



Karen-Hanne Stærmose Nielsen

So simple and yet so complicated: A journey to Armenia to study a prehistoric warping method

Introduction

An unusual photograph caught my eye when reading the newsletter from the Danish Mission East in Copenhagen, Denmark (Hartzner 2010). It depicts three young people in front of a large loom placed at a slight angle (Fig. 1). The loom is almost empty, but the way the young people's hands are positioned reminded me of some of my own work situations, but also recalled scenes from the famous antique frieze from the Forum of Nerva in Rome (Blanckenhagen 1940, pl. 40-41), where, among others, two women are depicted probably in the process of warping a tubular weave. But what are the seated persons from Armenia (and Rome) doing at the lower part of the loom? This could not be deduced from the photograph, and although I had an assumption about this I wished to have this confirmed.

On enquiring with Mission East, a Danish aid organization which sponsors and supports, in cooperation with the Armenian government, the establishment of weaving schools or workshops for disabled children and young people in Armenia, I was informed that the photograph was taken at one of these schools to which the young people were connected. At the same time, a trip to Armenia was being organized by Mission East which would enable me to visit the workshop myself. The temptation was too great and in September 2010 I went to Armenia to, among others, visit the weaving schools.

The Prequel

In the course of 1939-1946, the pioneering Danish textile scholar, Margrethe Hald undertook a detailed investigation and analysis of textiles from Danish bogs and Danish Iron Age graves and settlement sites. This

resulted in her doctoral thesis, *Olddanske Tekstiler* published in 1950 (Hald 1950; 1980). During her work Hald analysed "a curious piece of textile": a cylindrical or tubular-shaped garment recovered in 1896 in the bog of Huldremose, Denmark, measuring 1.68 m in height (weft direction) and 2.64 m in circumference (warp direction) (Hald 1980, 53; Mannering et al. 2010). In its shape and possible method of wearing, it closely resembles the Greek peplos depicted on vases



Fig. 1. The making of a tubular warp for a carpet at a charitably-funded weaving school for disabled youngsters in Armenia 2010 (Photo: Hayrapet Hoveseptyan Mission East, Yervan Armenia).



from the 5th century BC.

The reason why Hald called this piece “curious” was due to the vertical feature which ran across the entire width of the tube. A closer examination revealed that it was not a seam, but consisted of a wool cord around which the warp threads were wound as they alternatively came from above and below the cord (Fig. 2). Hald called the cord a warp-lock. It functions like a zipper, keeping the fabric in its tubular shape. When pulled out, the warp-loops from the two ends of the textile would separate and thereby open the fabric and make it flat. Need one name the sheer number of useful advantages of this procedure during warping and weaving?

However, let us first return to Hald, who, amazed by her discovery of the warp-lock asked (Hald 1980, 211): “Is a loom with two beams known, where the warp is laid round the beams and where the turns of the warp along both transverse edges pass round a cord stretched between the two beams?” Hald illustrated this question with a diagram which in principal shows both the manner of warping and the tool with which she imagined a tubular weave could be produced (Fig. 3).

Subsequently, as Hald continued her investigation she encountered many more examples of open or closed tubular weaving in the Danish Early Iron Age textile material that had yet to be examined. Regrettably, the political situation in Europe (1940-1945) prevented Hald from visiting museums abroad to look for parallels, but through literature studies Hald discovered that the same warping methods were used by the Indians of South America and the north-western USA (Nordenskiöld 1919; Olson 1928). The same principle was found in Tibet as well (Montell 1934). Montell had observed and photographed a woman seated on the ground with a ca. 0.50 m wide tubular warp on a loom with one of the beams attached to the waist; the other beam is – frustratingly – out of the picture. Furthermore, Hald added in a postscript to the conclusion of the manuscript of *Old-danske Tekstiler* that an important publication had come to her attention (Hald 1950, 486). In the book *The Vertical Loom in Palestine and Syria* by Grace M. Crowfoot (Crowfoot 1941), tubular weaving from Palestine, Syria, Turkey and Greece was discussed, and it documented that warping in these areas was done according to principles still known to us today (Fig. 4). “Thus, as expected, even before this present work goes to press” wrote Hald, “information on tubular weaving...will increase” (Hald 1950, 403). The volume of this increase is seen in the package of written paper simply tied with a string that was found in 1984 among Hald’s literary remains. An incomplete

manuscript and a large amount of photographs bear witness that a book on tubular weaving around the world was in progress. Papers dating from ca. 1952 until about a year before Hald’s death in 1982 were found. The manuscript has now been handed over to the Danish National Research Foundation’s Center for Textile Research (CTR) in Copenhagen.

Thoughts on weaving techniques

The diagrams by Hald, as well as by Nordenskiöld and Olson, lead us to understand that the ball of warp yarn goes continuously around the upper and lower beam with a turn around the tightly fastened warp-lock. Crowfoot’s diagram (see Fig. 4), on the other hand, shows the ball of warp yarn lying on the ground with a warp loop going up and led around and hooked in over the warp-lock. This seemingly little, yet, in reality, large change in the warping procedure necessitates the warp-lock to be a thin, rigid stick fastened only at one side of the loom.

Later in 1960, Hald also had the opportunity of studying weavers in Syria and Lebanon who, among others, used the tubular warp method to weave lengths of goat hair for their famous black tents. The warp could have a substantial length. For instance, a loom was seen in an alley, set up with a third extra beam up to about 10 m away. The resulting textiles could thus be up to 20 m long. Hald actually brought home to the National Museum of Denmark such a loom and warp from her trip (Paulli Andersen 1966-67). It would be of great interest to see this loom set up and exhibited in the museum someday.

In the article describing her fascinating travels Hald (1961, 112) writes: “An iron rod is placed along the lower beam in front of the loom, so that its right end is free and movable. The weaver sits in front of the loom with the legs placed in the pit beneath the loom and ties the warp thread to the rod’s left end. He pulls out a loop from the ball of warp yarn, and raises it up towards the top beam, and a boy then snatches this with a wooden hook and brings it around the third beam behind the loom and forward again. The weaver receives the loop beneath the lower beam, pulls it upwards and in over the iron rod. With the thread from above, he again forms a loop which is laid in over the rod and finally he makes a third loop for the boy to snatch with his hook once again.”

Back to Armenia

Now the explanation for why I had to go to Armenia may begin to be apparent. It was to see how, in a state that had only been independent for 20 years, a new generation of carpet weavers were being taught a craft that is several thousand years old. In the course

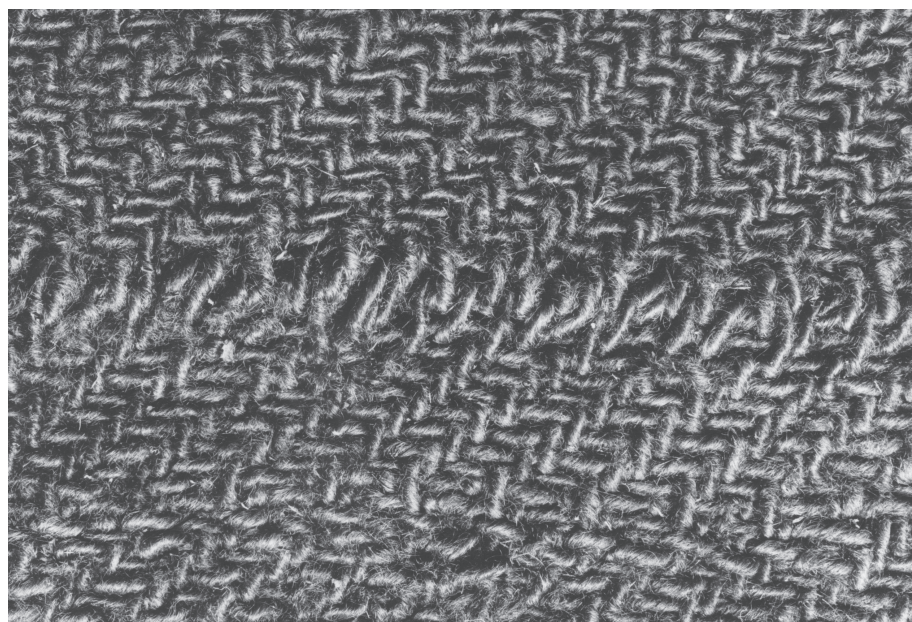


Fig. 2. The warp-lock in the Huldremose tubular textile (National Museum of Denmark Mus. no. D3505). The wefts are those parallel to the lock. The area above the warp-lock is the beginning of the weave and the area below is the end of the weave (Photo: Roberto Fortuna, the National Museum of Denmark).

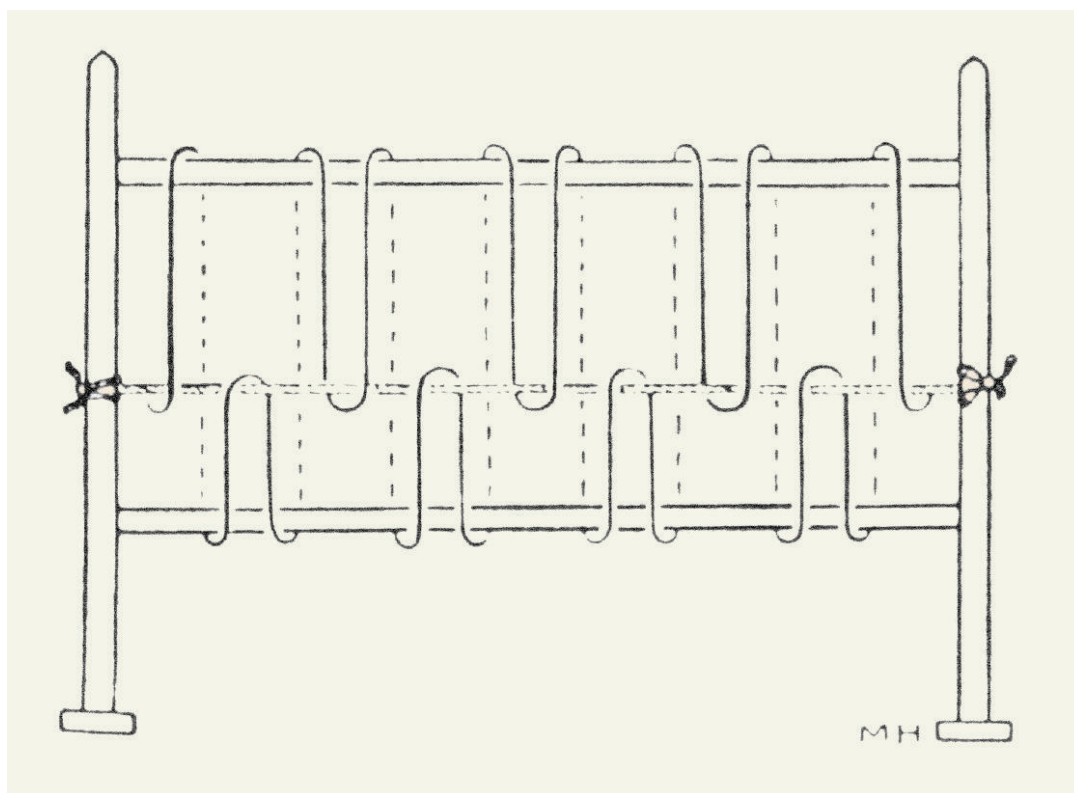


Fig. 3. A proposal for an upright tool with two beams as envisaged by Hald before 1950 for the possible making of a tubular warp utilizing a warp-lock (After Hald 1980, fig. 213).



of one day, I managed to see, and try, their inherited but also adapted for the purpose warping procedure. By imagining the warping process which was used in the Iron Age in Scandinavia, e.g. in the Huldremose textile, and comparing it both with the way in which the lengths of goat hair in Syria and Lebanon were warped, and with the warping I myself observed in Armenia in 2010, we see a technique which gradually evolved and through hard won experience and specialisation has spread and survived until today. Instead of repeating Hald's words from Syria and Lebanon (Hald 1961, 112), I have made a step-wise sketch of the different phases of the warping procedure (Figs 5 and 6). If you follow the warp thread in every step on the sketch, you will gain a better understanding of this process.

The loom and the warping process remained almost

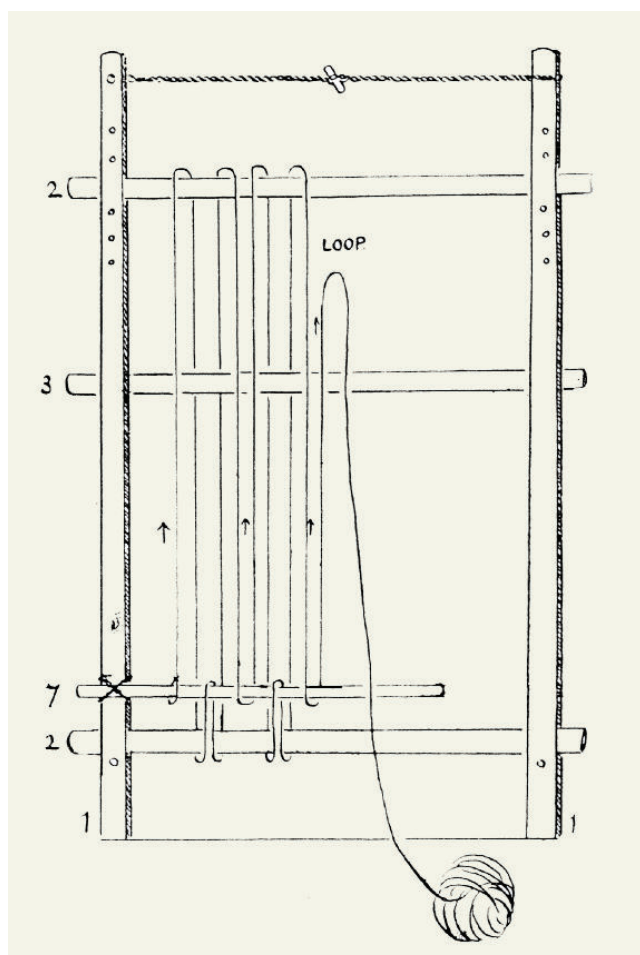


Fig. 4. This sketch by Crawfoot reveals that the warp-lock is replaced by a thin wooden stick fixed in one end and left free at the other end (After Crawfoot 1941, pl. XIV).

unchanged throughout history, and only few “improvements” have been undertaken in Armenia: the warp-lock, usually a thin and round stick, is replaced here by a wooden plank of about 1 cm wide and 5 cm high and as long as the width of the planned carpet. Various technological reasons in warping, weaving and finishing the plaited borders of the carpet may have necessitated this modification.

It is worth noting that this warp-lock plank is not firmly attached to the lower beam at any point. The reason being that it has to be able to “travel” all the way around both beams in the loom, namely when the area that is woven has to be pulled downwards after 20-30 cm of weaving. This manoeuvre is done by loosening the wedges that keep the lower beam down, and as the beams are rounded and smooth this action will cause no problem. I was also impressed by the practised and skilful way of laying each warp thread precisely just as taut as the neighbouring threads, which my young teacher, Erich showed me.

A-J-O warps

I came all the way from Denmark to Armenia just to see how the warping was done. Luckily, I managed to observe a little more however. Several pupils showed me how they tied the carpet knots on their small square test carpets. Three or four of them sat besides each other at the big looms, so that in this way all movements and actions were made as if on the scale of “real life”. They had a little L-shaped iron comb with which they hammered down one row of knots and two subsequent ground weave wefts in the direction of the warp-lock.

Erich, my young guide, was especially interested in seeing the pictures I had brought with me of the various types of looms from around the world. Just imagine that one could weave both up and down, and even use oneself as a human “warp fastener” with the help of a belt tied around the hips and a strap around the toe! His surprise and enthusiasm tempted me – now using pen and paper – to try to explain to him that, instead of the impossible task of dividing the weaving tools (looms) themselves into different types, it would be easier to categorise the looms according to technological criteria, e.g. how the respective warps are constructed, fastened and function in a loom.

Let us call the warp of the warp-weighted loom an A-warp (the letter A symbolizing an upper beam with an open warp beneath) and a tubular weave warp with or without a lock for an O-warp (with the threads running in two layers in a ring around the



two beams) and a warp stretched in a single layer between the two beams (just like a film roll in an old-fashioned camera) could be called a J-warp (Stær-mose Nielsen 1999, p. 106).

These three ways of warping are so different that they can neither be confused nor be derived from each other and thus are equally original. In other words: all the loom types around the world are dependent on one of these three warping systems. From ancient times, both the J and O warps have been operated in vertical as well as in horizontal, and even, in a slanting position. Furthermore, the A and O warps have moved almost in a closed circuit in contrast to the J-warp, which is the only one that had the potential to develop into the basic idea of a treadle loom. (It is noteworthy that J warps are workable only in a horizontal or approximately horizontal position, because the foot is the one that opens the so-called shed by means of a downward drive in the stretched warp threads).

History shows us very basic treadle looms that utilize features from other primitive looms. Examples are: pits for feet and treadles; cord around the weaver's waist to keep the front beam; a peg driven into the ground far away from the weaver to keep the bundle of warp threads taut. This last idea or even invention is done, among other things, to avoid the constant problematic coiling up of the long warps on a beam (Stær-mose Nielsen 1999, figs 78 -81).

The Farewell

The circle around us had gradually become closer and as our time was drawing to an end, we had to say goodbye to the Armenian teacher, the youngsters and the interpreter. I had enjoyed to the uttermost the respectful working atmosphere that prevailed throughout the weaving schools, both for the handicraft itself, which the pupils had learned completely from scratch, and for the individual pupils who were burdened with various problems and disabilities. This atmosphere no doubt was in contrast to what one often hears about carpet factories using child labour, providing poor conditions for the workers, and using inferior materials resulting in poor quality carpets.

I was imbued with a feeling of having contributed a little in return for having had the opportunity to come and study a prehistoric warping method in action for which I am truly grateful.



Fig. 5. One example from the warping process that I learnt by observing and trying it myself (see Fig. 6, step 6). Note that the position of the arms and hands of the young pupils are typical and distinctive for this almost worldwide method of tubular warping. The young girl, who is standing at the beam throughout the entire action, has just handed down the loop to the weaver, Erich, who then takes the loop behind and under the beam whereupon step 7 in Fig. 6 shows the loop out in front and ready for steps 8 and 9. These two steps (8 and 9) are the most complicated and call for accuracy.

Before completing step 9, the weaver has to pull the warp thread (with the arrow) downwards by which the big loop around the warp-lock will be tightened as in step 10. (Photo: Kirstin Lee Bostelmann).

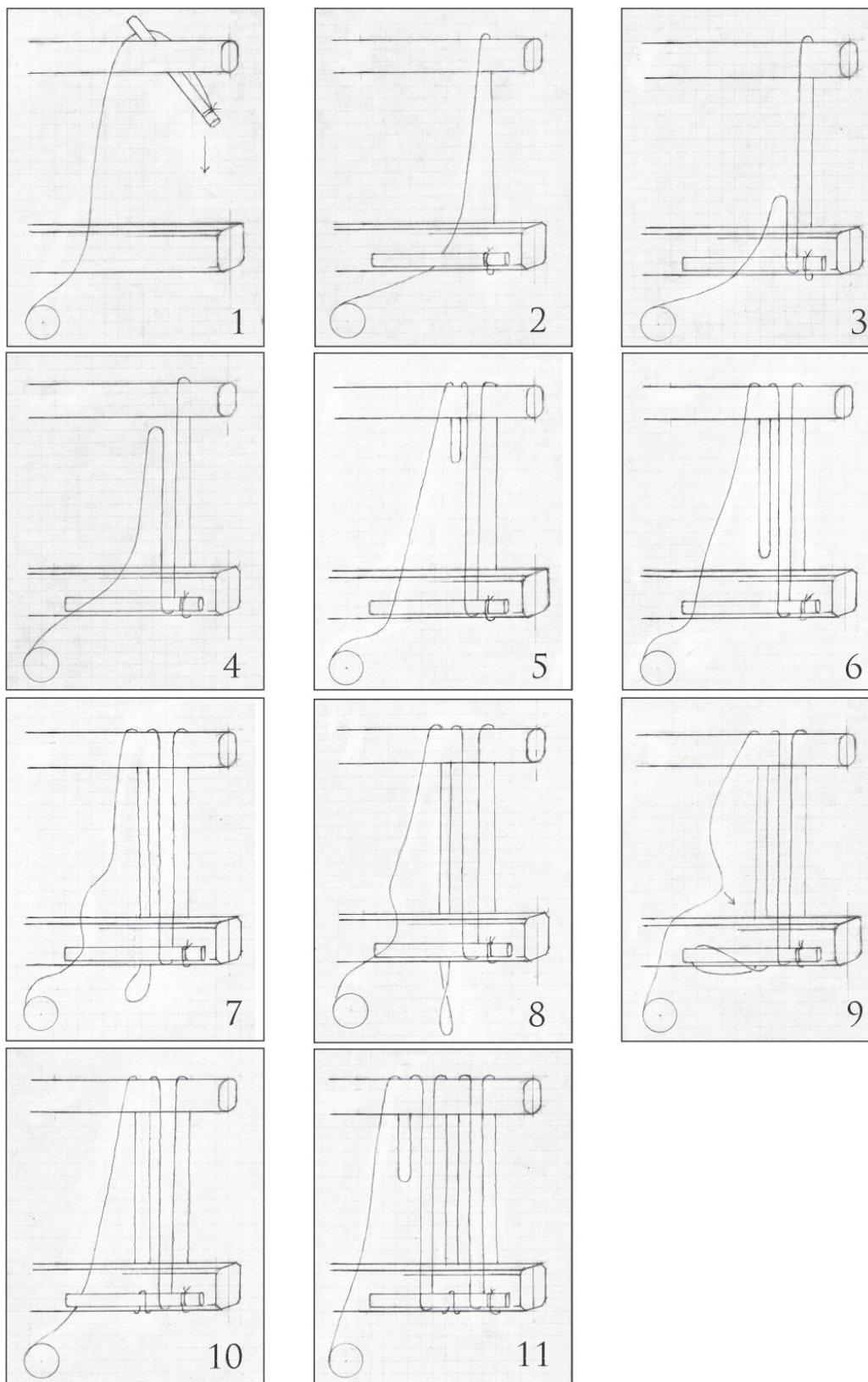


Fig. 6. Sketch showing the stepwise sequence of the tubular warping with a warp-lock. (Drawing: Karen-Hanne Stærmosse Nielsen).



Acknowledgments

I would like to give my most heartfelt thanks to the VELUX Fund and CTR for their financial support which enabled me to travel to Armenia. My gratitude also goes to Mission East in Yerevan (and Copenhagen) for helping me with the contacts to the weaving school: Yerevan State Humanitarian College and Republican Special School number 2. Finally, many thanks to Kirstin Lee Bostelmann, Mission East, Yerevan who took the official photographs during my study visit.

Translated by Cherine Munkholt, CTR.

Bibliography

Blanckenhagen, P.-H.V. (1940) *Flavische Architektur und ihre Dekoration untersucht am Nervaforum*. Berlin.

Crowfoot, G.M. (1941) *The Vertical Loom in Palestine and Syria*. *Palestine Exploration Quarterly*.

Hald, M. (1950) *Olddanske Tekstiler. Nordiske Fortidsminder V*. København.

Hald, M. (1961) *I Libanons Skygge*. Nationalmuseets Arbejdsmark, 108-116.

Hald, M. (1980) *Ancient Danish Textiles from Bogs and Burials*. Publications of the National Museum. Archaeological-Historical Series Vol. XXI. Copenhagen.

Hartzner, K. (eds.) (2010) *Newsletter from Mission East, Issue 3*. Copenhagen.

Mannering, U., Possnert, G., Heinemeier, J., Gleba, M. (2010) *Dating Danish textiles and skins from bog finds by 14C-AMS*. *Journal of Archaeological Science* 37, 261-268.

Montell, G. (1934) *Studier i asiatisk tekstilteknik*. Ymer.

Nordenskiöld, E. (1919) *An Ethnographical Analysis of the Material Culture of the Indian Tribes in the Gran Chaco*. *Comp. ethnogr. stud. I*, Göteborg.

Olson, R. L. (1928) *The Possible Middle-American Origin of the NW-Coast Weaving*. *American Anthropologist IV. New Series Vol. 31*, 118-120.

Paulli Andersen, M.K. (1966-67) *Håndarbejdets Fremme nr. 4*, 32 årg.

Stærmose Nielsen, K.-H. (1999) *Kirkes Væv. Opstadvævens Historie og nutidige Brug*. Lejre.