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Reconstructions revived:
a handweaver's personal perspective

Abstract
Reconstructing ancient clothing has a long tradition in Scandinavian archaeology and during her professional career as a hand weaver, Anna Nørgård has produced many items of prehistoric clothing and sails for various museums in Denmark and abroad. For her, a reconstruction is a tool, a way to gather new knowledge. Nevertheless, only on rare occasions has she been asked to produce a report and document her work. This implies that most museums are not aware of the scientific potential that the reconstruction process itself offers. In this article, she shares some of her thoughts and experiences with Scandinavian Iron Age textile technology gathered while working on reconstructions of finds such as the Lønne Hede and Huldremose clothing, the Skærsø textile and multiple metres of sail cloth.

Keywords: reconstructions, experimental archaeology, textile history, museum exhibitions

Introduction

Reconstructing ancient clothing has a long tradition in Scandinavian archaeology. From the middle of the 19th to the beginning of the 20th century, the National Museum of Denmark was enriched with an unparalleled collection of more-or-less complete garments from the Early Bronze Age (1800 BC to 1100 BC) oak coffin graves and Early Iron Age (500 BC to 501 BC) bog finds (Broholm and Hald 1940; Hald 1980). These precious objects inspired the desire to know more about how they were made and used. When Denmark participated in the 1889 World Exhibition in Paris with the exhibit *Golden Horns and Amber Bears*, the sprang hairnet from Borum Eshøj, which was found in 1871, was reconstructed by handweaver Petra Godskesen (fig. 1) at the request of the National Museum curator, Sophus Müller (Gram 1891, 101).

Interest in the recreation of prehistoric textiles from the collections of the Danish museums continued in the late 1920s when Margrethe Hald was engaged by Hans Christian Broholm to produce a reconstruction of the Early Bronze Age clothing from Egtved, excavated in 1921, for the National Museum of Denmark (Broholm 1961, 48). Later, a reconstruction of the woman's clothing from Skrydstrup, excavated in 1935 and dated to the Early Bronze Age (Broholm 1961, 37) was also made, as were several of the Old

Fig. 1: The sprang cap from the Early Bronze Age woman's oak coffin burial Borum Eshøj C, east Jutland, Denmark (Image: Lennart Larsen, National Museum of Denmark)

Fig. 2: Reconstruction of the Egtved clothing made by Gustav Rosenberg in 1924 (Image: National Museum of Denmark)

Fig. 3: Lise Fenger posing in a copy of the Egtved clothing in 1938 (Image: National Museum of Denmark)

Norse garments from Herjolfsnæs in Greenland dated to the Medieval period (Østergård 2004, 29). The main objective of these reconstructions was to make them resemble the excavated originals as closely as possible. The process by which this was achieved was not considered important. Although it is known that Hald had problems obtaining suitable yarn in the appropriate colours for these reconstructions, this work was done so skilfully that, even today, it is difficult to ascertain the difference between the originals and the reconstructions.

The Egtved clothing in particular has been reconstructed and reinterpreted several times since its discovery in 1921 (Demant 2017). Thanks to photographs and drawings, it is possible to follow the influence of contemporary fashion on these

Fig. 4: Reconstruction of the Egtved clothing, drawn for Das Kostumwer in 1941. There is no evidence for the ankle-length linen skirt added under the string skirt (Image: after Bruhn and Tilke 1988, 21)

Fig. 5: Model posing in the Egtved clothing in 1951 (Image: after Lauring 1972)

Fig. 6: Belly dancer Anni Brøgger wearing reconstructed Egtved clothing in 2006 (Image: Flemming Kaul)

reconstructions and thus add to our understanding of ancient clothing.

In my opinion, the best and most vivid interpretation was made during or immediately after the excavation by the conservator Gustav Rosenberg at the National Museum of Denmark: the model has a bare midriff with the skirt hanging low on the hips (fig. 2). In a photograph taken in 1938, we see the secretary of the First Department at the National Museum of Denmark, Lise Fenger, in the same clothing but posing without displaying her midriff with the skirt reaching to her knees (fig. 3). Changes in the perception of the clothing were slowly happening, and in a drawing for the book, *Das Kostumwer* from 1941, an ankle-length linen skirt was added beneath the string skirt (Bruhn and Thilke 1988, 21). Obviously, it was unthinkable for them to see the string skirt worn on its own (fig. 4). In another photo from 1951 (Lauring 1972, 103), the Egtved model is shown with a rather short skirt and one of her hands placed coquettishly behind her neck. No doubt women's emancipation was beginning to take effect (fig. 5). However, all the above-mentioned examples are in strong contrast to the sensational belly dancer (fig. 6) from 2001 (Brøgger 2003). Thus, the history of the reconstruction of the Egtved clothing demonstrates that, even though this is an almost completely preserved outfit, a reconstruction cannot and will never be truly objective. The purpose of a reconstruction and contemporary customs will always influence perceptions of the clothing, and it is easily changed depending on, among other things, pose and hairstyle. Therefore, it is necessary to update reconstructions regularly.

The Lønne Hede clothing

There is an even bigger challenge when an ensemble has to be reconstructed on the basis of fragmented textile finds. The well-known Danish Lønne Hede clothing (Munksgaard and Østergård 1988) is one of the more complex reconstructions I have made. In a grave dated about 100 CE, more than 300 textile fragments were recovered during excavation in 1969 with the largest measuring 124 x 23 cm. The textiles were initially analysed by conservator Else Østergård, and the complete scientific analyses and interpretation of all the Lønne Hede graves are currently in their final stage (Munksgaard and Østergård 1988; Demant et al. 2021). In 1971, a reconstruction of the clothing was made for a preliminary publication, based on the position of the jewellery and the technical details of the various textiles (fig. 7) found in the grave (Lomborg 1971; Nordquist and Ørsnes 1971). This reconstruction was made in collaboration with conservator Dorthe Ørsnæs who also participated in the excavation, and curator Elisabeth Munksgaard from the National Museum of Denmark. As the textiles are highly degraded and fragmentary, it was very difficult to obtain a clear understanding of how the clothing must have originally looked; for example, the length of the skirt is not known. Nor is it clear whether or not the upper part of the clothing had sleeves. In the reconstruction, the upper part was interpreted as having been worn draped around the torso and kept in place by the fibulae on the shoulders. However, it is still uncertain how this reflects the way the original may have looked.

During a long professional career as a hand weaver, I have produced 12 Lønne Hede outfits for various museums in Denmark and abroad. The first was made more than 40 years ago. This reconstruction was very

Fig. 7: Reconstructed clothing from the woman's grave in Lønne Hede excavated in 1969 (Image: Henning Ørsnes, after Nordquist and Ørsnes 1971, 14)

exciting to produce in spite of the many uncertainties. I was fascinated by the information about the textile craft, which became clearer during the working process. However, the last Lønne Hede reconstructions were more like mass production. Hardly any new information about the find has been added over the years, and this is a problem when the first and only attempt to reconstruct it is accepted as the one true solution without any new questions being posed. A reconstruction should be a tool offering a way to gather new knowledge and build on past experiences. A reconstruction such as the Lønne Hede clothing provides invaluable information about ways of dressing that can be extremely difficult to extract from the textiles themselves. Likewise, the creation process itself and the techniques used can be deductive (Nørgård 2008, 45–52). The great challenge is to produce a textile of the same high quality as our forebears and accomplish this by using tools used during prehistoric times. By spinning the yarn and weaving the textile using the appropriate tools, it is possible to gain an insight into the level of original craftsmanship, which is otherwise hidden from view. The knowledge gained can be, for example, the amount of time it took to produce the garments, thus providing an evaluation of the social status and economic capacity of the owner of these clothes.

Experience shows that when a reconstruction is to be made, it is important to have a clear idea of the intended purpose and what exactly is to be reconstructed, because these decisions influence the working processes. Is it going to be placed next to the original fragments in an exhibition or is it intended for teaching purposes or use in theatre or role playing? The former is arguably more complicated and challenging to make, but it also results in the greatest input to our knowledge of the past. The latter involves more practical questions, such as how strong and durable the reconstructions need to be. As a craftsperson, there is a preference for choosing the most accurate method, whereby as much as possible is done by hand. But it is, of course, also a more time consuming and thus expensive solution than working with modern tools.

Today, specialised investigations of fibres and dyes make it possible to go into the very core of a textile and extract information which cannot be obtained by eye alone. The analyses can show whether a textile was made of naturally pigmented or dyed fibres, although they cannot as yet always reveal the exact hue or source of the colour. It is also possible to reconstruct textiles in such a way that wear and tear caused by their former owners can be reconstructed, as in, for example, children's clothing made of reused adult garments or the Gunnister man's garments (Ciszuk and Hammarlund 2013). Use and reuse is thus an important aspect that needs to be addressed before a reconstruction is planned.

Spinning

When reconstructing prehistoric garments, it is most appropriate to use a drop spindle or a spinning hook for producing the yarn with which to weave a textile. The spinning wheel is a tool first introduced in the Medieval era. Until recently, these three spinning tools were used concurrently for different purposes. *Die Leine-, Baumwolle- und Damastweberei*, written for professional textile craftspeople, contains a meticulous description of how to spin with a drop spindle (1858, 39). Most weavers of this time still preferred to use warp yarn which was spun on a spindle. As this tool could be used while walking or standing still it was an attractive and efficient tool (Hoffmann 1991, 65–68). Up until the mid-19th century, travelling people on the heaths of Jutland spun yarn on the simplest spinning tool, the spinning hook, using naturally shed sheep's wool (Hansen 1947, 32), while in certain areas of Norway, hand spinning on a drop spindle was practised alongside spinning on the wheel well into the 1920s (Hoffmann 1991, 67).

Expert spinning is a skill that takes many years of practice to acquire and cannot be learned in a few days. Grace Crowfoot describes how until the 1930s in Sudan, children of five to six years learned to spin by hand using a spindle (Crowfoot 1931, 42). Moreover, the spinning of thousands of metres of thread with the same speed and quality cannot be sustained for many hours. This applies to spinning on a spindle as well as a spinning wheel. Nowadays, only a few spinners are able to produce hand spun yarn comparable in quality to Iron Age yarn. A trained spinner can more easily adjust the fineness, thickness and firmness of the thread on a spindle than on a spinning wheel, and this is probably the reason why the European textile guilds forbade the spinning of warp yarn on a spinning wheel for a long time (Hoffmann 1991, 68). The production of warp yarn that is strong enough to withstand tension during weaving requires greater expertise than the spinning of weft yarn. In her description of the Sudanese children, Crowfoot adds: "First they had to learn how to spin weft yarn and some never got any further" (Crowfoot 1931, 42).

It comes as a surprise to many that, today, it can be difficult, if not impossible, to obtain wool of a quality that matches that of the prehistoric textiles. Although considered more primitive than specialised modern sheep breeds, the prehistoric sheep varieties had a

Fig. 8: Detail of the original Skærsø blanket (Image: Roberto Fortuna)

larger and more varied range of wool fibres that could be sorted into different qualities. The wool quality of modern sheep breeds is developed to fit mass production, which is not always equivalent to prime quality, and this in turn affects textile quality. Wool of a different quality can completely transform the drape and look of a reconstruction. Likewise, the speed with which one can spin depends to a large extent on the wool quality, as well as the thickness of the thread and the number of twists per centimetre it requires. It is also difficult to provide an exact estimate of the length of time people in the Iron Age spent spinning yarn, using the criteria available today. However, there can be no doubt that, aside from the production of the raw materials including sorting and combing the wool, spinning was a very time-consuming process.

In 1992, I made a reconstruction of the Skærsø textile (fig. 8) for the Museum of Koldinghus in south Jutland (Hald 1980, 66–68). More than 30 years of exhibition had caused severe degradation of the original textile. It was decided to make a reconstruction that would replace the original in the exhibition (fig. 9). During the entire reconstruction process, a working journal was kept and numerous technical details noted, which has subsequently been useful for comparison with other reconstructions (Nørgård 2010).

The yarn of the Skærsø textile is made of a very fine evenly spun wool without any hair – typical for the Danish Early Iron Age (Skals and Mannering 2014). To obtain information on wool quality, a few threads were sampled for analysis and the results compared with modern wool. Based on this, it was decided to make the reconstruction using a coarse merino or Shetland wool, both of which have slightly thicker fibres than the wool of the original textile. The thickness of the z/s twisted yarn in the original textile is about 0.5 mm, with a hard to very hard twist angle (45 to 50 degrees). A similar kind of yarn but with a different twist direction is used for warp and weft, whereas the warp yarn in the tablet-woven edges is slightly thicker. A yarn with such a high twist angle easily becomes stiff and hard unless it is spun of very fine fibres. It was decided to use yarn spun on a spinning wheel for the reconstruction for financial reasons. This work was performed by a highly skilled spinner, Ella Biedilæ Steffensen, who was born in the late 1920s near Kirkenæs in Norway in a small community of fishermen and farmers. She was trained in spinning from childhood, and spun all the different kinds of yarns used by her self-sufficient family. She spent 100 hours spinning the 10,232 m of yarn that was needed for the weaving of the textile; 0.13 g of wool was used per metre. Biedilæ Steffensen was given threads from the original textile to match the thickness and twist. The result was a very fine and strong yarn, which was one of the best yarns I have ever worked with.

An exception from these evenly spun yarns is seen in the 2/2 twill scarf from Huldremose I (Hald 1980, 47–54; Mannering 2010). The textile is woven in multiple colours of naturally pigmented yarns ranging from white to light to dark brown. Three-quarters of the weave is patterned in a uniform way, but the last part differs with a change in colours and

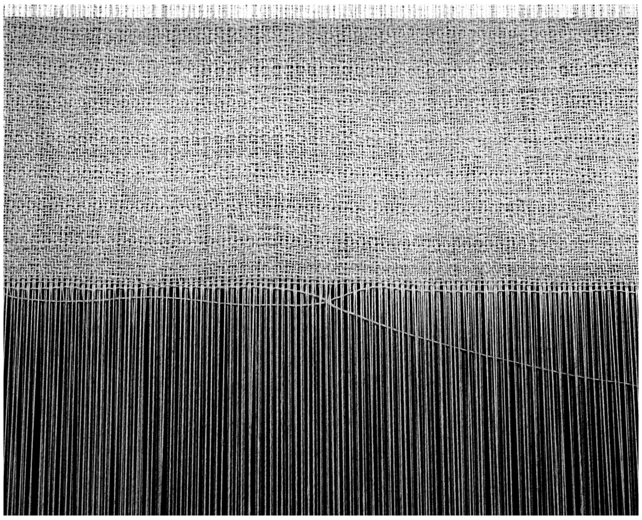

Fig. 9: The reconstructed weave of the Skærø blanket with the two wefts crossing each other. The photograph shows the hand spun yarn and the open weave which contracted after it was taken off the loom (Image: Roberto Fortuna)

yarn dominance. Here, the white colour dominates, and the white yarn is thicker and more unevenly spun. The entire appearance of the textile is as if the weaver did not have enough yarn for the planned textile pattern, and had to use whatever leftover yarns were available, which were most likely produced by a less skilful spinner. The Huldremose scarf is an excellent example of how difficult it is to make a replica of an ancient textile. If one were to spin yarn and weave an exact copy of this textile, it would be necessary to have studied the original carefully, as well as measuring the reproduced yarn equally carefully in order to ensure the small variations were incorporated into the yarns. This task would be extremely time consuming, if not impossible. In 1991 to 1992, a reconstruction of the Huldremose scarf was made using the same machine-spun yarn throughout the entire weave, which was given an extra twist using a spinning wheel (Nørgård 2008, 52–53). The colour pattern followed the original. This kept the costs of the reconstruction within the budget (Nørgård 2008, 46–48).

In 1999, for another reconstruction for the Viking Ship Museum in Roskilde, Denmark, three test weaves of 2/1 wool twill sailcloth were made using yarn spun on a spindle. The wool was from Villsau and Spelsau sheep, which are old Norwegian sheep breeds resembling the present-day Icelandic and Faroese sheep in terms of fibre quality. The wool was separated and sorted thoroughly using wool combs; the outer coat was used for the warp yarn, while the underwool mixed with the short hair was used for the weft yarn. Including this preparation time, I could spin 30 m in one hour for the first two samples. The warp yarn weighed 0.6 g/m and the weft yarn weighed of 0.8 g/m. The width of the textile was 69 cm and a total of 897 m of yarn was used for weaving 1 m of textile. This adds up to a total of 30 hours of spinning per woven metre. The samples were woven on a warp-weighted loom and the time spent was 20 hours per metre. For the third sample, Spelsau wool only was used, but as the wool was new and recently cut, and it was of a better quality than that used in the first two samples. In this case, it took only an hour to spin 48 m of warp yarn. The underwool was so fine that it could be spun without combing. Thus, 60 m of weft yarn was spun in an hour. The quality of the wool considerably increased the quantity of yarn that could be spun in an hour (Nørgård 1999).

Historical sources suggest the time spent on textile production was significant. In the 1760s, an investigation was conducted on how the rural population in Härjedalen in Sweden spent their time through the year. It transpired that the women spent eight months of the year keeping house and producing clothes for the family (Magnusson 1986, 238). This testifies to the amount of work and effort that was put into the production of textiles and clothing in this period. It is very reasonable to believe that a similar working pattern would have been valid for people of the Iron Age.

The weaving

In Scandinavian prehistory, it is possible to document the use of at least two different loom types: the warp-weighted loom and the two-beam loom with a tubular warp (Hald 1980). The evidence comes from archaeological textiles and finds of loom weights. On a two-beam loom with a tubular warp, the warp is set up directly on the loom, whereas the warp for the warp-weighted loom is produced separately and then mounted on the loom. At first, it might seem that the two-beam loom is a simpler tool to handle. However, in reality, it is more difficult to maintain the same tension in the weft threads than when weaving on a warp-weighted loom. Working with the warp-weighted loom is preferable, as it provides more space between the layers of warp threads and it allows a more comfortable working position (Hoffmann 1964). An important advantage in weaving on the two-beam loom with a tubular warp is that it is possible to weave on the entire warp. On the warp-weighted loom in

Fig. 10: Weaving on the warp-weighted loom constructed for the reconstruction of the Skærsø textile in 1992 (Image: Roberto Fortuna)

contrast, there will always be leftover warp, and this is pertinent for a society in which spun thread is of great value. Yet, the leftover warp can always be used for sewing thread or other purposes. The warp-weighted loom provides the possibility of weaving very long textiles since the length of the warp is not restricted by the size of the loom. This is a great advantage if one is to weave, for example, sailcloth where each textile piece can be up to 12 m to 15 m long for a sail of about 100 m^2 (Nørgård 1999, 2016).

The above-mentioned Skærsø textile is a complete 2/2 diamond twill piece measuring 150 cm by 206 cm with tablet-woven borders on all four sides. Based on technical details observed in the textile, it was most likely woven on a warp-weighted loom. Therefore, the reconstruction made in 1992 was also woven on a warp-weighted loom, which was especially constructed for this purpose. The width of the loom was made large enough to allow room on both sides of the textile for the shuttle to clear the sides of the loom. The height of the loom was adjusted to my height, so that I could stand on the floor during the entire working process (fig. 10). However, this had the unfortunate consequence that only approximately 30 cm could be woven before the textile had to be rolled onto the cloth beam and the loom weights moved down. As the finished length of the textile was to be 2 m, this process had to be repeated seven times during the weaving.

In 1999, at the same time as the above-mentioned samples of 2/1 wool twill sailcloth for the Viking Ship Museum were being woven, another loom was constructed based on the finds of loom parts from an Old Norse settlement in Greenland and the 18th-century warp-weighted loom from the Faroe Islands in the collection of the National Museum of Denmark in Copenhagen (Østergård 2004, 59 and 54). The height of this loom was 2 m. This made it necessary to stand on a bench during the initial stages of weaving and immediately after the textile was rolled onto the cloth beam (fig. 11). However, this height also enabled 70 cm to be woven before the textile had to be rolled onto the beam and all the loom weights moved. If this loom had been used in the weaving of the reconstruction of the Skærsø textile, it would only have been necessary to roll this textile three times (as opposed to seven), and much time could have been saved. This demonstrates that, it is not only the skill of the weaver that affects the production speed, but also the tool itself.

Information of this type can be used when we discuss the function of the Iron Age pit house. It has become an accepted hypothesis that pit houses are especially suitable for the weaving of linen due to the supposed humidity in this type of dwelling. However, this statement is hard to believe. The subterranean part of a house is not necessarily damp, even though it is below ground level. In addition, who wants to work in a humid basement? A linen warp does not have to be damp while weaving it. If a weave or warp is covered by a damp piece of cloth, when not weaving, this will provide enough moisture to keep the threads supple. Thus, it seems more logical that by lowering the floor level in the pit house, it is possible to make room for a high loom without using extra materials for high walls or roof construction (Bender Jørgensen 1986, 165–166; Bender Jørgensen and Eriksen 1995, 26–29; Østergård 2004, 60). Therefore, I suggest that the main reason why the pit house is dug into the ground is to make room for especially high looms that can produce longer lengths of cloth without or before the textile is rolled onto a cloth beam and the loom weights moved.

Fig. 11: Weaving sail cloth on a tall warp-weighted loom in the exhibition at the Viking Ship Museum, Roskilde (Image: Werner Karrasch, Viking Ship Museum)

The Skærsø textile has 12 to 16 threads/cm in both directions. In the reconstruction, it was woven with 13 threads per cm in both directions and it took 265 hours to weave the required 2 m, including the tablet-woven bands. A total of 2,574 wefts went into the weave, on average 9.7 wefts per hour, as there was a significant variation in how much could be woven per day. After a week, 12 wefts could easily be put in during the first working hours, but it was never possible to reach 60 wefts in 5 hours, which was the maximum number of hours of weaving per day. Likewise, the weaving of the last 30 cm of the textile was very time consuming as the warp became less mobile. When the desired length was achieved, the remaining warp was 56 cm to 58 cm long. Had the warp been 25 cm longer from the beginning, this problem would not have occurred. However, the longer warp would have required 80 g more wool and 6 more hours to spin the 600 m of extra warp yarn, if spun on a spinning wheel, and even longer on a spindle. As the warp ends on the Skærsø textile are cut off and finished in a tablet-woven border, it is not possible to know how the weaver solved this problem in the original textile.

In 1985, I participated in weaving a reconstruction of the textile from the Huldremose II find (Hald 1980, 53–54). Based on the technical details of the textile, we know that this piece was woven using a tubular warp, a technique well attested in the Early Iron Age. The Huldremose II piece is a fully preserved textile measuring 256 cm by 173 cm and the weaving of the reconstruction took 400 hours. The woven width was 170 cm, which is slightly wider than the Skærsø textile. The thread density was six s-twisted threads/cm in both systems, which is half the number of the Skærsø textile. Altogether, 1,427 wefts were put in, giving on average 3.6 wefts per hour. At best, it was possible for two weavers working simultaneously to weave 20 wefts in an hour, equalling the speed of the weaving of the Skærsø textile, which, at its optimal point, was 12 wefts per hour for one weaver.

In a second experiment in 1986, weaving a new reconstruction of the Huldremose II textile, the average speed was doubled, primarily due to accumulated working experience. Here, only 209 hours were used in weaving 1,586 wefts, giving an average of 7.5 wefts per hour. This result was obtained in spite of the width of the weave being increased by 15 cm. It may be instructive to weave more pieces of this textile in order to see if the time spent on weaving could be reduced even further.

Experiments like these are necessary to provide qualified estimates as to how fast weavers could work with different tools. They also offer information on how two or more weavers could have been working on the same loom, as the crossings of the weft threads in the original weave indicate. Weft crossings are a feature observed in many of the Danish Early Iron Age bog textiles such as the Huldremose II textile (for more examples, see Hald 1980). The common interpretation of this feature is that several people wove simultaneously, each with a separate shuttle. If there is one cross, two weavers were involved, with two crosses, three people may have been weaving simultaneously, and so on. It is easy to imagine an experienced weaver working in the middle part of the weave to guide the process and teach the "apprentices" working on the side pieces, but the weft crosses do not always appear in exactly the same place and are usually staggered throughout the weave to make them less visible. In the Skærsø textile, crossing wefts occur in the middle of the textile, indicating that it was woven using two weft yarns at a time. During the reconstruction work with the Skærsø textile, I worked alone using two shuttles (see fig. 8). As the working range for each shuttle was 70 cm to 80 cm, two 50 cm long sticks were chosen, around which the weft yarn was wound. Likewise, the shuttle had to be so thin that it could be passed through the shed without touching the warp threads. With these shuttles, the parts of the textile where they had to be guided through the warp became very small. If the shuttle had been shorter, this process would definitely have been much more time consuming.

Based on experience, it cannot automatically be stated that the presence of crossing wefts proves that several weavers were working together on the piece. An alternative interpretation is that weaving with several weft yarns simultaneously was done in order to use yarns from different spinners at the same time. No two individuals spin alike. By distributing the work of two or more people on several shuttles and weaving with several of these shuttles at a time, a more uniform weave can be achieved despite any disparity in the yarn quality. Several examples of narrow (60 cm to 70 cm), single- coloured textiles are known from the Middle Ages, where two weft threads cross in the selvedge. It is difficult to imagine any other explanation for this feature than this (Nørgård 1999, 3; Østergård 2004, 65).

Conclusion

The enormous interest in the reconstruction of prehistoric clothing often derives from a desire to make the past come alive. To a non-specialist, it can be difficult to understand or visualise how our ancestors lived and dressed based on some brown textile fragments in a museum exhibition showcase. It is a complex and time-consuming process to reconstruct ancient clothing, and, before a reliable interpretation of the studied clothing items can be presented to an audience, it is necessary to have basic research documentation of the objects in focus.

Today, the work of reconstructing ancient clothing is a professionalised occupation and involves specialised knowledge of textile crafts, production of raw materials, and mastery of long-forgotten techniques. Reconstructions can be made for many reasons and different purposes: to try out the clothing, to test prehistoric techniques, to use it in exhibitions or simply to gain new knowledge of prehistoric life (Nørgård 2008). Moreover, if the reconstruction is successfully completed, it has great educational value, which makes it worth the effort.

The majority of reconstructions I have made over the years have primarily been for museum exhibitions. Others were produced for teaching purposes in museums or historical workshops. Very few, such as the sailcloth samples for the Viking Ship Museum in Roskilde, were produced as a scientific experiment in order to gain more information of and insight into the craft. This suggests that many museums are not aware of the scientific potential that the reconstruction process itself offers. Only on rare occasions have museums asked for a report and documentation of the work, although this is almost always available. This practice is slowly changing. Museum visitors are no longer satisfied with merely looking at objects in showcases. It is my experience that they are very interested to see craftspeople at work and may even wish to try the ancient crafts for themselves.

Whenever I weave sailcloth at the Viking Ship Museum in Roskilde, I always try to do the weaving in the exhibition area, so the visitors are able to follow the process. This certainly delays the weaving but when we look at the feedback and public interest, and all the questions the visitors ask, especially about the loom, the tools and the time involved in weaving a sailcloth, it is obvious that the onlookers receive a new and different impression than hitherto of the value of textiles in prehistoric society and why our ancestors took such good care of them. The visitors gain respect for the craftsmanship, and a new perspective and understanding of the craftpersons themselves. As some of the reconstructed boats belonging to the Viking Ship Museum use wool sailcloth produced according to ancient traditions, the visitors can go straight from the demonstration of how to weave sailcloth to the harbour where they can sail in boats with similar sails – and actually experience for themselves that this kind of textile is equally functional as modern sailcloth. This also means that the museum is active in the testing and evaluation of the sailcloth, which is of crucial importance to the scientific outcome of sailcloth reconstruction and experimental testing in general.

It is possible to gain knowledge of the entire process of textile production from fibre processing to stitching the finished textile, as well as the skills, techniques, errors and choices made by the craftspersons creating the textiles through reconstruction of well-preserved textiles from the Danish Early Iron Age. The most reliable reconstructions are achieved when the work is undertaken by skilled textile technicians in cooperation with scholars, thus benefiting from the deductive process of comparing the original and its reconstruction.

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