

Theme: The use of Traditional Textile Craft and Craftmanship in the Interpretation of Ancient Societies

Title: Spinning in the past and the present

Linda Olofsson, Sweden

This is a written presentation given at the *workshop Traditional Textile Craft – An intangible Heritage?* Jordan Museum, March 2014.

Spinning in the Past and the Present



Linda Olofsson, Sweden

(Some slides are removed)

Traditional Textile Craft – An Intangible Cultural Heritage?

The use of Traditional Textile Craft and Craftmanship in the Interpretation of Ancient Societies

Jordan Museum, March 2014

In my presentation I would like to take you on a journey through time from a spinning perspective out from the craft practitioner's point of view.



My speciality is the combination of archaeology and craft. I have been trained in traditional techniques in Sweden and have practiced several of them. I am also an archaeologist.

Having this background, I have often been engaged as a teacher in prehistoric techniques.

Now, I am working at the Viking museum, Trelleborgen in Sweden.

I have also planned and conducted tasks in the field of experimental archaeology at the Danish National Research Foundation's Centre for Textile Research together with Eva Andersson Strand and the rest of the team and at the Centre for Historical-Archaeological Research and Communication at Lejre in Denmark.

Mårtensson, L. (2007) Investigating the function of mediterranean bronze age textile tools using wool and flax fibers. In: Experimentelle archäologie in Europa Bilanz 2007, p. 97-106.

Mårtensson, L. (2006) Sländspinning med vilande och hängande teknik - Försök med tunga sländtrissor. Teknisk rapport. Lejre Forsøgscenter HAF 14/06. Lejre.

Mårtensson, L. (2007) Träsländan från Hjortspring. Teknisk rapport. Lejre Forsøgscenter HAF 05/07. Lejre.

I will present some examples from these projects in order to highlight aspects of today's subject. The common aim in these projects was to investigate the function of textile tools. The point of departure for reconstructions of tools were archaeological finds of, what was thought to be spindles, spindle whorls and loom weights. Questions of interest were: Why does a tool have a specific size and shape and in what ways is it most optimal to use? However, it can be very individual, how one wants to work with a tool, I will come back to this later.

In order to conduct the tests, first one has to gain insight into the *chaîne opératoire* of producing textiles. The choices made in the process of making textiles is of course tightly linked to what is going to be produced and thus this can vary to a great extent.

Viking Museum Trelleborgen, Sweden.



Experimental Archaeology in research:

- National Research Foundation's Centre for Textile Research (CTR), Denmark.



- Centre for Historical-Archaeological Research and Communication at Lejre, Denmark.



Here you see a simplified *chain opératoire* with the example of making textiles from sheep wool: I will briefly take you through the first three steps. It starts with the selection and preparation of fibers.

"Chaîne opératoire"

1. Selection and preparation of fibre
2. Production of yarn
3. Production of cloth
4. Sewing
5. After-treatments



This includes: plucking or shearing, cleaning, sorting out dirty and too felted parts, splitting the fleece into different types depending on how it will be used, Then, the actual preparation begins...there are several methods for this:

1. Selection and preparation of fibres



Beating the wool, teasing it by opening it up by hand, mixing it, and combing or carding it. Also, the fibre should be organized before spinning, onto a distaff or made into "roves" or pre-yarns ready to be spun.

Then, the yarn is spun.

... plucking, shearing, washing, sorting,
teasing, combing, beating ...



Spinning can be done with almost anything, a stone, a stick or entirely by hand, without any tools. However, spinning on a suspended spindle with a whorl placed in the top or bottom area of a wooden stick is one of the most usual ways of spinning. And lots of ancient whorls, made out of ceramic, stone, bone and antler have been found, in different sizes.

Now, I will move on to the third step, production of cloth.

2. Production of yarn

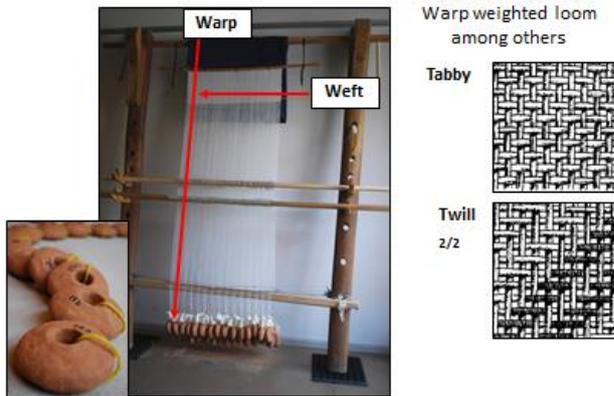


Suspended spinning technique

The most frequent archaeological evidence of looms is loom weights which are tightly linked to the use of the warp weighted loom and ceramic loom weights have been found in a great variety of sizes and shapes. Other types of looms were most probably in use, such as two beam looms, ground looms and back strap looms. Leaving rare or no archaeological evidence.

For those of you who have not tried or seen a warp weighted loom this is mainly how it works:

3. Production of cloth



In ordinary tabby weaving, every other warp thread is tied to one heddle rod. These threads are attached to a row of loom weights and the other warp threads are attached to a second row, thus preferable two rows of loom weights all in all. By changing the position of the rod, two different sheds appear. For every change, a weft thread is inserted. In twill weaving, the way of setting up the loom as well as weaving differs from tabby and is more complicated, but can absolutely be done. A homogenous set of loom weights facilitates the setup. Each warp thread should be given a suitable tension, which is evenly distributed.

Experimental archaeology



Weaver Anne Batzer, reconstructing textiles and testing weaving equipment



Linda Hurcombe, University of Exeter, processing plant fiber with flint tools

Therefore, loom weights should be selected based on their weight and thickness in relation to chosen yarn type, threads per cm and weaving technique ... a mathematical challenge!

Insight into the *chaine opératoire* can be gained from studying traditional textile craft and by input from other modern craftsmen with knowledge of basic textile technicalities. Around the world, there is still existing knowledge of textile techniques which we believe were used in prehistoric times. Different techniques have been used in different places and in different ways, depending on what was to be produced, but also depending on traditions and local habits and skills. Some have changed over time but are still regarded as traditional. Also modern craftsmen are marked by their education and school of thought as well as available

modern tools. Thus, we can presume that traditional craft today does not exactly mirror what was once conducted using similar tools.

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- What tools were used?
 - Were they reconstructions?
 - What materials were used?
 - Who made the test?
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Guidelines:

I will continue with the execution of textile experimental archaeology. Experimental archaeology, if understood as an umbrella for different ways of accomplishing comparable sources, is a common and appreciated approach in textile archaeology. However, fairly often there is a lack of published reports of how experiments were conducted and what aspects were taken into consideration. When conclusions have been communicated orally between academics and craftsmen and in the transformation from practical experiences into academic texts, important elements might have been lost.

- ★ • The primary parameter to be investigated is function.
- ★ • Raw materials, such as wool and flax, must be selected according to our knowledge of Bronze Age fibres and work processes.
- ★ • Tools must be reconstructed as precise copies of archaeological artefacts.
- ★ • All processes must be performed by at least two skilled craftspeople.
 - Every new test should be preceded by some practice time.
- ★ • All processes must be documented and described in writing, photographed and some filmed.
 - All processes must be analysed individually.
 - All products must be submitted to external experts on textile analysis.

What tools were used? Were they reconstructions? What materials were used? and so on. The answers to these questions can be of crucial importance for our understanding of ancient textile production. And if the research questions change, choices like the ones just mentioned will be of outmost importance to take into account in the new context of interpretation. The problem of lacking documentation could to some extent be excused because of difficulties of transforming different craft processes into descriptive material.

One of the challenges of intangible heritage! Guidelines, designed for the specific experiment, and reporting of the realization of them, helps clarifying how results were achieved and thus make them easier to relate to. In the projects I was involved in using experimental archaeology at CTR the establishment of such guidelines was one of the first tasks we accomplished.

★ The primary parameter to be investigated is function



These guidelines were used for investigations on the function of textile tools in 2005 and 2006. Now, some years of conducting experiments using these guidelines have past. I will continue this paper, reflecting upon how it has been applying to some of them in practice. I will not go into detail concerning specific experiments, but rather give some examples.

★ Raw materials, such as wool and flax, must be selected according to our knowledge of Bronze Age fibres and work processes

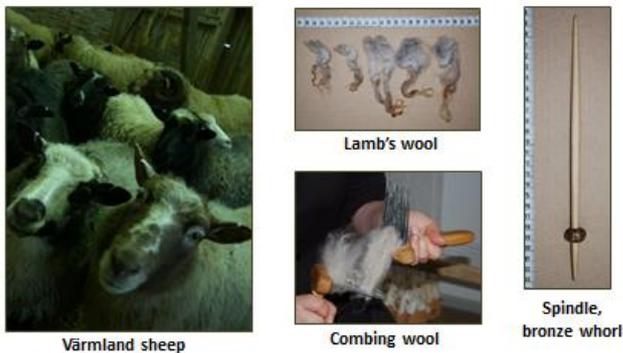


The primary parameter to be investigated is the function of tools.

This guideline expressed the working perspective relevant to our study aims, when investigating spindle whorls and loom weights and so we did not make reconstructed textiles.

Vorbasse textile project

Directed by Ulla Lund Hansen, University of Copenhagen



Raw materials, such as wool and flax, was selected according to our knowledge of fibres and work processes of the period in study.

It is clear that the quality of fibres varies a lot among different sheep, within each breed and even in a single fleece. And flax fibres can be very different depending on where it was cultivated and when it was harvested. Furthermore, the preparation of fibres affects the outcome in a great way. For this reason, it is of importance to come as close as possible to the same type of fibres and the same work processes as the ones in use during the time and area of study. Let's take wool as an example. The wool available on today's market is often mixed and machine carded. Therefore we have spent several hours on selecting wool.

Unfortunately, fibres from surviving textiles are not always analysed.

And sometimes there are no fibres to analyse. A lack of such information makes it problematic to apply this guideline to experiments. This was the case when we made test spinning with different kinds of spindle whorls from Bronze Age Greece. We had, however, written information on the use of wool and flax for textile production through Linear B inscriptions. We therefore decided to use wool from Shetland sheep with a variety of fibres, which is recognized as a characteristic for primitive sheep. By using wool from the same sheep in every test, it was possible to repeat the test and to compare the results from spinning with different tools. However, we cannot draw any conclusions as to what kind of yarn was once spun, since the fibres, among other things affect the spinning and the result.

In spring 2009 I was involved in another spinning and weaving project directed by Ulla Lund Hansen at the University of Copenhagen, investigating textile production at a Roman Iron Age site in Denmark called Vorbasse.



Tools must be reconstructed as precise copies of archaeological artefacts

Reconstructed spindle whorls and constructed spindles?!



Finds of fibres are rare. However, at Vorbasse both some textiles and some remains of tools are represented. This made it possible to estimate if and how it would be sufficient to produce such a yarn with a reconstructed spindle using fibre that whereas similar as possible to the findings. In order to find out what wool should be used in the experiment, samples from three different sheep, one of them a lamb, were selected and sent for fibre analysis at the Conservation Centre at Vejle in Denmark. Before they were sent, each of the three modern wool samples was separated into three different samples, one with reduced amount of wool, another with reduced amount of hair and in the third a mix of wool and hair, nine samples all in all. Each of the nine samples was prepared separately using wool combs as if it were to be spun directly. The results from the analyses were then compared to results from equivalent fibre analyses of wool found at Vorbasse, which was very thin and fine. The analyses demonstrated that the lamb's wool, where the amount of hair was reduced, was the closest, in terms of diameter, to the fibre found at Vorbasse. Not at all corresponding to what is usually demonstrated when prehistoric wool preparation and spinning are showed at museums. The primary aim of the work with the Vorbasse finds was to investigate spinning as well as weaving based on finds from the same site. However, it also demonstrated clearly the influence of wool selection and preparation.



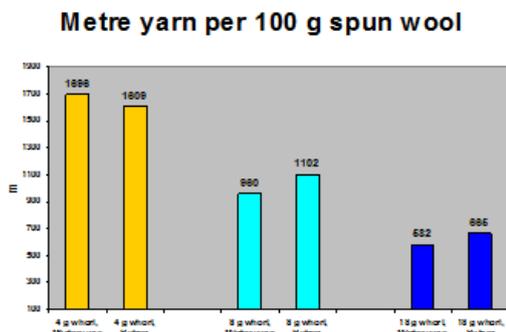
All processes must be performed by at least two skilled craftspeople



Tools must be reconstructed as precise copies of archaeological artefacts.

It is of great importance that if the function of the tools, in our case spindle whorls and loom weights, is to be investigated they must be as true to the originals as possible. This, however, is not always possible. Have we been working with half a reconstruction and half a construction? The answer is yes.

To what extent is it the spinner or the spindle that affects the outcome?



We could reconstruct only the whorls, since none of the shafts have been preserved in the same context. The shafts were made of wood in a way that we, based on our experience felt would fit. Other tools were also in use during the experiments, tools that we knew would be needed, but which were not recognised in the archaeological record, such as warping frames, looms and wool combs. Still, it is of importance to document all tools in use.

Studies in spinning techniques

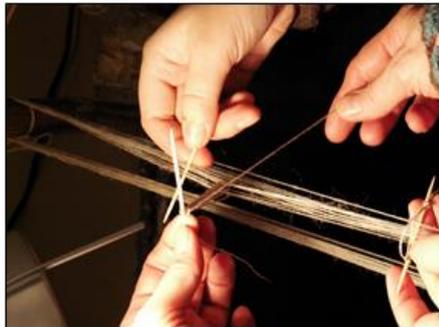
Centre for Historical-Archaeological Research and Communication in Lejre, Denmark.
Mårtensson, L. 2006, 2007



All processes must be performed by at least two skilled craftspeople.

It is, of course, important that the craftspeople are skilled in the technique and the material to be investigated. This knowledge, will affect the results. It is therefore of importance to document the artisans' background as a part of the contextual description of an experiment. By working with two craftspeople with different textile backgrounds, their skills will probably affect the individual outcome to some degree, such as the type of spun yarn.

★ All processes must be documented and described in writing, photographed and some filmed



To what extent is it the spinner or the spindle that affects the outcome?

Anne Batzer and I conducted most of the tests mentioned. Batzer is a professional weaver with many years of experience in working with prehistoric textile techniques in Denmark. I am several years younger than Batzer and was less experienced in weaving. We had never spun together before and had not had the same training. When spinning on spindles with whorls weighing 4 g, 8 g and 18 g using wool, the result indicated that the tools, rather than us as spinners, influence the amount of wool per meter. According to the figure, the outcome yarn was more similar between us than between the spindles with different weights of whorls. In general, light whorls are suitable for spinning thin and fine yarn and heavier whorls are suitable for spinning thicker and coarser yarn. A light whorl will not manage to

spin a thick and coarse thread and a thin thread might break because of the weight of a heavy whorl if it is spun suspended. We know that it is possible to spin with just a simple stick and that one spindle, with great effort, can be used to spin all kinds of yarns. Our starting point, however, was to spin in a way that felt most optimal, not pressing the tool in an uncomfortable way. Our tests confirmed earlier results made by only one spinner: Different weights of whorls suggest production of different types of yarns, the lighter the whorl, the thinner and finer yarn if it is spun suspended.

However, there are many techniques for spinning. This is confirmed by observations of spinning all over the world and also by ancient iconography.

Thank you!



Thanks to Lejre Historical-Archaeological Experimental Centre's Research Grant, I have been able to test different techniques using different types of spindles that occur in the archaeological record and different types of fibres. In conclusion spinning technique, as well as spinner and the design of the spindle, does have a major impact on what type of yarn is suitable to produce with different spindles. And as such, also spinning technique is a determining variable to consider when using results for interpretations in archaeology.

All processes must be documented. A great challenge! I know it sometimes can be difficult to both have your hands in fuzzy bundles of warp and at the same time work systematically, recording every effort made to reduce the lively twist of the yarn. Still, without documentation it is challenging to use the result in research. I would suggest that another person was responsible for documenting.

The results from some of the mentioned projects have been used for interpreting prehistoric production processes as demonstrated in the Tools, Textiles and Contexts research programme at CTR.

Training in techniques and knowledge of the archaeological finds together with written sources, ethnographic observations and iconography forms a mixture of sources which in different combinations constitutes the platform in our attempts to revitalize ancient textile

techniques today. And also a platform in experimental archaeology. One must sometimes also invent new techniques and practices; playful testing can lead you to the best approach. In this sense, traditional textile craft becomes a form of my own personal fusion of others' traditions, trials and errors. Furthermore a short term project in experimental archaeology will never correspond to the life long experience of an ancient weaver.

Finally, we must bear in mind that the results of experimental archaeology will never explain exactly how something was done in prehistoric times, but rather work as eye-openers and indicators. Results should be used with source criticism in mind. In establishing a procedure, such as the mentioned guidelines, where it is necessary to record and argue for different steps in the process, we have a tool to use for making the work transparent and somewhat understandable. No matter if the experiment is more experience based or if it is a well-considered systematic test.