and [D10614](#)) and with a seam running along the back of the leg. The hose from Bremen, differs slightly with its wide top, created from several pieces, but the rest of the shaft follows the same shape as the other finds.

The hose from Bremen, Bocksten and most of the Herjolfsnes hose have two vents cut in the bottom of the shaft, creating a front flap and two side flaps. The hose from the City of London excavations and [D10618](#) have removed the front flap, and only the side flaps remain.

Several of the hose are currently without foot pieces (D10615, D10616, D10618), and some may have been footless originally. The majority of the hose where the foot pieces remain, have a single foot piece for each foot, with the seam running underneath the foot.

The length varies, from just below the knee ([D10615](#), [D10616](#), D10618 are all 42-45 cm long), to just above the knee (Martres-de-Veyre, 55 cm long), up til thigh height (Bocksten, D10613 and D10614).

Hose from Haithabu

The fragments [H2 a and b](#) from Haithabu harbour provides evidence that hose were worn during the Viking Age, and while the fragments are far from a complete garment, there are several details that provide information about how this hose may have looked.

Judging by the width of the garment (circumference of 45-48 cm at the top) and the presence of the leather band, the preserved fragment covered the upper part of the leg. Hägg (1984, p. 24) finds it likely that the leather band was used to tie it to a belt (similarly to the Bocksten hose), which places the vertical seam along the back of the leg. This fits the construction pattern of hose both before and after the Viking Age.

Hägg further suggests that the heavily abraded area of fragment H2 b is due to wear from the knee, and places one repair seam (seam 8) just above the knee. Thus, the hose would have reached about 20 cm above the knee. The signs of wear, the mending seams and the makeshift solution with the leather strap point to an intensive use of the garment. However, there is no patches, unlike the clothing from the settlement at Haithabu (Hägg 1984, p. 24).

The division of the hose shaft into two pieces, connected by a horizontal seam, has not been found in similar hose from before or after the Viking Age. Hägg (2016, p. 29) suggests that by adding a fabric strip placed around the top of the leg, the pattern allows an uncomplicated lengthening and widening of the garment. However, given a single example it is impossible to judge whether this is a unique phenomenon or a specific type of pattern.

Fragment H2 b is irregularly torn at the bottom. It is therefore not possible to determine whether it originally was a footless or footed hose.

Socks from Skjoldehamn

The Skjoldehamn socks were much shorter than the hose found at Haithabu. The best preserved shaft ([L1](#)) is 20-21 cm long from the top edge to the seam running underneath the foot. The shaft has been folded so that there is an opening along the front of the leg. This is a deviation from the basic construction pattern shared by other hose finds, with a seam along the back of the shafts.

På det som trolig har vært oversiden på lestepuppen løper en søm som ender ved tuppen. At dette er oversiden indikeres av det påsydde stykket på fragment L1. Selv om dette stykket er noe ødelagt akkurat der det møter hælsømmen, er det ingenting som tyder på at det har hatt en søm her. Sømmen har derfor vært på det som trolig må ha vært oversiden.
Løvliid 2009, p. 127, illustration p. 128

Each shaft would have had a foot piece sewn to it, of which only [L3](#) remains. The fragment of a foot piece sewn to [L2](#) indicates that it would have been stitched to the shaft about 6.5 cm from the top. When examining the foot piece fragment stitched to L1 closely, Løvliid finds no traces of seams at the bottom, where the fragment meets the bottom seam of the shaft. From this, he concludes that the foot piece would have had the seam running along the top of the foot (Løvliid 2009, p. 127).



None of the peripheral finds of footed hose from before or after the Viking Age have the seam running along the top of the foot. As Løvlid's interpretation is based on the lack of a seam at the bottom of the tiny (and deteriorated) part of the foot piece fragment sewn to L1, an alternative interpretation could be that the seam has disappeared. However, the Skjoldehamn socks already diverges from the usual pattern with their opening in the front. It is therefore conceivable that they diverged in other ways as well.

Who would have been wearing them? With what?

Hosur, sokkr and leistr would not have been worn in isolation. Due to the limited archaeological evidence, it is however difficult to know what garment combinations would have been usual during the Viking Age.

The short socks found at Skjoldehamn were worn with an ankle length brók and ankle bands wound around the brók legs. This ensemble would have covered the entire leg. There is however, also evidence for hose, stockings or leg-windings being combined with shorter brækr. The bronze hooks found at the knees of the skeleton in Birka grave [905](#) indicate leg wear worn together with a knee-length brók. Furthermore, the hose from Haithabu harbour would have reached above the knee, and may have been combined with a short brók, other kind of underwear (or perhaps nothing at all).

According to Owen-Crocker ([2004](#), p. 256-257) old English distinguishes between a sock (*meon* or *socc*) and hose (*hosa*). The Rule of Saint Benedict, a book of precepts for monks (written around AD 530-550, and followed for centuries afterwards), expects monks to have *both* *soccas* and *hosan*. Owen-Crocker interprets this as an indication that socks and hose were worn simultaneously, instead of as alternatives. While this description of monastic life is not directly applicable to the Vikings, it gives an indication of the use of socks and hose among people in the relevant period. In addition, the needlebound sock from York is an example of a sock that could very well have been combined with footless hose of some kind.

Looking at the pictorial evidence, there are several Viking Age picture stones and silver figurines showing people that might be wearing hosur, sokkr or leistr. Unfortunately, it is usually impossible to determine whether these figures are wearing leg wear, or if they are walking barefoot. One exception is the stone from Etelhem, Gotland, where the three figures at the top all have double lines drawn below the knee. This is possibly depicting a garter (*hosna-reim*) tying the hose or stocking. The lines at the knee of the rider may be a garter as well, or meant to separate the brók from the hose or stocking.





Photos of the Etelhem picture stone

In the Winchester *Liber Vitae*, the Danish King Cnut is also wearing hose or socking with elaborate garters. However, it is hard to tell from this illustration whether it shows a hose that continues above the knee, or if Cnut is wearing knee-length stockings combined with a very slim brók.



The archaeological evidence do not tell us whether either of leistr, sokkr or hosur were garments worn only by a specific gender. The Haithabu hose and the York sock were not found in connection with a body at all. Grave 905 at Birka contained a man, while the Skjoldehamn body may have been a woman.

The hose from Bocksten and Bremen, and the numerous illustrations of men with hose in medieval manuscripts, demonstrate that men at least were wearing this type of garment after the Viking age. In addition, most of the figures in picture stones that are wearing something that could be hose, appears to be men (from the context). Thus, it is likely that Viking men were wearing hose, and probably also socks.

As for women, the picture stones show them wearing long, often sweeping garments, and thus provide no clue as to what might have been worn beneath them. However, women were wearing knee-length hose before the Viking age, as demonstrated by the find at Matres-de-Veyre and the fragments of hose or leg bindings found in the grave of queen Arnegunde ([NESAT X](#), p. 210).

In addition there are illustrations of medieval women wearing knee-length hose or stockings, like e.g. the picture of Ruth from the Crusader Bible.



Illustration: [The Crusader Bible](#), Fol. 18

Taken together, this evidence indicates that some kind of knee-length hose would have been worn by Viking women as well.

Wool or linen?

All of the currently known hose and sock fragments from the Viking Age are made of wool. However, as linen deteriorates more easily than wool, the lack of evidence for linen hose could be a matter of which fragments have survived.

While not directly applicable to Norse clothing, de Carolo Magno mentions that the Franks are wearing dyed linen hose.

This was the attire or apparel of the Franks of old: shoes gilded outside, adorned with laces of three cubits, kermes-dyed bands on the shins, and under these, hose and breeches of linen, of the same colour but varied with the most intricate work. Above these and the bands, in and out, before and behind, the long laces were arranged in the style of a cross.

De Carolo Magno, translated by Ewing (2006 p. 78, my underlining)

Finally, later hose (Bremen) show traces of a linen lining, confirming that linen was used in footwear sometimes, even though it lacks the flexibility of wool.

To dye or not to dye?

Identifying dyes from the archaeological evidence is challenging, partly because it is difficult to separate colour originating from dye from rust or other discolouration, and partly because plant dyes decay in the ground. In addition, the archaeological evidence can only take us so far. The fragments are just too few to give a correct picture.

None of the hose or socks (with the exception of the edge of the York sock) appear to have been dyed. This is to be expected for a garment that is partly or mostly hidden beneath other clothing.

However, there are several literary references to dyed hose. Some examples are the kermes-dyed hose of the Franks described in the passage from de Carolo Magno, lichen-red hose (hosu mosrauða) mentioned in Kormáks saga, and red hose in Njál's saga. According to Ewing (2006, p. 94) where hose are mentioned in the sagas, they are often dyed and associated with other markers of high status. King Sigurðr Sýr are for example wearing blue hose in Heimskringla. Ewing further suggests that perhaps the fact that the saga-writers is choosing to describe the hose is a sign that it was made from high-status dyed linen.

The challenge with sagas as sources however, is that they were written long after the events they describe. Thus, the description of clothing may reflect the authors' knowledge of contemporary clothing, instead of what people were wearing two hundred years ago.

More importantly, clothing tends to be mentioned only when it plays a role in the story. Thus, any description of clothes must be approached with caution, as it is likely that it is mainly shaped by the needs of the story. For example, the red hose in Njál's saga appears in a dream, where Yngvild sees her son Torvald wearing very tight red clothing that causes him pain. As the dream is a premonition of Tovald's death, the color of his clothes might simply be a hint of the coming bloodshed, and may have no basis in reality.

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.

The Haithabu hose from the harbour

My point of departure for this reconstruction was the two hose fragments from Haithabu harbour ([H2 a and b](#)). I wanted to follow the existing evidence as closely as possible, and see where that brought me.

I used pieces with the same dimensions as the original find, placing the position of the hole at the front of 2b on top of my knee. I was prepared to increase or decrease the circumference of the hose if needed, but found that the original width actually fit my leg. When the hole is placed on the knee, this becomes a thigh high hose.

Unfortunately, although the Haithabu hose fragments are large compared to most textile evidence from Viking Age graves, they are far from a complete garment. My interpretation is thus only one of several variations that could fit the available evidence.



I decided to create the missing part of the hose shaft by following the basic construction pattern used by most hose before and after the Viking Age. I chose a single vent at the bottom front of the shaft, opting for the simple pattern indicated by the Martres-de-Veyre hose, instead of the more complex two-vents patterns used by most of the medieval hose. The side flaps were folded beneath the foot and sewn together.

We do not know whether the Haithabu hose was footed or footless. However, no matter what this specific hose was, it is likely that both types existed during the Viking Age. My need was for a footed hose, so I chose the slightly rounded foot-piece used in so many of the peripheral finds.



The hose was sewn in a walnut-dyed woollen twill. I cut all the pieces on the grain, as was done in the original find. The upper piece of the shaft was cut with the warp running

horizontally, while the lower piece had the warp running vertically along the length of the hose.

I used a flat-felled seam to connect the two shaft pieces, just like in the find. The rest of the seams were made with running stitch, and the seam allowances were secured on either side with whipstitching. I chose this type of seam, as it appears to be the one used on the back of the Haithabu shaft.



One interesting observation is that if the worn hole at the front of fragment 2b is placed at the knee, the connecting seam ends up just above the knee, where the hem of a knee-length hose would usually run. Could a possible explanation for the two-part pattern of the Haithabu hose be that it was a knee-length hose that was lengthened by adding another piece at the top?

Other reconstruction patterns

As mentioned above, there are definitively more than one way to interpret the limited archaeological evidence of Viking Age hose.

Although the hose from Haithabu harbour would have reached above the knee, like the later hose worn by the Bocksten man, it is very likely that shorter hose also existed. For those who want to reconstruct the hose and garter worn by the people on the Etelhem picture stone, or by King Cnut, an alternative starting point could be the London finds.

A step-by-step instruction for this pattern is provided by [Rosalie Gilbert](#).





Ingrid Galadriel, on her blog [Firkanttunet](#), shows a variation on the Haithabu hose. Here the upper edge of the hose is placed just above the knee.

More about Viking Age brækr:
<http://urd.priv.no/viking/bukser.html>

More about Viking Age clothing:
<http://urd.priv.no/viking/>

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Illustration sources

- Photograph of the woollen hose from Martres-de-Veyre, taken by Fuller, M. and N. <http://users.stlcc.edu/mfuller/ClermontMuseumTextiles.html> (last visited 17th February 2018)
- Database of the Swedish History Museum: Photograph of Bj 905 (by Christer Åhlin) <http://www.historiska.se/data/?foremal=582954> (last visited 17th February 2018)
- Picture from the Crusader Bible <http://www.themorgan.org/collection/crusader-bible/35#> (last visited 4th March 2018)

Reconstruction articles

- Gilbert, R. *Ladies Medieval Hose Tutorial.* https://rosaliegilbert.com/tutorial_hose.html
- Ingrid Galadriel, Firkanttunet, *The hose before bros* <https://www.firkanttunet.com/home/2018/3/4/the-hose-before-bros>