

The Bronze Age

AMICA SUNDSTRÖM, SENIOR CURATOR – TEXTILES FOR THE NATIONAL HISTORICAL MUSEUMS IN STOCKHOLM, DIRECTS OUR ATTENTION TO THE BRONZE AGE (1800-500 BCE), TO WHEN THE VERY OLDEST FINDS OF WOVEN TEXTILES IN SWEDEN AND DENMARK HAVE BEEN DATED.

THE KNOWLEDGE we have about textile production from prehistoric times is based on archaeological finds of textile equipment and textile fragments as well as a few visual images and small figurines. This knowledge is limited, since textiles and equipment were predominantly made of organic material such as wool, bast fibre and wood and do not preserve well in soil. This means that the few textile finds preserved and parts of equipment like loom weights and spindle whorls extant are all important pieces of the puzzle in understanding how weaving developed. The very oldest textile finds date back to the Stone Age, ca 4500-4000 BCE. In Denmark, discrete finds of plant fibre cord have been preserved, while in Sweden indirect finds of cords preserved as imprints on ceramics date from the Later Stone Age (4200-1800 BCE). It is difficult to set the time when weaving appears, as the material finds are relatively limited, but it would be strongly connected to the domestication of sheep and development of fleece for spinning into thread.

The idea of weaving is thought to have arrived the same way as knowledge of agriculture, which for us originated in the areas around the Tigris and Euphrates. Bronze Age textile finds from Swedish territory today come mainly from burial mounds in Skåne and Halland. The bulk of the finds are from the burial mounds around Dömmestorp in Hasslöv parish in southern Halland. This has to do with the fact that in those areas the mounds were built up of turf, assisting the preservation of textile matter through a microclimate low in oxygen. Over the rest of Sweden, mounds were partially built of stone or with cairns of stone, more permeable by air and water which break down textile matter. For some periods during the Bronze Age fire burials predominated, so little by way of organic material was preserved. During

the Late Bronze Age, imprints on ceramics in central Sweden indicate similarities amongst types of cloth.

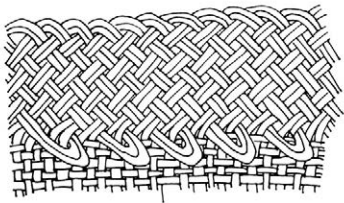
In Denmark, the dead were buried to a greater extent in turf mounds, reflected in the textile material preserved. Textile finds from 157 graves mostly date to the Late Bronze Age. One of these fragments is of plant fibre; the others are of wool. Seven of these graves stand out because of the pretty well complete outfits preserved in them. The deceased was laid out with clothes on a cowhide in a hollowed out oak trunk. Finds of artefacts related to attire such as jewellery, tubes and spirals attached to a corded skirt, buckles and belt bowls and little containers, point to a culture that was relatively homogeneous throughout the southern half of Scandinavia. This means that the Danish finds are also of assistance in interpreting fragments found in Sweden and in drawing conclusions about the mode of dress here too. The Bronze Age fragments in the National Historical Museums (SHM) are all in plain weave. They were woven using a thicker woollen thread with a high twist ratio per metre. The sett in the cloth is 3–6 ends per centimetre. The brown colour probably comes from sheep's fleece pigmentation, but textiles also become brown in colour by lying in the earth. The threads spun in the past generally have more twist than yarns commercially available today. During the Bronze Age, the same type of yarn appears in both warp and weft. Depending on whether the yarn was spun clockwise or anticlockwise, the twist slants in one direction or another, denoted by the letters Z or S with their different diagonals. What we know from the Bronze Age is that both S- and Z-spun yarn was produced and used for warp and weft in combinations of SS, ZZ or S/Z.



Oak coffin of an older man from Borum Eshøj in Denmark.
Photo: National Museum of Denmark.

Left from above Cloth fragment with a starting border. Inv nr SHM 9822:834. Photo: Christer Åhlin, The Swedish History Museum/SHM (CC BY). Braided starting border, drawing by A. Sundström.

Tutulus made of bronze. Decoration, attached to a woman's belt. Ekudden, Nykvarn, Södermanland. Photo: The Swedish History Museum/SHM (CC BY).

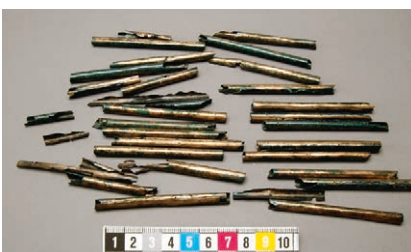


BRONZE AGE CLOTHES

Three well preserved sets of women's clothes have been found in Denmark. The deceased had a waist length top with three quarter length sleeves and either a corded skirt or a full length skirt/dress made from a tube of woollen cloth. The preserved tube skirt comes from a burial mound in Skrydstrup, but never documented with the outfit in the place it was found. This means that it is uncertain as to how the skirt was worn and that interpretations have been somewhat varied. The skirt is a tube, fairly wide and long, too long for a garment held at the waist. It might have been secured over the shoulders like a peplos, with a belt round the waist. Or else it might have been pleated round the waist, with the length then hanging down. It has also been suggested that the skirt was fastened round the body like a bath towel. Of these suggestions, more than one could be correct, there may have been several ways of wearing the garment. Yet the set of adornments appears to have been the same as well for corded skirts, i.e. a woven belt with tassels, a belt plate, small tutuli on the belt and a belt container or bowl on the back. The suggestions given above would all fit with this set of adornments, but if the cloth hung down the bronze objects would be hidden, which like the cloth were costly status objects.

Two examples of a corded skirt have been preserved. There are also plenty of bronze tube burial finds, which would originally have

been attached to the skirt cords. There are also figurines depicted wearing corded skirts. The corded skirt was constructed in an intriguing way, in short it could be described as a woven band where the wefts have been extended out beyond the weave for making the cords. The latter were first plied in twos, then fours. At the lower edge a loop was made by wrapping more wool or thread and simultaneously binding off the cords. The skirt was worn as a wrap, though with movement there would be a certain see through quality. The top has been cut in another way as regards cloth, but considering the experience there was of making garments from skins, the cut makes more sense. The widest part of a hide was utilized to make longer sleeves without having to cut them separately. That way one hide could be used for making two tops. The upper part of the hide/cloth was folded over to allow for the sleeves. A hole was cut for the head. Cuts were made under the sleeves on either side far enough that the parts could be folded in round the body. The stitching was in a T form on the back. Subsequently, loose pieces were stitched to the lower edge to lengthen the top. One of the tops has some embroidery on the sleeves. The three sets of men's clothes extant consist of a kidney-shaped/oval mantle – a cloth wrapped round the body between the armpits and knees or only from the waist down to the knees. Over this they wore woven belts, stitched headwear and shoes made of skin as well as cloth wraps for the feet. The outfit makes very economical use of cloth, as the cloth wrapped round the body was stitched from pieces left over once the mantle had been cut out of one rectangular piece. In all, three mantles have been preserved with dimensions from 243–195 cm x 107–78 cm. For the mantle and loincloth to be made from the same cloth, the woven area would have had to measure at least 150 x 270 cm. One of wool's properties is that it can felt. The preserved fragments show felting that ranged from slight to strong. Usage and time in the earth would also produce secondary felting, but we can nevertheless deduce from one of the Danish men's outfits that felting was deliberately used as a technique. The cloth was felted to a much greater degree at chest level to give more stability to the cloth, so that it would not slip down when held in place above with a belt alone. The textiles preserved



Page 14, cont. Belt bowl and hanging vessel, decoration attached to a woman's belt as well as a tutulus. Sacrificial offering from Vårkumla, Västergötland. Photo: Sören Hallgren, The Swedish History Museum/ SHM (CC BY).

Slender bronze tubes, originally adornments on a corded skirt. Photo: The Swedish History Museum/ SHM (CC BY).

Right Egtved girl's outfit of a top and corded skirt. Photo: National Museum of Denmark.

Page 15 Warp-weighted loom with a heddle rod arrangement for producing plain weave. Drawing: Moa Råhlander.

come from graves of people representing the highest echelons of their social system. In all probability, hides, sheepskins and braided garments were in use, as we now know from various sources including the iceman Ötzi in the Alps.

THE LOOM

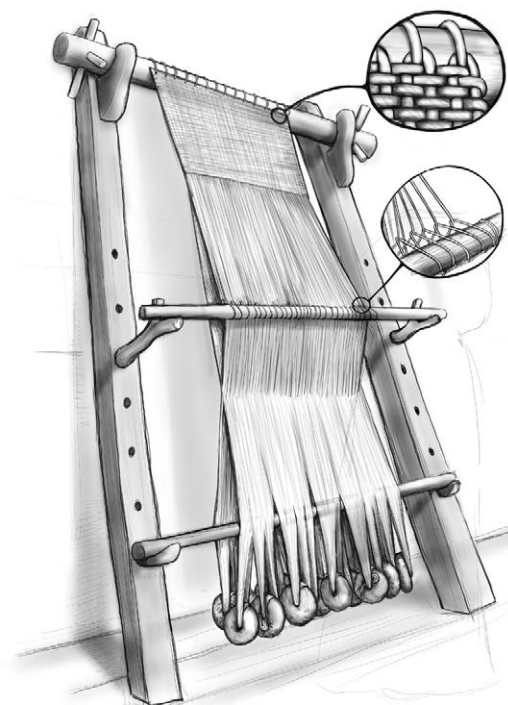
A few loom weights have been preserved in Sweden: the warp-weighted loom would have appeared by this time. Other conceivable types of looms include the vertical loom with two beams, but none such have been preserved as these would have not left any other traces in the form of weights. The preserved fragments are too small to give any clues about loom construction. This loom will be addressed in the next issue. At SHM, the largest of the Bronze Age fragments we hold is a piece of plain weave ca 15 x 15 cm, where one edge is different, in another weave structure with loops sticking out. In 2007 I was employed to carry out a project at the museum, going through and compiling the information on Bronze Age textiles. That was when I saw this fragment for the first time. It arrived at the museum as a purchase from the Baron Claes Kurck antiquities collection. The only information on the fragment was Skåne, Bronze Age. Private collections of antiquities were not uncommon at the end of the 19th century, and these could be sold, exchanged or given away before they were later regulated under the Antiquities Act. The general opinion about the Kurck collection is that the Baron was meticulous and systematic, so any accompanying information was regarded as reliable. The problem as I saw it was that the fragment could not have been connected to a grave or bog and the context was therefore very questionable. The fragment itself is very interesting, not only because it is our largest fragment (the closest in size is a 5 x 7 cm fragment). The majority of the fragments measure 2 x 2 cm. The Kurck fragment is also fascinating because of the different structure down one side. Upon closer study, I could establish that the edge was braided and the loops indicated that the edging had been woven before the rest of the weaving was done. This means that the braided edge is a so-called starting border, where pairs of picks inserted

into the braid then become the warp ends of the bigger weave. A few starting borders found preserved in Denmark and Austria are of interest for comparison purposes. Most of these borders can, however, also be executed to finish a weaving, i.e. they don't need to have been done before the main weaving. One of the Austrian braids must have been made before weaving commenced though, it was a little more simply made as the threads travel straight down into the weave.

Since there are so few finds of this kind, it was important to obtain a more accurate dating. The fragment, after being C-14 dated at the Ångström lab in Uppsala, indicates that the textile was made ca 1390–1120 BCE, i.e. during the Bronze Age periods 11–111. Its provenance, however, remains uncertain. It may have been made in Skåne, imported into Skåne during the Bronze Age or purchased from abroad during the 19th century. However, because there are such clear similarities with both other Scandinavian finds and the Austrian starting border, it would have been made somewhere in northern Europe. Scientific analyses of wool in Danish clothing indicate that certain articles may have been imported from the continent. A starting border of this kind rules out the use of a vertical loom with two beams. The border can be stitched to a warp-weighted loom, but can also be used on a simple ground loom, where the warp gets tied round a stone or stake in the ground.

This year is the centenary of the Gerum mantle's discovery in a peat-bog. The method available at the time for dating the mantle was pollen analysis. It was established as Bronze Age and is found in earlier literature under the name of Bronze Age Mantle. As that dating was not so accurate, the mantle was then C-14 dated in the 1990s. As a result, the mantle was found to have been made at some point around the beginning of our era, that is the pre-Roman Iron Age. The article in the next issue will be dedicated to the Gerum mantle and what it can tell us about the development of weaving.

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Warp-weighted loom

This is a vertical loom where the warp is tensioned with weights. The warp is made by first weaving a band where the picks extend out from the side of the band, providing the full length of the prospective warp. This band is then secured to the top beam of the loom and the warp ends tensioned with loom weights.

The warp is often prepared during the warping process specifically for the weave structure to be used. If plain weave is the structure, the warp is separated into two layers. One layer is suspended in front of the lower crossbar and the other layer behind. Since the loom stands upright at an angle, a natural shed will form. A heddle rod is threaded around the ends lying behind the lower crossbar. Bringing this rod forward creates the countershed. Inserting the weft into these two sheds alternately produces plain weave.

The length of the cloth determines the length of the warp. Weaving is executed upwards, towards the top beam, which can be turned and the woven cloth rolled on as weaving progresses. A feature shared in common by the warp-weighted loom, the vertical loom with two beams and the ground loom is that none have a batten; the weft is beaten down with a weaving sword or something similar. At the end there is a section of warp ends that cannot be woven (known as thrums). These can either be cut off or used as a fringe or made into a braided finish.

Seat Cushion with Bronze Age Inspired Tassels

Amica Sundström and Maria Neijman made a seat cushion with a Bronze age feel from woollen cloth. The backing was a piece of naturally tanned leather. Inspiration for the corner tassels came from the way corded skirts were made

STRUCTURE

Plain weave, 4 shafts and 2 pedals

WARP	Filtmakeriet's Lovikka yarn with extra twist ca 1000 m/kg Filtmakeriet
WEFT	As for the warp
TASSELS	Filtmakeriet's roving, brown & white fleece
REED	35/10, 1 end to a heddle and 1 end to a dent
SETT	3.5 ends/cm
WIDTH IN REED	47 cm
FINISHED DIM.	45 x 75 cm
WEFT SETT	3.5 picks/cm
NR. OF ENDS	164
WARP LENGTH	ca 1.5 m
YARN REQUIRED	
for one cushion	ca 450 g
for the tassels	40 g roving

also required:
skin/leather 40 x 70 cm
feather cushion pad



WEAVING, MAKING UP

Yarns given high twist are best set in order to stabilize them. This can be done by steaming the hank and suspending it, stretched, to dry. If a warp gets shortened too much by being attached to the warp beam, I often tape it to the stick to avoid the ends sliding about. With so few ends of quite thick yarn in a warp like this, only 1.5 m long, no pre-sleying/raddling is required. It is worth distributing the ends evenly though. Overcast the edges before cutting down to prevent the weave unravelling.

Place the cloth right side down against the smooth side of the skin, stitch up the sides with an overcast stitch. Rounded corners are fine and will straighten up the shape of the cushion. Leave the corners open for the tassels and the middle of one side for the pad/stuffing. To make it easier to keep the tassels in place, try rolling up a bit of cloth and tying it securely to the head of the tassel. Then place the tassel in the cushion corner and stitch between the head of the tassel and the little cloth roll.

TASSELS

These tassels are based on corded skirt and belt finds in women's graves. Those tassels were made from cords taken from the woven starting border/thrums.

Here, we made tassels using Filtmakeriet's brown roving.

Two strands of roving were plied with a really high twist. Each tassel consists of 20 cords, 4-ply (four strands to each cord).

Wind the yarn 40 times round a book/piece of wood ca 7 cm long. Tie off tight with a length of cord around the little skein, but with a bow so you can tie it even more firmly when you are ready. Slip off one loop at a time and allow it to twist up on itself. Then take another loop and let it twist up on itself. These two loops are then plied together and the ends tied off with a reef knot, leaving a gap of about a pencil diameter for inserting some white fleece. Repeat until you have 20 cords. Now take a wad of fleece and comb or tease it with your fingers. Wind this fleece around and around the loop to fill the space. Repeat. Then secure the cords in a row on another length of yarn. Make 4 tassels in all.



Bronze age cloth was woven in a relatively coarse yarn for plain weave, with a sett of 4 ends per cm. For us, the problem was that the yarn had a lot of twist per metre compared to yarn available for purchase. As it is this yarn that gives the cloth its special character, we gave much thought as to how we might solve this problem. Filmmakeriet spins their yarns in natural fleece colours. Their brown Lovikka yarn was given extra twist with the aid of a spinning wheel: the resultant yarn is in many ways similar to Bronze Age yarn. You don't need to be a spinning

expert to give yarn some extra twist. If you have never spun before, this is an excellent way of becoming familiar with a wheel and the way foot and hand co-ordinate.

If you don't have access to a spinning wheel, a spindle can also be used. This high twist and relatively coarse yarn will produce a good strong cloth, maybe not the nicest against the skin by today's standards but with a lovely, durable surface.