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Fashioning the Viking Age: status after the first three years



Introduction

In September 2018, the *Fashioning the Viking Age* research and outreach project funded by the Velux Foundation was launched at the Department for Ancient Cultures of Denmark and the Mediterranean at the National Museum of Denmark, in collaboration with the Centre for Textile Research at the University of Copenhagen and Land of Legends in Lejre, Denmark (Mannering 2018). The general aim of the project is to create new and well-founded archaeological interpretations and reconstructions of Viking Age textiles and clothing.

In part one of the project, 'Viking Age Textile Production', headed by Eva Andersson Strand and Ida Demant, reconstructed tools and controlled fibre sorting were combined with spinning and weaving experiments. These were based on a selection of archaeological textiles in order to convey the tactile and visual aspects of Viking Age cloth culture. In part two, 'Viking Age Male and Female Clothing' headed by Ulla Mannering and Charlotte Rimstad, two complete reconstructions of Viking Age outfits for a man and a woman were recreated. In part three, 'Viking Age Clothing Catalogue', the many different sources linked to Viking Age clothing design, including archaeological, iconographic and written sources will be reviewed. This part will be initiated in January 2022 and the results presented in an online open-access catalogue which can be used in future interpretations and reconstructions of Viking Age clothing. This project report summarises the results from parts one and two of the project, which were finished in 2021.

Viking Age Textile Production

A large and varied range of Viking Age textile tools replicas were made and used in the reconstruction of

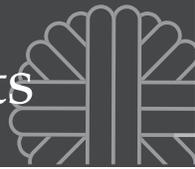
the selected textiles from the same era. The majority of the tools, such as the wood spindles, spindle whorls and loom weights, are based on finds from the Viking Age settlement at Haithabu in northern Germany, while the wool combs with iron teeth are based on a Norwegian find (Andersson Strand 1999, 2003). Clay spindle whorls and loom weights were produced in different sizes and weights: seven different sizes of spindle whorls, weighing from 5 g to 48 g, together with 76 doughnut-shaped loom weights of 200 g, 56 loom weights of 400 g, and 48 of 600 g.

Three textiles from Haithabu in the collection of the Stiftung Schleswig-Holsteinische Landesmuseen Schloss Gottorp in Schleswig in Germany were selected for reconstruction (Hägg 1984). The Haithabu textiles are exceptionally well-suited for reconstruction as they represent a great variety of textile techniques and some of these have also been identified as parts of known garment types, made for everyday use. The selected textiles are:

- Sample I: H14, fragment of a dress in tabby weave
- Sample II: H2, fragment of hose in 2/2 twill
- Sample III: H39AB, fragment of legwear in diamond twill/ herringbone twill

All three textiles were analysed according to modern standards, including fibre analysis performed by Irene Skals. By comparing the wool qualities to samples from modern sheep breeds, it was decided to use Spellsau wool produced by a Danish sheep farmer.

The fleeces were first sorted into outer and undercoat wool, to match the different yarns in the original textiles, and then combed with the reconstructed wool combs. All yarns for the three samples were spun on a



drop spindle selected by each spinner. Depending on the fibres and the thickness of the yarns, the spinners chose whorls ranging from 15 g to 25 g. The spindles were mostly 21 cm long (fig. 1).

In general, the hand spun yarns made for the different textiles had many fiber ends sticking out of the threads. This made the warps on the warp-weighted loom very sticky, and the changing of the sheds for every weft a very slow and time-consuming process. The average weaving speed was 16 to 29 threads per hour – or approximately 3 cm per hour depending on the number of threads per cm in the weave. Each sample was woven to a size of 60 cm x 60 cm.

Altogether, the three finished textile samples have obtained a fascinating close resemblance with their archaeological counterparts. They can therefore be seen as accurate representations of the visual appearance of Viking Age textiles. Although perhaps itchier than a modern person would prefer, the tabby in sample I is light in weight with a good drape, and suitable for a dress, as originally suggested by Inga Hägg (1984). Sample II is a more solid piece, and likely

to be appropriate for cold weather. Sample III, which was interpreted as loose legwear, may in fact be the Viking Age "denim".

In the winter of 2020/2021, a fourth textile sample, based on Haithabu H11, a 2/2 twill with 5 wefts per cm, was produced. The aim was to produce a large textile, for which workflow, production time, and wear and tear on the warp threads and the loom weights were to be examined. The sample size was 1 m x 3 m or about 2 ells x 6 ells, which is the equivalent of a legal Icelandic Viking Age cloth measure. Since the production of this sample required a larger quantity of yarn, it was decided to use machine spun yarn given extra twist on a modern spinning wheel. The weaving speed for this sample was 10 cm to 15 cm per hour.

All tools and textiles are now gathered in the Textile Tool Box, which is a replica of the Mästernyr chest found on Gotland in Sweden (fig. 2). This wooden chest was originally a smithy's tool box but was chosen for this purpose, as the long weaving swords and the many heavy loom weights made for this project part were difficult to fit into any of the preserved Viking

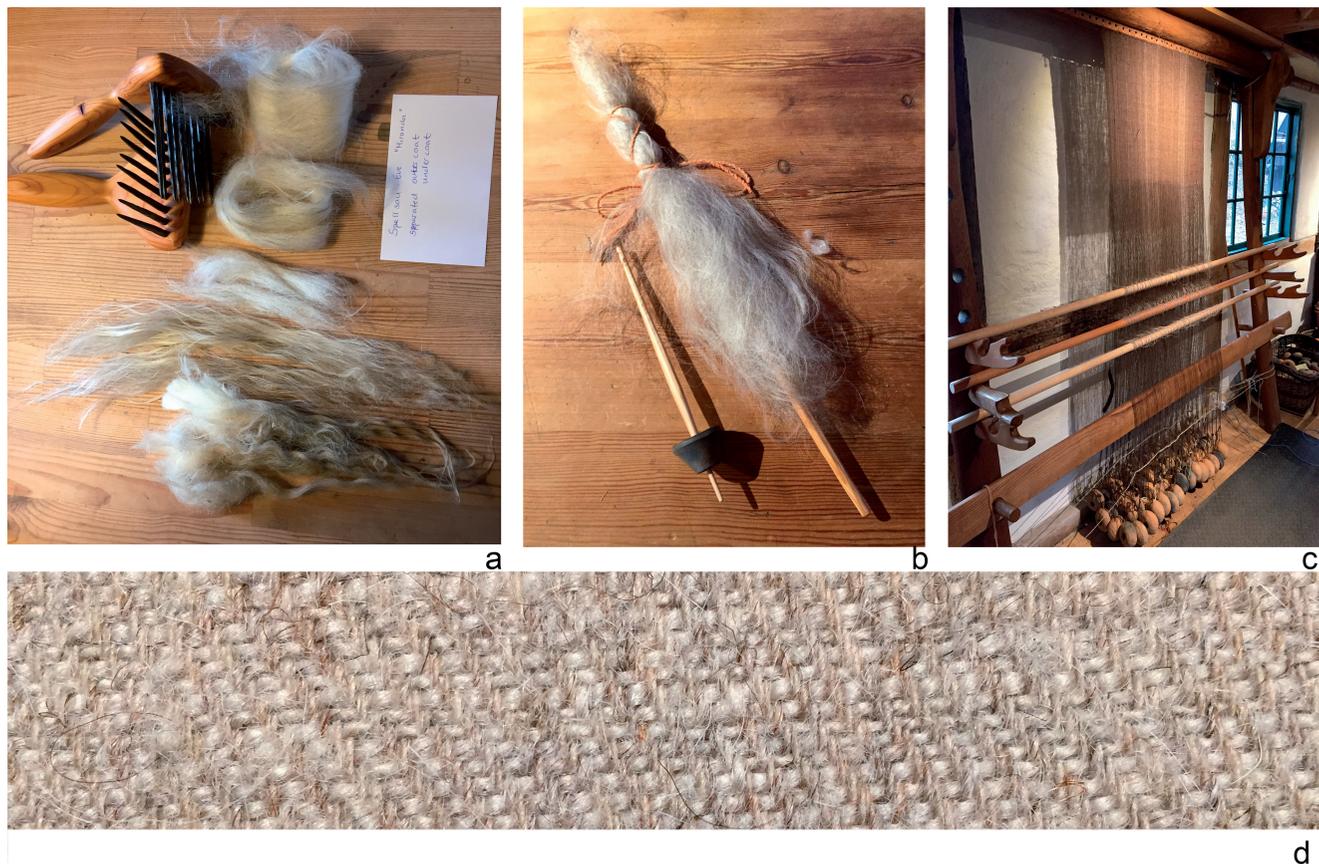


Fig. 1: A range of different reconstructed Viking Age tool were used in the production of Samples I-III: a – sorted and combed wool; b – drop spindle and distaff with the wool ready to spin; c – the warp-weighted loom set-up with Sample I; d – close-up of Sample II, the 2/2 twill (Images: Ida Demant)



Fig. 2: The Textile Tool Box with the reconstructed tools (Image: Roberto Fortuna)

Age textile tool boxes, such as the ones from the Oseberg find.

In addition to the ordinary photo documentation used in all experiments, the production processes of samples III and IV were also documented using a time-lapse camera. Reports on the experiments are currently being written, and a more detailed description of the processes will be published in the forthcoming NESAT XIV publication.

Viking Age Clothing

The reconstructions of the man's and woman's outfits are based on the textile finds from two Danish inhumation graves: the man's grave from Bjerringhøj, dated to 970 CE to 971 CE, and the woman's grave from Hvilehøj dated to the late tenth century. The textiles in both graves are fragmented but still much larger and better preserved than in most Viking Age contexts in Denmark and Scandinavia in general.

The data extracted from the two graves are based on new detailed and scientific analyses. High resolution photography was used to create an overview of all the objects and to reveal disintegrated sewing and embroidery details. All textiles went through technical analyses including measurements of fibre diameters, thread diameter, density, and twist directions. More specialised analyses of skin, fur, feather and down species, tanning methods, tablet weaves, silk samite weaves, glass beads, iron objects, and shoes were made by invited specialists (Brandt and Mannering 2020).

Piecing together the 64 pieces of the embroidered 2/1 wool twill from Bjerringhøj was an especially time

consuming but rewarding process. At first, photos of this textile were transferred to Photoshop where all the embroidery yarns were marked with colour codes, giving each pattern its own colours. The photos were then printed on paper and the fragments cut out. This puzzle was used to create the final embroidery design (fig. 3). During this process, the characteristic wolf heads with the decorated collar biting into the roundels of acanthus leaves were identified for the first time.

It was also discovered and proven that the human bones stored in a box labelled "Slotsbjergby" in fact belong to the Bjerringhøj burial (Rimstad et al. 2021). The textiles still adhering to the bones had never been recorded before, and they turned out to contain important new information about the design of the legwear and its colours.

Reconstructions can be made with different degrees of accuracy, depending on how closely they are intended to resemble the original textiles. In this part of the project, it was decided to focus on garment shapes and visual details and to make compromises in the production processes. However, it quickly turned out that several of the required fabric qualities were not commercially available. It was therefore necessary to produce these fabrics too. The yarns for these textiles

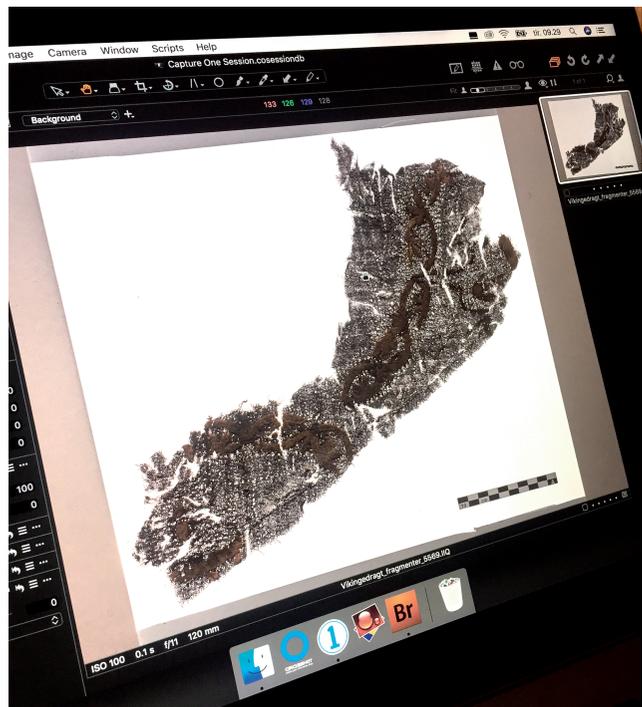
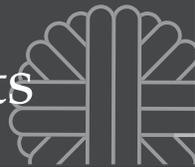


Fig. 3: A high resolution photograph of one of the 2/1 twill textiles from Bjerringhøj taken with light from beneath during the recording of the embroidery yarns (Image: Charlotte Rimstad)



were either spun on a spinning wheel, or a machine spun yarn was given extra twist on a spinning wheel in order to match the very hard twisted threads used in these Viking Age textiles. Fibre analyses of the original textiles also guided the creation of the yarns for the reconstructions. In this way, fibres and other materials match the original ones, even though the production processes in most cases were optimised using modern tools.

The majority (but not all) textiles and fur or skin objects from Bjerringhøj and Hvilehøj were included in the two outfits. The excluded textiles are in most cases interpreted as not being clothing but more likely the wrappings for grave goods or the furnishings of the grave (Rimstad 2019). The textiles and fur or skin objects present only a few construction details, such as seams and signs of reuse or repair that can be related to the design of the original garments. It was decided to use more complete clothing finds from contemporary Scandinavian contexts as inspiration for the design and patterns for the outfits. Dye analyses guided the selection of colours chosen for the many different

garments. When no dye results were available, the choice of colour was based on the best aesthetic match with the overall design, adjusted for whichever colours could have been used in this specific context (Vanden Berghe et al. in prep).

The man's outfit comprises: A beaver fur caftan, a linen tunic, a wool kirtle, a belt in wool and silk, legwear, two silk wrist cuffs, and leather boots (fig. 4). The woman's outfit comprises: A pine marten fur cape with beaver fur edging, a linen dress, a red wool tabby dress with woven-in decorations and sewn-on decorations in padded red tabby silk flanked with narrow strips of red samite, a purple 3/1 twill band and a blue silk, silver and gold tablet-woven band, and goatskin shoes with the hair retained (fig. 5). The leather boots and the linen undergarments are not based on data from the Bjerringhøj and Hvilehøj finds but are included to make the outfits comfortable to wear. The garments were sized to fit two volunteer models (Mannering and Rimstad 2021).

Although the textiles from Bjerringhøj and Hvilehøj are some of the best preserved specimens from any



Fig. 4: The final version of the man's outfit based on the Bjerringhøj grave find (Image: Roberto Fortuna)



Fig. 5: The final version of the woman's outfit based on the Hvilehøj grave find (Image: Roberto Fortuna)

Danish Viking Age burial context, there is still a gap between the archaeological finds and the finished reconstructed outfits. The many analyses results have been a great help and invaluable guide for the different production processes and final design – but also somewhat of a hindrance. Once the results of the fibre, dye analyses, and species identifications were ready, they were incorporated into the design of the outfits, regardless of modern aesthetic taste. Other results came after the designs were finalised and could no longer be changed. Therefore, some of the results were not incorporated in the current reconstructions. It is important to state that despite many hours of research, analyses and craft work put into the outfits, the project team stress that they are possibilities, not final truths. The current knowledge base could have been used to produce a range of different outfits. However, the reconstructed high-status outfits match the aim and requirements for the current project. A full report on the design process will be published in 2022.

Fashioning the Viking Age Outreach

From December 2020 to March 2021, the reconstructed man's and woman's Viking Age high-status outfits were included in an online web-exhibition at the Museum of Cultural History in Oslo, Norway. The exhibition was at first planned in a physical format, but quickly changed into a digital format due to the COVID-19 pandemic, during which the museum was closed to the public. During the four months, the outfits had more than 25,000 viewers. In June 2021, the two outfits were included in the new Viking Age exhibition at the National Museum of Denmark in Copenhagen, where they are placed close to the original textile finds. The exhibition will be open until May 2024 and several of the short films produced for the exhibition can also be seen in the museum website (see links below), and the museum's Facebook page. The catalogue made for this exhibition also includes an article about Viking Age sail cloth production (Andersson Strand and Mannering 2021).



The Textile Tool Box is now ready to be used for outreach purposes at universities and museums, in order to give a “hands-on” feeling of Viking Age textiles and textile production. We thank the many excellent researchers and crafts people that have contributed to the project with their invaluable inputs and skilled hands. Without your fantastic contributions this project would not have materialised.

You can follow us on Instagram:
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Bibliography

- Andersson, E. (1999) *The Common Thread. Textile Production during the Late Iron Age – Viking Age*. Lund: University of Lund, Institute of Archaeology Report series No. 67.
- Andersson, E. (2003) *Tools for Textile Production – from Birka and Hedeby*. Stockholm: Birka Studies 8.
- Andersson Strand, E. and Mannering, U. (2021) The sail – A Gigantic Collective Undertaking. In J. Varberg and P. Pentz (eds), *The Raid. Join the Vikings*, Exhibition catalogue. Copenhagen: National Museum of Denmark, 29–44.
- Brandt, L.Ø. and Mannering, U. (2020) Taxonomic identification of Danish Viking Age shoes and skin objects by ZooMS (Zooarchaeology by mass spectrometry). *Journal of Proteomics* 231, 104038. <https://doi.org/10.1016/j.jprot.2020.104038>

- Hägg, I. (1984) *Die Textilfunde aus dem Hafen von Haithabu*. Berichte über die Ausgrabungen in Haithabu. Bericht 20. Neumünster: Karl Wachholtz Verlag.
- Rimstad, C. (2019) En komfortabel, evig søvn. *SKALK* 5, 12–15.
- Rimstad, C., Mannering, U., Jørkov, M.L.S. and Kanstrup, M. (2021) Lost and found: Viking age human bones and textiles from Bjerringhøj, Denmark. *Antiquity* 85, 1–18. <https://doi.org/10.15184/aqy.2020.189>
- Mannering, U. (2018) Fashioning the Viking Age. *Archaeological Textiles Review* 60, 114–117.
- Mannering, U. and Rimstad, C. (2021) At rekonstruere de velklædt vikinger. *SKALK* 2, 10–17.
- Vanden Berghe, I., Mannering, U. and Rimstad, C. (in prep) New dye analyses of Danish Viking Age textiles from the Bjerringhøj and Hvilehøj graves and the Haithabu harbour.

Internet sources

- Viking Age clothing at the National Museum of Denmark (2021) <https://www.viking.natmus.dk/vikingernes-toej> (accessed 16 September 2021)
- Fashioning the Viking Age homepage (2021) <https://natmus.dk/historisk-viden/forskning/forskningsprojekter/fashioning-the-viking-age/> (accessed 16 September 2021)

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