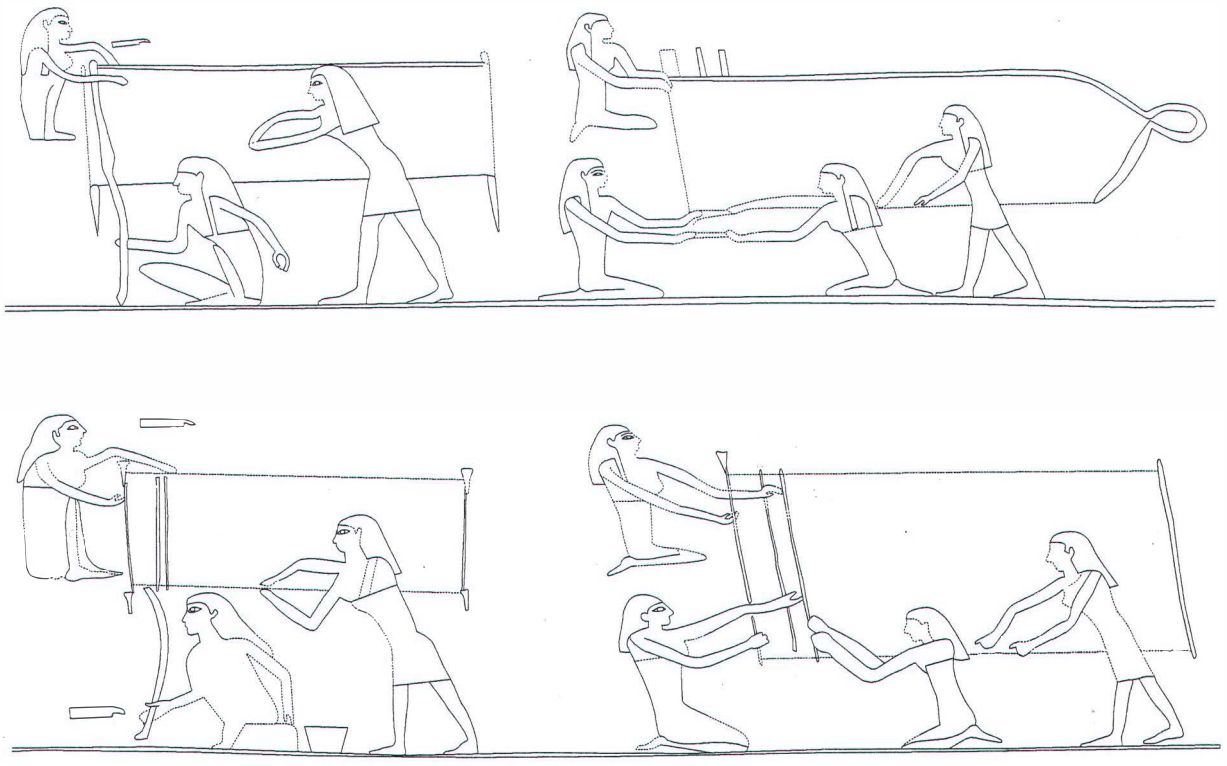
ARCHAEOLOGICAL TEXTILES NEWSLETTER



NUMBER 41 AUTUMN 2005

Editorial

The world of archaeological textiles has received with great sadness the news of the death of Elisabeth Crowfoot on 31st August 2005, at the age of 91. We carry in this number of *ATN* an obituary by Frances Pritchard and a personal appreciation by Nettie Adams. Elisabeth was, quite simply, the leading figure in the study of archaeological textiles, taking over that role seamlessly from her mother Molly (G.M.) Crowfoot. Her knowledge of Anglo-Saxon and medieval textiles in Britain and the textile repertoire of the ancient Near East (to name but two foci of her work) was unrivalled, and the standards she set herself - and others - were extremely high. She was, however, always reluctant to write independent synoptic studies, preferring to present her perceptions and interpretations as conclusions to her accounts of the primary data. When we were in doubt, Elisabeth could be relied on to have the answer or a helpful bright idea. We shall greatly miss her personal warmth and her generosity in sharing her immense knowledge.

Textile conferences have followed one another in such quick succession of late that *ATN* has difficulty in keeping up: Nile Valley Textiles at Antwerp (April 2005), NESAT IX in Braunwald (May 05), EAA in Cork (Sept.05), Mediterranean Textiles II in Athens (Nov.05). A welcome new development is the inclusion of a textile section in some international archaeological conferences, such as the European Archaeologists' Association (Lyon in 2004, Cork in 2005) and the 2006 meeting of the Archaeological Association of America. Textile archaeology has to blow its own trumpet!

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Cover: Warping and weaving scenes from tombs at Beni Hasan, Egypt.

Unravelling Beni Hasan: Textile Production in the Beni Hasan Tomb Paintings

Introduction

The site of Beni Hasan consists of 39 Middle Kingdom tombs, dating from the end of the 11th dynasty to the middle of the 12th dynasty (Shedid 1994, 15). The paintings in many of these tombs include detailed scenes of daily life at the estate of the occupant. In four of the tombs in particular scenes directly related to textiles are depicted, namely in the tombs of Amenemhat (tomb 2), Chnemhotep II (tomb 3), Khety (tomb 15) and Baqt III (tomb 17).

The English Egyptologist Prof. P. E. Newberry was the first to extensively record the Egyptian site of Beni Hasan, publishing his findings in a series entitled *Beni Hasan, Part I to IV* (1893-1900). In an incredible tour de force, Newberry traced all of the tomb paintings onto large sheets of papers, which were subsequently sent to England to be inked and reduced in size. Unfortunately either during the tracing or inking some small mistakes were made. In 1984 Gillian Vogelsang-Eastwood photographed the Beni Hasan paintings showing textile scenes, with the intention of rectifying some of the mistakes made by Newberry. In the summer of 2004 I was fortunate enough to be given the opportunity to make new line drawings based on these slides.

The slides were scanned with the *Canoscan FS4000 US*. The digital images were slightly enhanced in *Photoshop 6.0*, after which the line drawings were produced in *Illustrator 10* and coloured in *Flash 7.0*. Several slides were digitally pasted together to create one complete sequence. Some of the details had faded due to poor conservation of the wall paintings or the quality of the slides. Unclear or uncertain outlines are indicated in the line drawings with an interrupted line and in the coloured drawings with a grey line. Colouring was done by approximation. All of the slides were taken at an angle, so figures might appear to be leaning over slightly.

Spinning

In tombs 3, 15 and 17 several spinning techniques are illustrated, being used by both men and women. Men and women are portrayed separately on different rows of the wall paintings using different techniques. In addition, all of the women are supervised; by the man standing next to the loom in tomb 3 (fig. 1), and the man and woman at the beginning of the sequence in tombs 15 and 17 (figs. 3 and 5). These women are probably working in a workshop, while the men are not (figs. 4 and 6). This division can be explained by the final purpose of the thread produced; the female spinners are followed by a weaving scene, the men by a netting or mat weaving scene. Apparently the weaving of cloth was considered a female occupation, while making nets for fishing and the making of mats were male activities.

Preparing the thread

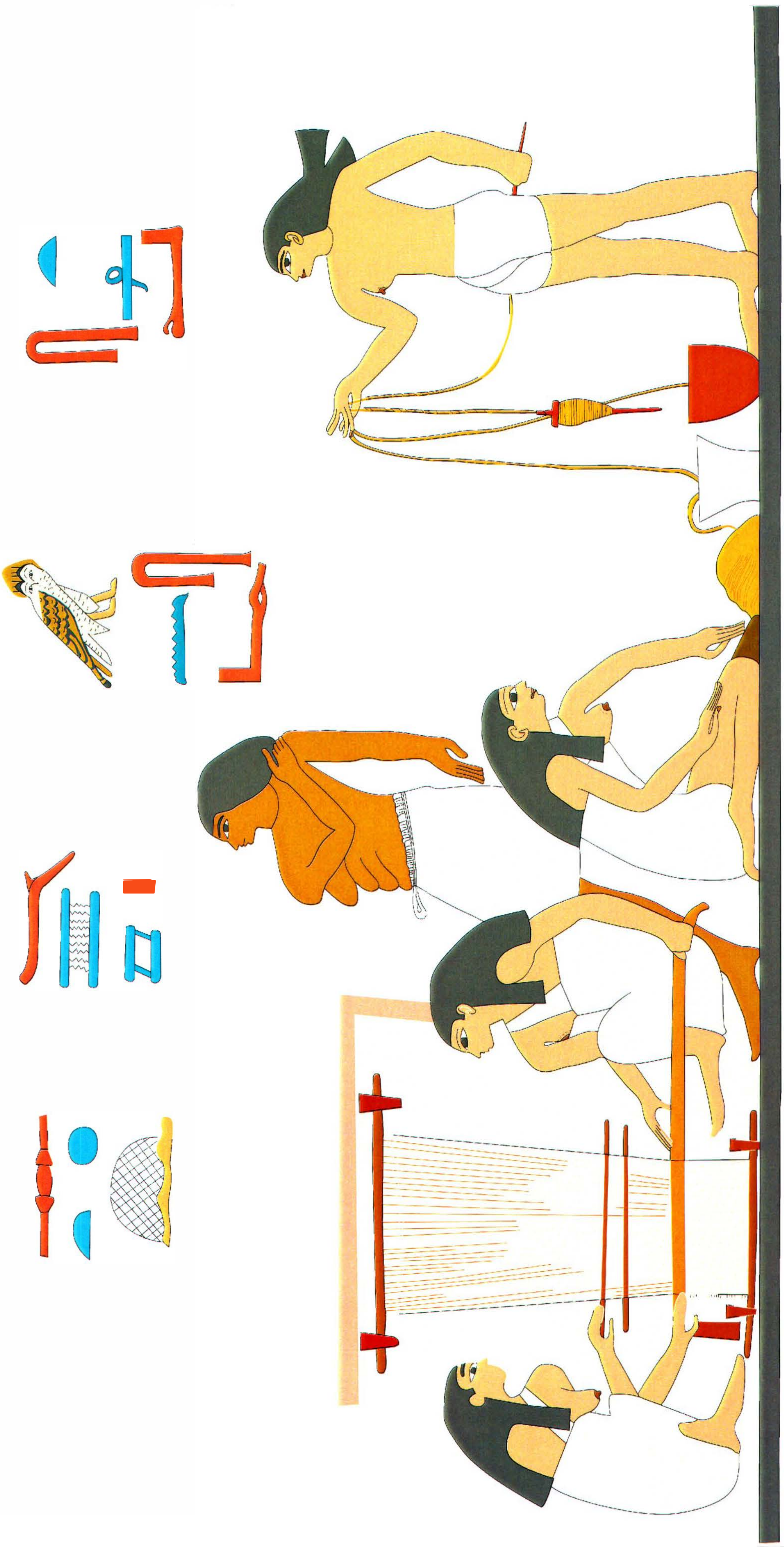
The outer left female in tomb 15 is holding two sticks, from which a strand is hanging (fig.7). Possibly, she is scutching the flax by passing it between two sticks. As tomb 15 and 17 are very much alike, it seems likely that the woman in tomb 17 (fig. 8), sitting in the exact same position, is doing the same.

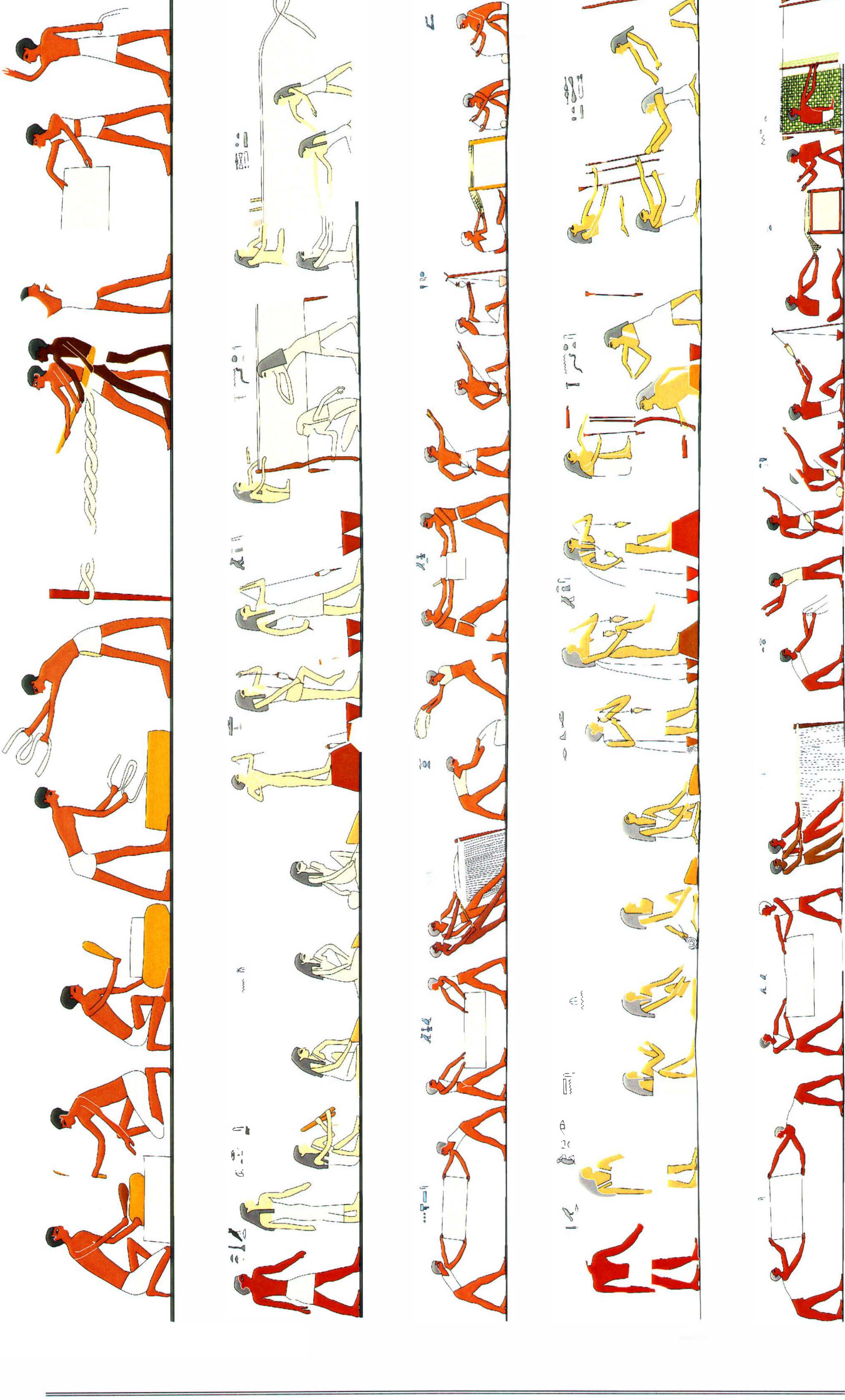
Splicing

The three following women in tombs 15 and 17 (figs. 7 and 8) and one woman in tomb 3 (fig. 9) are shown kneeling in front of a triangular block. They are probably splicing the flax strands together, forming a rove. The women seem to be hand spinning the rove by rolling the strands over the block in front of them and in the case of tomb 3 also over the upper right leg. The prepared thread is coiled into large balls, visible in front of the woman in tomb 3 and behind the two hand spinners in tomb 15 and 17.

The rove is then passed on to the spinners working with a suspended spindle. In tomb 15 the spinners are drawing their thread from bowls standing on the floor in front of them (fig. 10). In tomb 17 (fig. 11) the first woman is spinning directly from a ball on the floor, but all other threads are coming from bowls standing on the floor behind the spinners. In tomb 3 (fig. 1) the rove

Fig.1 (opposite) Detail from wall painting in Tomb 3 (Chnemhotep II) at Beni Hasan





Figs 2-6 (opposite) Details from wall paintings at Beni Hasan. Top to bottom: Fig.2 Tomb 2 (Amenemhat); Fig.3 Tomb 15 (Baqt III); Fig.4 Tomb 15 (Baqt III); Fig.5 Tomb 17 (Khety); Fig.6 Tomb 17 (Khety)

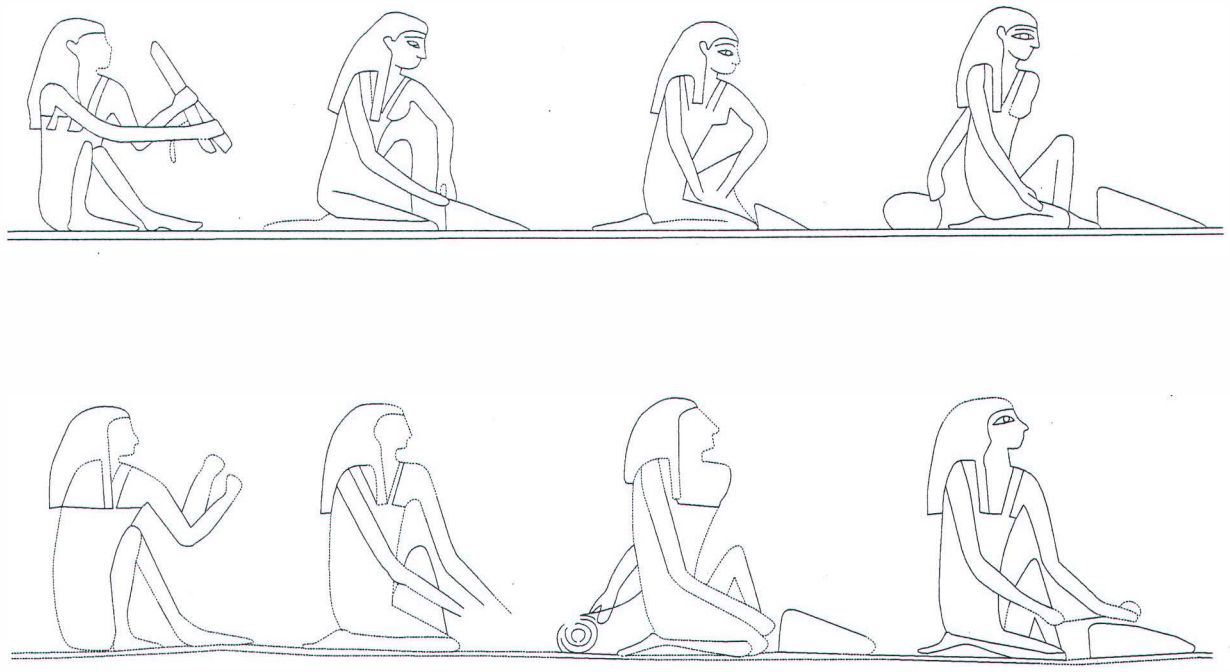
disappears into one of the pots from which the standing woman is drawing. Inside these pots would be a loop through which the thread from the prepared ball is pulled upwards. These 'spinning bowls' (see also Barber 1991, 70-7) ensure tension on the thread and prevent the ball from jumping up.

Spinning

The most intriguing scenes are those in which the spinners are working with two spindles at the same time, a feat quite unknown today. This method of spinning is possible because the spinners are working with a pre-spliced thread; they are only adding the twist. The thread is pulled from the bowl and clamped in the left hand; the spindle is rolled on the thigh and dropped with the right hand, giving the thread a strong s-twist. While the first spindle is spinning, the process is repeated for the second. The spindles used are all top-whorl with most likely a grooved top, as visible in tomb 3 (fig. 13).

It should be noted that in tombs 15 and 17 three women are spinning and that the first person is not a boy (figs. 3 and 5). Newberry's drawings do indicate a boy or man with a dark tone of skin in tomb 17 (1894: plate IV), but in the slides it was clear that both of them have a light skin colour, the main female characteristic. In both cases she has a shaven head, which probably caused a mix-up during inking. The fact that she is not wearing a wig and has a different stance from the other two spinners might indicate that she is an apprentice of some kind, learning the trade.

The next two spinners are depicted in the same position in both tombs (figs. 10 and 11). The first is rolling the spindle on the thigh, ready to drop it, while the second has both feet on the ground pulling the spindle backwards to free more thread from the bowl. There are some differences between the two tombs. The stance of the first spinner is not exactly the same; in tomb 15 (fig. 10) she rolls the spindle on the outside of the right thigh, in tomb 17 (fig. 11) on the inside of the left thigh. This seems



Figs 7-8 Women scutching and splicing: Fig.7 (top) Tomb 15; Fig.8 (bottom) Tomb 17

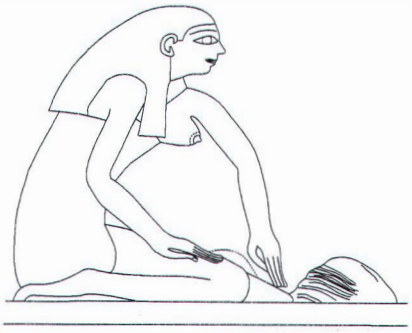


Fig.9 Woman splicing in Tomb 3

only logical; the interchanging of legs would probably be necessary to avoid tiring one leg. Another difference is that in tomb 15 the apprentice is standing on an elevation and the more experienced or taller spinners are not; in tomb 17 the situation is reversed. These elevations allow the spindle to drop lower than usual, to spin more thread before having to wind the thread onto the spindle. Also the bowls are not standing behind, but in front of the spinners in tomb 15. The bowls in front would probably not be very practical since the threads would tangle more easily, but since these paintings were made without the use of perspective, it is possible that they were placed more to the spinner's left side. In tomb 17 the threads are clearly coming from behind the left shoulder of the spinners.

I would like to emphasize here that the first (experienced) spinner in tomb 17 (fig. 11) does not appear to be spinning or plying four threads. Many people have been led astray by Newberry's drawings (1894, plate XIII) showing four threads. Often only this one spinner is mentioned, forgetting about the other six spinners depicted spinning two threads. I could not find four threads. In the place where the threads were supposed to be, I only found a smear. Although I cannot completely exclude the possibility of their existence, based on the uniformity of the other drawings I have to conclude that they are probably not there.

The spinner in tomb 3 (fig.12) differs from the spinners in tombs 15 and 17 (figs. 10 and 11); she seems to have been depicted in mirror-image. She is holding the threads in her right hand and the thread she has spun is z-spun. This could just mean that she was left handed or meaning to spin a z-spun thread, but she is holding her left arm rather awkwardly with the spindle behind her back, as pointed out by G. M. Crowfoot (Crowfoot 1974, 26). Another possibility is that she was drawn in mirror-image for artistic reasons, because she is standing at the outer edge of the painting.

These fascinating images of women spinning with two spindles prompted me to experiment, as G. M. Crowfoot (Crowfoot 1974, 29) had done before me. Although the circumstances were far from perfect and I did not master the technique completely, I could, from my attempts, deduce some data. One of the first problems I encountered was having to clamp two threads. While the first spindle is spinning the second has to be pulled down, so the two threads have to be clamped separately. The painting of tomb 3 is quite detailed, and the painter has clearly

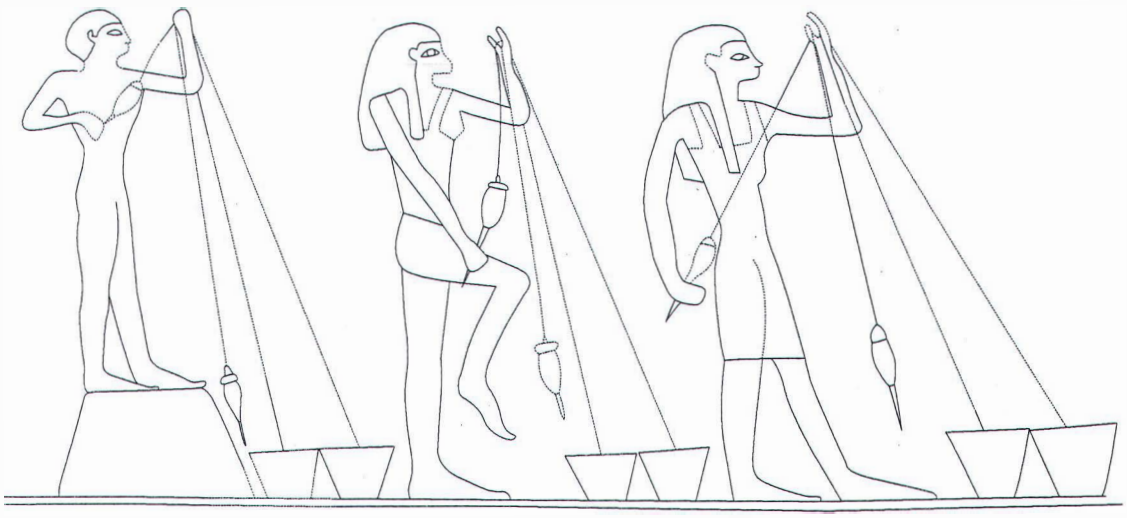
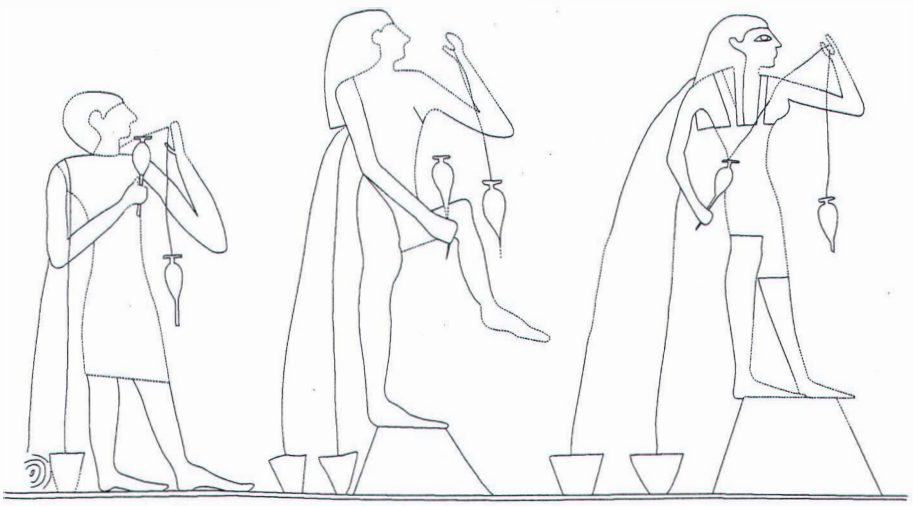
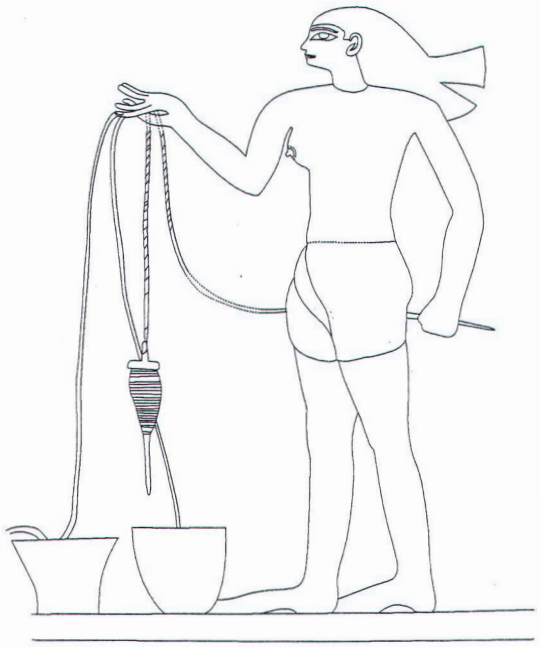
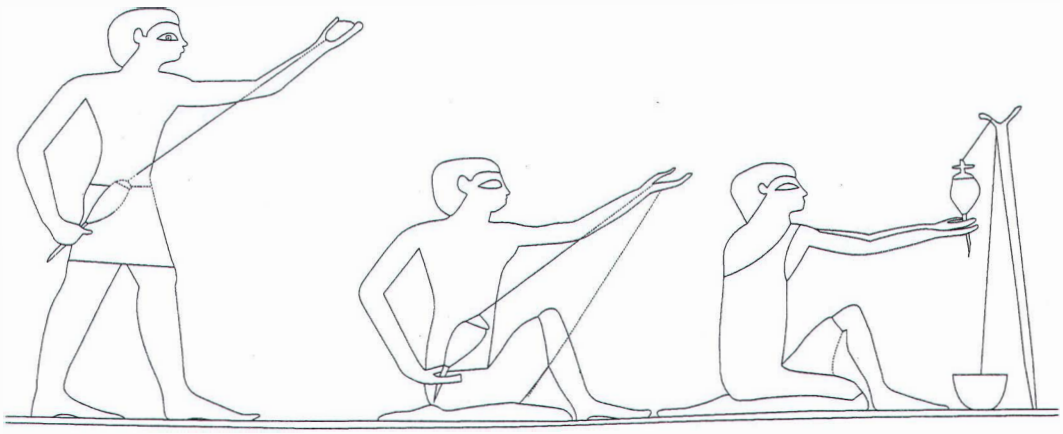


Fig.10 Women spinning in Tomb 15







Figs.11–13, 15 (top to bottom): Fig. 11 Women spinning in Tomb 15; Fig.12 Woman spinning in Tomb 3; Fig.13 Spindle used by the spinner in Tomb 3; Fig. 15 Men spinning in Tomb 15

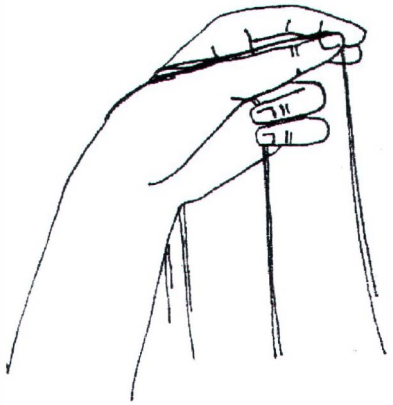


Fig.14 Method of clamping probably used when spinning with two spindles

tried to show how the spinner was holding the two threads (fig. 12). She is holding at least one thread between the thumb, index and middle finger but the second thread is not clear. She is holding her ring- and small finger up in the air, but there is no thread between them. By experimenting with the different possibilities I had to conclude that the only suitable way was to hold one thread between thumb, index and middle finger, and clamp the second against the palm of the hand with the ring and small finger (fig. 14). All other methods would include the holding of one thread between two fingers, which would always fail because of the lack of friction. This method seems to fit the representation of the woman's hand in tomb 3; she has just let go of one thread (to pull one spindle down), stretching out her ring and small finger.

Continuing with the spinning, I have to agree with Crowfoot that spinning with two spindles is a fast and rather exhilarating process. First one unclamps the correct thread, pulls the spindle down with the right hand, clamps the rove with the left, raises a leg and rolls the spindle strongly on the thigh to create sufficient spin, after which the process is repeated for the second spindle. The trick is getting the two spindles not to entangle while spinning. To accomplish this I found it easiest to grab the first (spinning) spindle as quickly as possible when the second spindle has been dropped. Also, it is important to give them a very strong twist to avoid a wobbling spindle, which will immediately entangle with the other threads.

As said, the women are not the only spinners in the Beni Hasan tombs. In both tomb 15 and 17 three men can be seen spinning, using three different techniques (figs. 15 and 16). The first is drop spinning in the same manner as the women, but with only one whorl. In tomb 17 (fig. 16) he is spinning from a coiled ball on the floor, but in tomb 15 (fig. 15) he is clearly not spinning a rove, as he is holding a mass of possibly fibres in his hands. The second figure is in both cases supporting the spindle on his thigh. The third spinner is using a technique today often used for plying; the thread(s) is pulled from a pot over a forked stick, onto a grasped spindle. These male spinners do not appear to be working in a workshop. They might be independent craftsmen or fabricating thread for household or occupational purposes (products such as fishing nets were probably repaired and produced by the fishermen themselves).

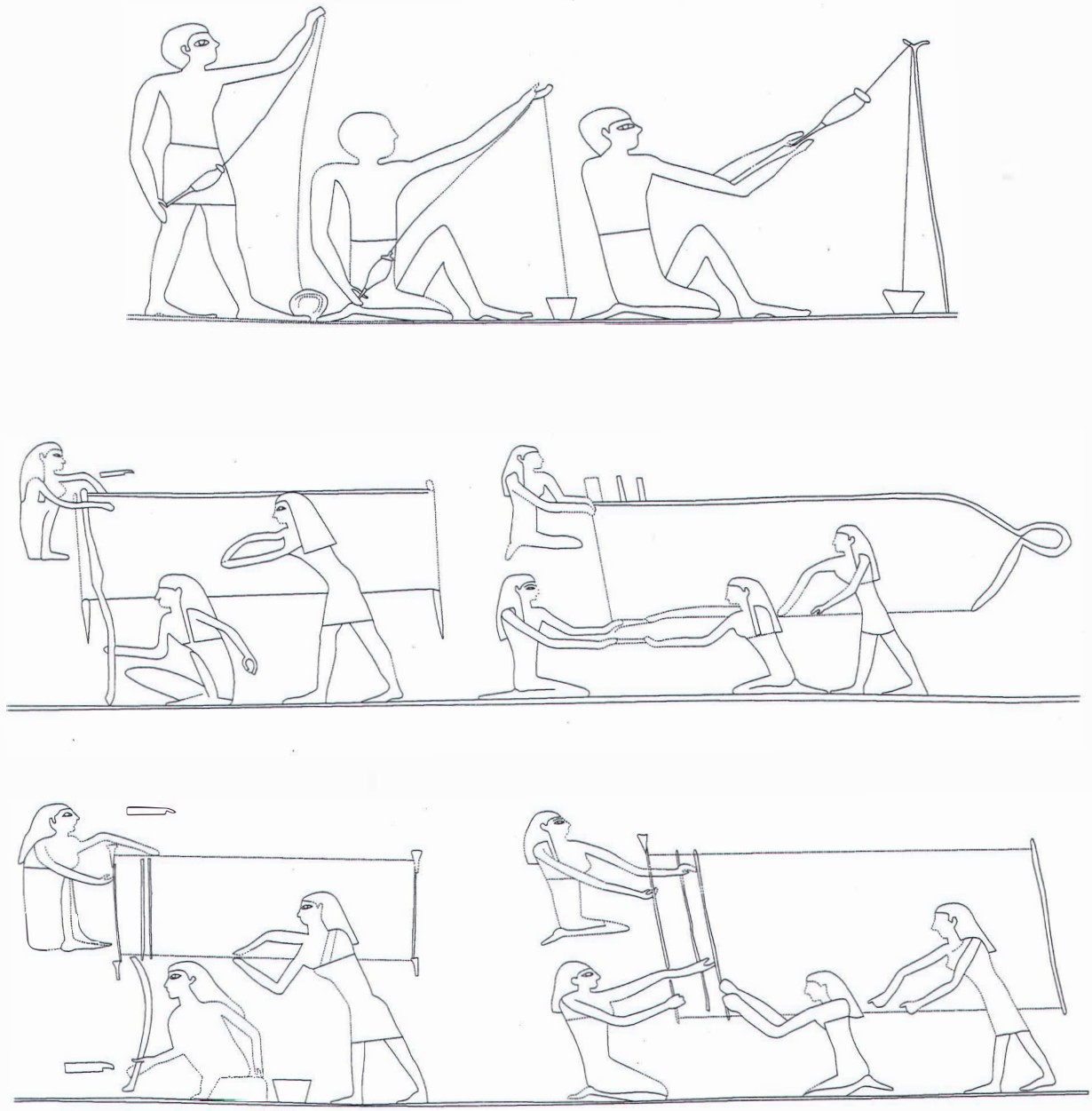
Weaving

The loom

The basic type of loom used during the Middle Kingdom was the horizontal ground loom. The Beni Hasan looms are also ground looms although they are confusingly depicted from above (figs. 17 and 18). However, there is one remarkable detail about the loom shown in tomb 3 (fig. 19). Many scholars have drawn this loom, as can be read in Roth's extensive study on this particular loom in *Ancient Egyptian & Greek Looms* (1978, 3-11), but all have failed to see that the loom has been painted on a white rectangular background with a dark border. Why the loom was depicted in this way is unclear. Perhaps this ground-model loom was vertically set against a wall or some other construct? However, the easiest explanation remains that it was standing on top of a floor or mat of some sort (the colours white and dark red/brown would suggest a stone, wood or clay material).

Warping

In tombs 15 and 17 (figs. 17 and 18) four looms are depicted in total. In both cases weaving is in progress on the right one, while the left one is being warped. The cloth and warp beams of the looms already warped are held by pegs, clearly visible in tomb 17 (fig. 18) where they are set on the outside of the loom, not on the inside. The beams would be fastened onto these pegs with ropes, which would make adjusting the tension easier. In tomb 3 (fig. 19) these



Figs. 16–18 Spinning, warping and weaving scenes (top to bottom):
Fig. 16 Men spinning in Tomb 17; Fig. 17 Women warping and weaving in Tomb 15;
Fig. 18 Women warping and weaving in Tomb 17

pegs are shown on the inside of the warp beam, but the position of the pegs in relation to the cloth beam is unclear.

The looms on the right in both tomb 15 and 17 (figs. 17 and 18) are being set up. Four women are busily arranging the warp threads on the beams. No beaters or heddle jacks are depicted and the warp beam is still missing in tomb 15 (fig. 17), where some kind of loop of warp threads is depicted on the warp beam side. How the Egyptian looms were warped can be deduced from the drawings. First of all, it seems unlikely that the threads were separately tied to the beams since in tomb 15 the warp has already been arranged onto the cloth beam but not onto the warp beam. Also, the loop at the end suggests that the warp was wound continuously around a warping frame before it was set onto the beams.

Depictions of these winding frames or pegs are known, for example, from the tomb of Tehuti-hetep (Newberry 1985, pl. XXVI) and the tomb of Daga (Davies 1913, pl.37). Although in the Beni Hasan tombs no winding frames or pegs have been depicted, the loop at the right end of the loom in tomb 15 resembles a tied cross. Also, the

two sticks visible in both looms at the left end of the loom are probably not the shed stick and the heddle. The women in tomb 17 (fig. 18), judging from their hands, seem to be arranging the warp threads rather than fastening the heddle bar to the threads. They would need two hands to pull up one thread and pass the leash under it, but here they have one hand on the cloth beam and the other near the second stick. These two sticks probably hold the first cross together while the warp is arranged onto the cloth beam, keeping the threads pushed together so the threads will not move during this process. Only hereafter would the heddle bar be tied to one set of threads. The tied cross on the loom of tomb 15 (fig. 17) seems to suggest that there would be another cross at the end, but laze sticks are not depicted. This might be due to their slim appearance or the fact that laze threads, as visible in tomb 3 (fig. 19), were used. We can however conclude that the warp was wound continuously around winding pegs first and later fastened unto the loom, with the upper and lower threads forming the warp sets.

Weaving

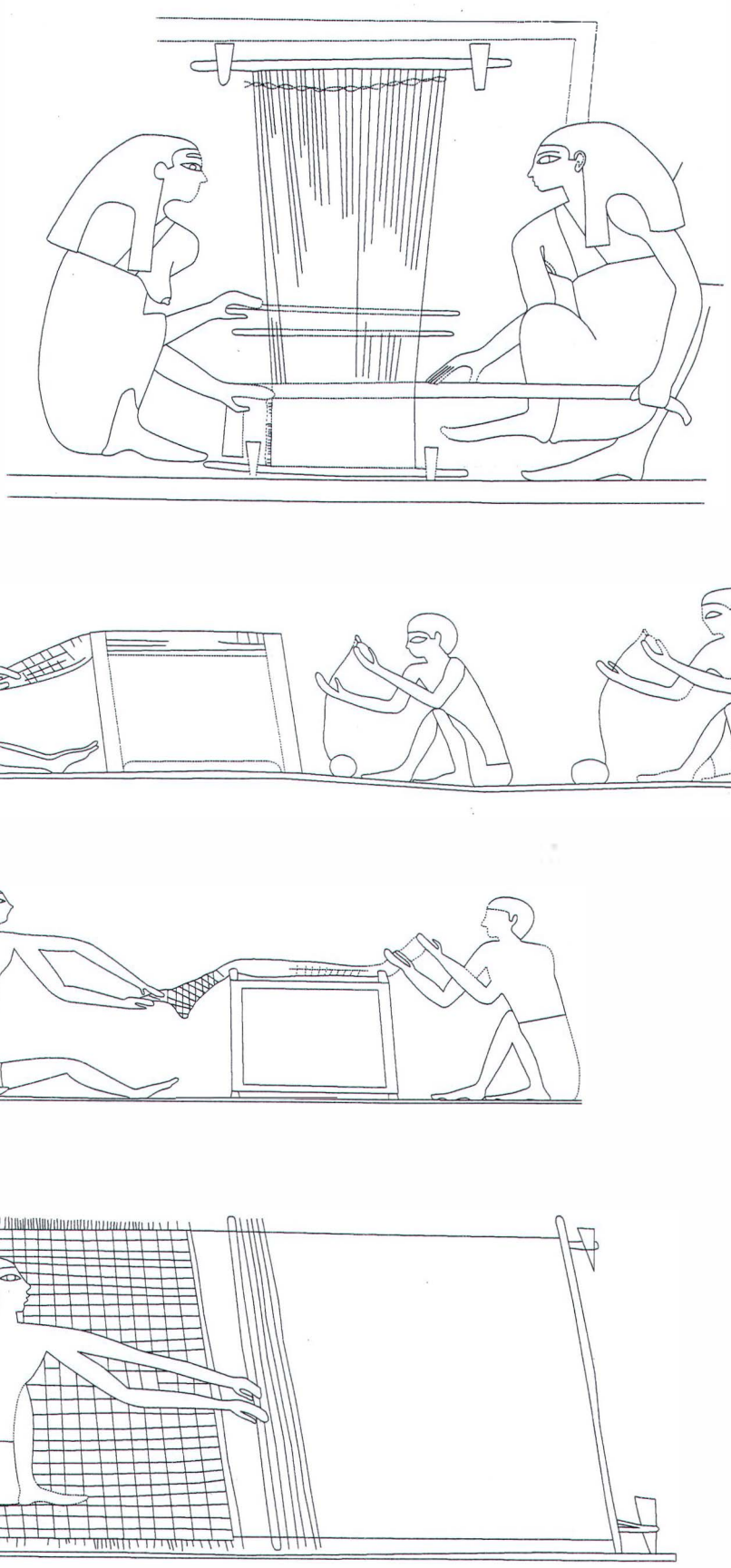
Three women are working on the looms in tombs 15 and 17 (figs. 17 and 18). The woman standing to the right is apparently an assistant of the other two women and seems to be adjusting or untangling the warp threads. Next is a woman holding the beater (which is only half visible in tomb 17) in her right hand and drawing her left hand back. In the latter she seems to be holding something which might be a spool. She would have drawn it back to free enough thread to pass it to the women sitting in front of the loom. This woman to the left could either be holding her left hand ready to catch the spool or adjusting the shed stick, see also below. Apparently it was necessary to work with three people on a ground loom because of the width and the sheer quantity of warp threads involved. In tomb 3 there are only two women working on a considerably smaller loom.

Remarkably, the heddle jacks seem to lie next to the looms (figs. 17 and 18). Heddle jacks are cylindrical wooden supports, with a notch at the top to support the heddle. Winlock (Winlock 1922, 71–4) suggested that these heddle jacks would be knocked away every time the heddle had to be lowered, because they are mostly depicted next to the loom. Barber (Barber 1991, 87) rejected this theory based on its impracticality and suggested that the heddle jacks would remain in place, keeping the countershed open permanently. The other shed is opened by laying the shed stick on edge or, as attested in modern Bedouin society (Burt 1977, 9), lifting the second warp set slightly above the one held up by the heddle. This second shed could be widened by inserting a flat beater and laying it on edge.

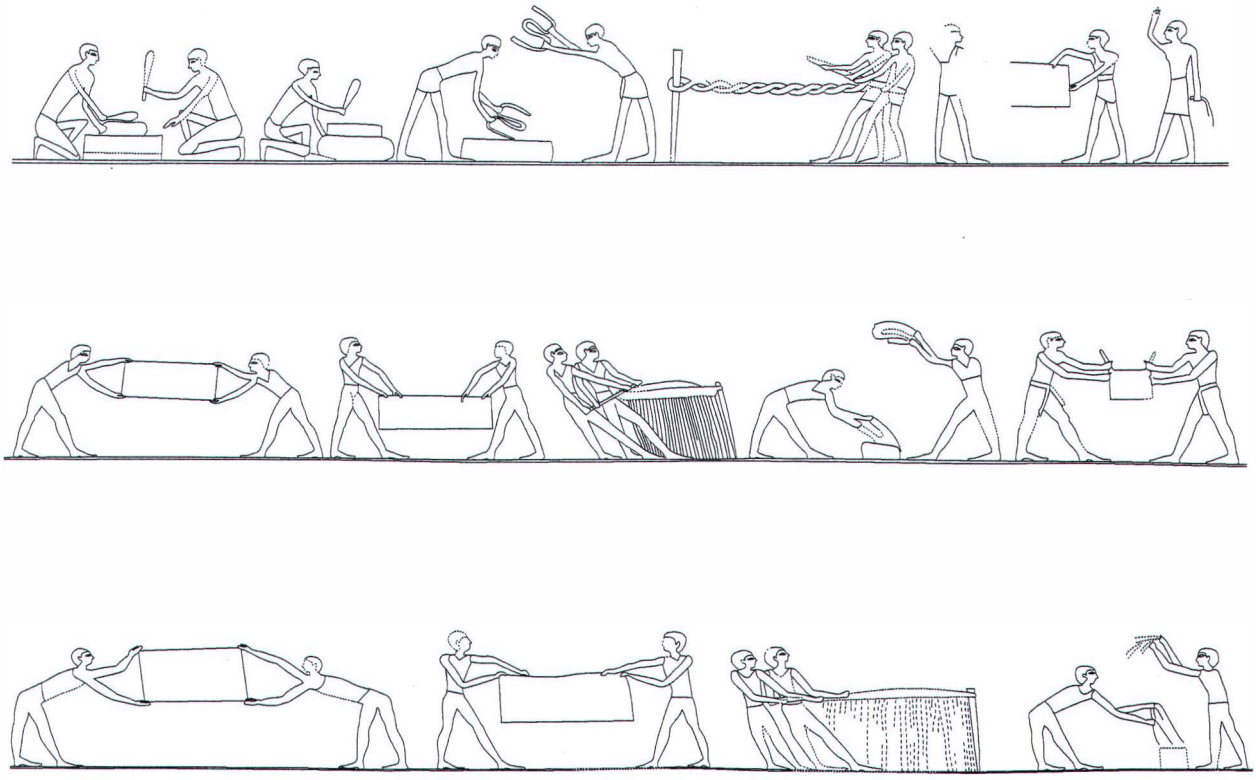
In both tombs 3 (fig.19) and 17 (fig. 18) two sticks are depicted in the warp threads; probably the heddle and shed stick. The heddle and shed stick are rather close together on both paintings. Moreover, in tomb 3 (and maybe also in tomb 17) the left woman is clearly manipulating the upper stick, the shed stick, which fits the theory of a fixed heddle. The heddle jacks positioned next to the looms, in tomb 15 and 17 (figs. 17 and 18), might be extras, used when the heddle was moved as it would come too close to the cloth. They were probably depicted like this because the painter wanted to show every part of the loom and the shape of the heddle jacks is not clear if painted from above. The left woman in tomb 3 is holding something in her hand which is not part of the beater since the colours do not match. It has been suggested that this is also a heddle jack (Roth 1978, 10), but it might just as well be the spool, which she holds back as the weft is beaten in.

Netting and making mats

In the male section two different uses of flax are depicted. In both tomb 15 and 17 (figs. 20 and 21) a man is sitting on some kind of stool behind a square structure, netting. The exact function of the structure is unclear. It seems to hold the finished product taut, and holds the thread at an easy height for the netter. The netter is followed in tomb 15 by two men winding thread from a coiled ball onto a spool. In tomb 17 a man is sitting in the exact same position but what he is doing is not entirely clear. To his right a man is depicted making a mat (fig. 22). He is sitting on top of the finished part, which shows a chequered green (reed) and yellow (flax) pattern (fig. 6). The cloth and warp beam have been tied onto four pegs on the outside of the loom.



Figs.19–22 Weaving, netting and mat-making scenes (top to bottom):
Fig.19 Women weaving in Tomb 3; Fig.20 Men netting and winding in Tomb 15;
Fig.21 Men netting in Tomb 17; Fig.22 Men making a mat in Tomb 17



Figs.23–25 Men washing (top to bottom): Fig.23 Tomb 2; Fig.24 Tomb 15; Fig.25 Tomb 17

No heddle or shed stick is visible and, judging from the five strands already sticking between the warp, it seems likely that the reed is put in per bundle by hand, after which the reeds are beaten in one by one.

Washing

In tombs 2, 3, 15 and 17 (figs. 23, 24 and 25) men are depicted washing garments. These men were probably a service hired by the estate. The women of smaller households would wash their own linen (Vogelsang-Eastwood 2000, 284). Unfortunately the washing scene from tomb 3 was not available and could therefore not be drawn.

In tomb 2, 15 and 17 water is never depicted; we just have to presume that the cloth was rinsed in between stages. The textiles were probably wetted and had detergents rubbed and beaten into them with wooden mallets (Vogelsang-Eastwood 2000, 284), as can be seen in tomb 2. This beating also had the side effect of softening the linen. Next, after rinsing, the wet cloth is slapped against a stone (figs. 23, 24 and 25). The excess water is wrung out of the textile by folding the cloth around a pole and fastening the other end to a stick, which is turned and pulled by two men. Lastly the textiles were stretched (the outer left figures in tomb 15 and 17, figs. 24 and 25), after which they would probably be laid out to dry (and bleach in the sun). Judging from the position of their arms the men in tombs 2, 15 and 17 (right of the stretching men) seem to be folding the garment. However, another possibility would be that both the stretching and folding men show the same action (folding) only in different stages. The outer right figure in tomb 2 (fig. 23) seems to be holding bundled textiles on his head, either delivering or taking away the clothing.

Conclusion

In conclusion I would like to stress that despite the obvious pitfalls of the stylized drawing-style used by the Egyptians the amount of information which can be deduced from these paintings on the subjects of spinning, weaving, warping, washing during the Middle Kingdom is truly incredible and certainly worthy of further study, especially when combined with ethnographical and experimental data.

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Handicraft Knowledge Applied to Archaeological Textiles - Visual Groups and the Pentagon

Introduction

This is the second article about handicraft knowledge and how it can be used to understand archaeological textiles (the first appeared in *ATN* 39, 7-11). The approaches described below result from a specific question that arose during registration of the Mons Claudianus textiles (see ATN 27, 6-9 for further details on the Mons Claudianus textile project).
A first impression from the wealth of Mons Claudianus textiles was that many of them could be sorted visually into distinctive types. Some were thin and sheer, and very lightweight, while others were thin but with more substance. Some were of medium thickness and others rather coarse. When examined according to the standard methodology of the textile archaeologist, however (cf. Walton, Eastwood 1988), many of them received almost identical descriptions. Differences clearly visible to the naked eye were not discernible through standard analysis: they contained a fourth dimension that eluded the established recording system.

This fourth dimension is concealed within the textile, imparted by the craftsperson or persons through their handicraft knowledge and skills during all steps in the making of the fabric, from raw material to the finished cloth. How can these elusive aspects be described? To answer that question we have to know more about how these textiles were made and how different processes affect a fabric. What variables within the construction processes, besides those used in standard analysis, is it important to record?

The first step in the investigation was to weave a series of test webs to rule out the effects of simple technical variations, such as combinations of twist directions, and combinations of twist and varying thread density. This work was followed by a study of detailed photos of 50 fragments from Mons Claudianus, where the aim was to find words to describe what characterised the fabrics' textures purely from a visual point of view.

Subject Description

Following the making of test webs and photographic analysis, field examination of more than 100 woollen tabby fragments took place. Tabby is the simplest weave and as such, it is, so to speak, an uncomplicated cloth. In spite of this, the tabby textiles included a wide variety of fabrics. In this part of the study, the textile archaeologist's analysis was included with that of the craftsman's. This resulted in a two-part analysis, with a technical and a subjective description. The technical analysis was based on standard methods (Walton, Eastwood 1988), supplemented by noting yarn diameter, twist, and thread movement (i.e.

sideways movement of thread or movement caused by thread contraction (see below)). The subjective description was based on visual impression and assessment of the fabric. It included data such as:

* *Fibre character*: finer or coarser, pigmented or non-pigmented
* An estimate of *fabric thickness and density*
* *Fabric character*: 'ordinary', 'extraordinary' or 'special' in some way, with an explanation of what factors this assessment is based on
* *Time and skill invested in the work*, e.g. spinning, weaving, with an explanation of what factors this assessment is based on
* *Surface texture*: the visual characteristics of the fabric's surface
* *Feel*: a description of properties that may suggest the fabric's use. The word 'feel' is used on archaeological textiles where the modern textile industry would employ the term 'handle'.

It is important to extract as much information as possible during primary recording, because it became apparent that in earlier work just with photographs and other two-dimensional documentation, these secondary recording methods did not satisfactorily convey aspects of the textiles that were necessary for subjective recording, as listed above. However, the subjective description resulting from primary recording is of great importance and help when later interpreting technical data and analysing photographic material.

Of the fragments analysed, 92 were selected for grouping according to visual similarities. They all were made of wool, probably fabrics for clothing, and at first glance they looked to be woven in tabby. When analysed, it was discovered that a few were woven in basket or half basket weaves but their visual appearance was that of tabby.

Visual Description of Tabby Groups

The 92 fragments resulted in seven different visual groupings, with their characteristics listed below. During examination of each group it was important to put into specific words the visual characteristics common to the group. Some fragments were easily assigned to a specific group; other textiles were more difficult to ascribe to a single group, since their characteristics varied by degree, and could be common to more than one group.

* **tabby 'character'** appears as a distinct tabby weave, looking balanced, and with thread systems that appear straight.
* **'movable tabby'** has a curving or undulating movement in the yarn in one or both thread systems and this movement is seen as two-dimensional. There is a noticeable space between the threads.
* **'crowsfoot' tabby** is characterised by lines on the fabric surface that resemble a bird's footprint. These lines can be created both by the warp and weft yarns, forming a faint twill or diamond pattern. The lines occur due to movement in the yarn; twist determines how clearly the lines are visible. This phenomenon is seen as a three-dimensional movement.
* **'crepe' tabby** has a more or less bubbly surface, with thread movement that is seen as three-dimensional. Both open weave and dense textiles can be found in this group.
* **'flat' tabby** is seen as a fabric with a very smooth, flat surface where the binding texture is more or less invisible. They often have a weft-faced appearance, and seem to have straight thread systems. The weft yarn is loosely spun which allows it to 'spread out'. They have a fine warp and weft, which makes them thin or very thin fabrics. If coarser, the textile no longer looks smooth and flat because the yarns' contours will dominate and these textiles cannot be grouped as 'flat tabby'.
* **'slightly ribbed' tabby** is a fabric with faint ribs in the warp direction. It is weft-faced, with straight thread systems. The group includes thin as well as slightly coarser fabrics. The weft yarn is usually, but not always, loosely spun.
* **'ribbed' tabby** has distinct ribs in the warp direction and straight thread systems. The warp is well spaced and the weft very densely packed. The weft yarn is usually finer than the warp and often, but not always, loosely spun. Only one in five textiles listed in this category is tabby; most are woven in half-basket or basket weave.

On the basis of the characteristics of each group it has been possible to construct a model, describing the relationships among the visual groups (Fig.26)

In the model, **tabby 'character'** is placed in the centre. The characteristics of the three

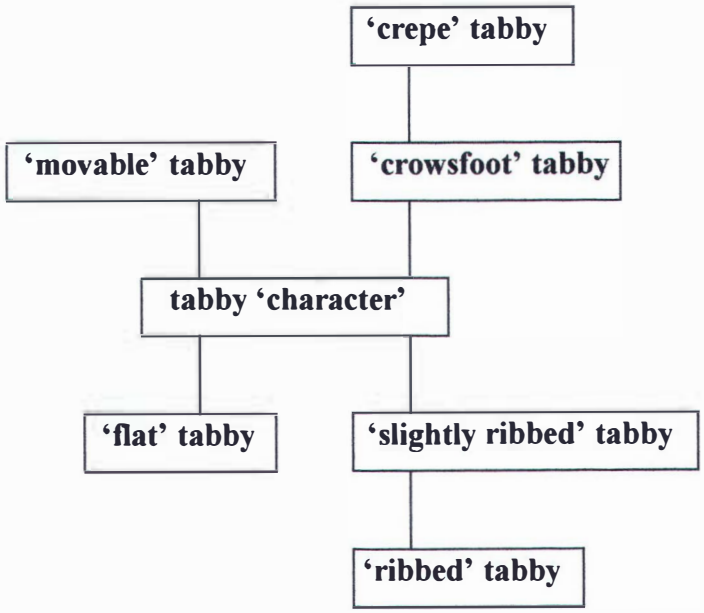

Fig.26 Relationship between visual tabby groups

groups at the top of the model are that warp and/or weft yarns have some sort of movement and that the warp is not so spaced and the weft is not so densely packed as in the three groups at the bottom of the model. Fabrics in the three groups at the bottom are mainly characterised by warp and weft yarns that have no movement, and thread systems that appear straight; these fabrics are densely woven but with a more open spaced warp and a tight, or very tightly packed, weft.

These groupings, based on the visual appearance of the textile, are the starting point in finding a key that will explain why a textile displays its particular appearance. What is it that determines that a fragment woven in tabby will correspond to a specific group or category?

An initial attempt to answer this question was to examine the similarities of the textiles placed in the same category, by using a combination of traditional analysis and subjective description. The result was not very informative: only very general tendencies could be established. The reasons for this can be many: too few textiles in the sample, imprecise measuring methods, or incomplete knowledge about fibre qualities and weaving methods, tools, and finishing methods and how they affect the textile. Instead, it was necessary to establish an interpretation based on theoretical and practical knowledge of handicraft, as well as information from traditional analytical methods and subjective description.

The Pentagon

In hand weaving, one learns that a fabric's type or quality is determined by **yarn**, **thread count**, and **binding** or weave. When describing the textiles from Mons Claudianus, this was not enough. Something more could be seen in the fabrics than what could be explained by those factors. During the project, test weaving was done on different early loom types. The test weaves on these looms showed differences in texture, in comparison with test pieces woven on the horizontal treadle loom. Different types of finishing methods were also tested and showed very clearly how they affected the fabric. As a result, two more factors were added: **weaving**, which encompasses loom type, tools for weaving, and how the weaver works; and various final fabric processes under the heading, **finishing**.

The pentagon model (Fig.27) is a simple way to illustrate the handicraft factors that form the foundation of a fabric's appearance and properties. To understand the complexity and interaction of these factors, their definitions are first explained.

Yarn: a continuous strand, single or compound, made from any fibre or filament by reeling, spinning, twisting, or throwing

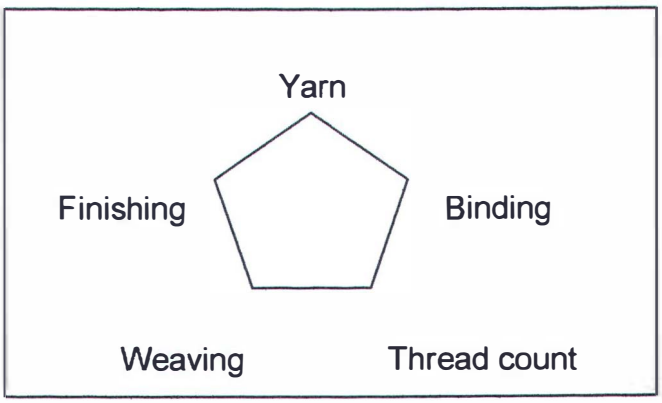

Fig.27 The Pentagon

(Burnham 1981). Yarn properties can be divided into two groups:
a) Those that originate from the fibre itself, such as length, fineness or fibre diameter, crimp, absorbency, and abrasion resistance (Boutrup *et al.* 1996; Collier, Tortora 2001; *Hantverkets bok* 1940).
b) Properties that originate from the spinning process, such as twist, twist direction, how the fibres are orientated in the yarn, and yarn diameter (Boutrup *et al.* 1996; Collier, Tortora 2001; *Hantverkets bok* 1940).
Binding or Weave: the system of interlacing threads of warp and weft according to defined rules in order to produce all or parts of a textile (Burnham 1981). In the first part of the Mons Claudianus project, the textiles examined were primarily tabby, the simplest binding. Tabby is a basic binding weave based on a unit of two warp threads and two weft threads, in which each warp thread, alternately, passes over one and under one weft thread (Burnham 1981).
Thread count: the number of threads in warp and weft per unit of measure (Burnham 1981).
Weaving: the effect of the interplay between the loom, the weaving tools, and how the weaver works. Looms in use during the Roman period were most probably the horizontal ground loom, the vertical two-beam loom, and the warp-weighted loom (Barber 1991; Broudy 1979; Geijer 1980). Different looms require different types of secondary tools, and weaving is performed in different ways. This can affect a textile's appearance, and at times, may be discernible.
Finishing: finishing processes are performed on the web when taken off the loom. Finishing can include wetting, stretching, application of dye, fulling the fabric, or a combination of these processes. When dealing with archaeological textiles it can be difficult to ascertain what is the primary, deliberate textile finish and what has occurred through wear and tear, or as a result of deposition and degradation (Collier, Tortora 2001; Gohl, Vilensky 1983; Marsh 1947; *Hantverkets bok* 1940).

Two other important variables may determine to which visual group a textile will belong: **variability in thread spacing** and **thread movement**. These variables are each the result of the interplay of several factors within the Pentagon and therefore, are not included in the five basic factors of the model.

Variability in thread spacing: fabrics produced on looms without a reed and batten can show a marked variability in the spacing of warp and weft threads, due to the fact that they are not subjected to strict spacing and parallelism achieved by such looms. Looms without a reed allow warp threads some room for sideways movement, depending on thread density (Cooke *et al.* 2002). Variability in spacing of the weft can depend on how densely the weft is packed and how the beating method and choice of beating tool (sword, comb, etc.) influences the thread systems. Variability in spacing is primarily assigned to **weaving** in the Pentagon model, but fabric density, a combination of yarn diameter, thread count, and binding, can also affect it.

Movement in one or both thread systems is caused by a combination of torsion, friction, and the fabric's density.
a) Torsion is caused by the fibres' resistance to being twisted, and works counter to the spin direction. Its strength primarily

depends on degree of twist in the yarn but also the fibre type and fibre diameter.
b) Friction relates to the resistance created where yarn surfaces touch; it depends on yarn factors such as fibre type, fibre preparation, and degree of twist.
c) The fabric's density determines to what extent torsion and friction can act, and what type of surface expression the fabric will show.
Movement can be perceived as either two or three-dimensional in nature. It is primarily assigned to yarn in the Pentagon, but fabric density can also affect it.

Applying the Pentagon: re-examining the visual groups

To obtain a clearer image of how the textiles in the visual groups were constructed, it was necessary to apply theoretical and practical knowledge of craftsmanship and skill. For this purpose, the Pentagon model described above was used along with the concepts of variability in thread spacing and movement.

Each textile fragment was reassessed in the light of the craftsman's knowledge of what happens in a fabric during its construction. New details were added to the descriptions of the seven visual groups.

* **tabby 'character'** appears as a distinct tabby weave, looking balanced, and with thread systems that appear straight. The balanced look is due to the thread-count in conjunction with yarn diameter. The straight thread systems arise from a dense sett, which does not leave sufficient space between threads to allow movement. This may be the result of construction on the loom and the weaving, or because the fabric has been through a finishing process that prevents movement and thereby keeps the threads straight.
* **'movable' tabby** shows a curving or undulating movement in the yarn in one or both thread systems and this movement is seen as two-dimensional. There is noticeable space between the threads. Twist in the yarn, combined with sufficient spacing between threads, allows for movement. Here, torsion has a mutual relationship with thread count and/or yarn diameter that may create this type of movement, but hinders the development of 'crowsfoot' or 'crepe' tabby. To allow movement to take place, there also must be enough space between the threads. This space can be due to a more open sett, but space also can occur due to the variability in thread spacing caused by weaving. It is unlikely that the textile has been through a hard finishing process, since shrinking would be likely to occur and impede this type of movement.
* **'crowsfoot' tabby** is characterised by lines on the fabric surface that resemble a bird's footprint. The lines are created by warp and/or weft yarns forming a faint twill or diamond pattern. This phenomenon is seen as a three-dimensional movement. Lines occur when the threads are relatively well balanced both in thread count and diameter. Some space between the threads is also necessary, but not as much as in 'movable' tabby. The lines are caused by a combination of torsion in the yarn and the fact that spacing and yarn diameter allow movement. Twist determines how clearly the lines are visible. When a yarn attempts to untwist, tension occurs and the yarn will form small, local elevations on the fabric's surface. In 'crowsfoot' tabby, these appear with regularity and form diagonal lines. It is important to note that twist direction does not influence this phenomenon. The fabric has not been through a hard finishing process.
* **'crepe' tabby** has a more or less bubbly surface with thread movement that is seen as three-dimensional. Both open weave and dense textiles can be found in this group. They combine hard to very hard twisted yarns in at least one system with open spacing, or very hard twisted yarns in one or both systems with higher thread density. If thread count and/or yarn diameter is balanced, the textiles differ from 'crowsfoot' tabby in having a more dense sett and/or a higher yarn torsion, which creates a bubbly appearance instead of lines. If the thread-count is unbalanced, with dense warp sett and more widely spaced weft, or vice versa, the small, local elevations that in 'crowsfoot' tabby create lines, become in 'crepe' tabby so steep or flattened that the eye does not perceive them as diagonal lines at all. Instead, they merge with the warp or weft. Some 'crepe' tabbies have a torsion that is so high that the bubbles appear to cover the surface totally. A crepe look can appear in all twist combinations, s/s s/z, z/z, z/s, but they give various textures to the fabric. The denser fabrics in this group have probably been through a hard finishing process.

* **'flat' tabby** is seen as a fabric with a very smooth, flat surface, where the binding texture is more or less invisible. They often have a weft-faced appearance, and have straight thread systems. The weft yarn is loosely spun which allows it to 'spread out'. They have a fine warp and weft, which gives very thin or thin fabrics. If coarser, the textile no longer looks smooth and flat because the yarns' contours will dominate and these textiles cannot be grouped as 'flat' tabby. The more or less weft-faced sett, in combination with the fine yarns in both systems and the loosely spun weft, create this very smooth, flat surface. The relatively high thread density, in combination with the loosely spun weft yarn that tends to 'spread', leaves no room for movement. This also causes the thread systems to appear straight, even if the warp is not exactly evenly spaced. The fabric has probably been through a relatively hard finishing process.
* **'slightly ribbed' tabby** is a fabric with faint ribs in the warp direction. It is weft-faced, with straight thread systems. The group includes thin as well as slightly coarser fabrics. The weft yarn is usually, but not always, loosely spun. The faint ribs are due to a slightly coarser or a more widely spaced warp than in 'flat' tabby and they have such a dense weft that no movement is allowed. The thread systems appear straight due to weft density and possibly also because the fabric has been through a hard finishing process, which may straighten irregularities.
* **'ribbed' tabby** has distinct ribs in the warp direction and straight thread systems. The warp is well spaced and the weft is very densely packed. The weft yarn is usually finer than the warp and often, but not always, loosely spun. The distinct ribs are created by a well-spaced warp that is clearly coarser than the weft, together with very high weft density. The high density prevents movement. As in 'slightly ribbed' tabby the thread systems appear straight due to the weft density and probably also a finishing process that may straighten irregularities. It is most likely that these fabrics have been through a hard finishing process.

Conclusion

With traditional technical analyses, the Mons Claudianus tabby textiles appeared to be a relatively homogenous group. Visually, however, there were clear differences, and through a more comprehensive technical analysis, together with subjective analysis and the use of handicraft knowledge, it was possible to understand and explain these differences. Classifying textiles into visual groups allows a more complex description of each fabric's appearance and enables an examination according to a range of parameters that differ from those of traditional textile analysis. Handicraft knowledge can supply an important set of data that is not available using technical analysis alone. The Pentagon model illustrates this, and can be used to understand a textile's complexity, how different factors in its construction are related, and how a textile is the sum of its phases of construction. Traditional methods, coupled with subjective analysis and handicraft knowledge, provide a holistic approach to understanding the textile, and give insight into the skill and knowledge applied by early craftsmen.

(Edited by Carol A. Christiansen)

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Spätmittelalterliche und frühneuzeitliche Gewebe aus Ausgrabungen und Kirchenschätzen

Textilfunde aus pflanzlichen Fasern wie Lein, Hanf, Nessel und Baumwolle haben sich unter frühgeschichtlichen und mittelalterlichen Funden aus Ausgrabungen im Vergleich zu solchen aus tierischen Fasern wie Wolle und Seide nur selten erhalten. Gründe dafür sind in erster Linie die schlechten Erhaltungsbedingungen in feuchten Böden. Vom 15. Jahrhundert an wurden auch vermehrt nicht mehr gebrauchte Textilien aus Zellulosefasern wieder verwertet. Lumpen wurden zerkleinert und in Papiermühlen zu Papier verarbeitet.

Unter den Textilfunden aus Ausgrabungen in Norddeutschland gibt es nicht allzu viele aus Pflanzenfasern. Nicht immer gelang es den Rohstoff einwandfrei zu bestimmen. Jedoch dürften die meisten aus Flachs/Lein bestehen. Aus dem Spätmittelalter und der Frühneuzeit sind Gewebe aus Siedlungen, aus Brandschichten in Kirchen und vor allem aus Abfallgruben/Kloaken erhalten geblieben. Abgesehen von wenigen Ausnahmen sind es Gewebe in Leinwandbindung. Es liegen mehrere Gewebequalitäten vor. Nur insgesamt vier Köpergewebe, darunter zwei K 3/1-Spitzgrat-Gewebe aus Lübeck und Schleswig und ein K 3/3-Spitzkaro aus Lübeck, alle aus dem 16. Jahrhundert, konnten bestimmt werden. Ein wesentlich älteres K 3/3-Spitzkaro wurde in Einbeck geborgen (13./14. Jh.). Obwohl bei all diesen Geweben die Bindungsrapporte nicht zu bestimmen sind, zeigen sie, daß neben Trittwebstühlen mit zwei Schäften für Leinwand auch solche mit vier Schäften für K 3/1-Spitzgrat und solche mit sechs Schäften für K 3/3-Spitzkaro gebräuchlich waren. Wo die Werkstätten mit solchen Webstühlen gestanden haben wissen wir nicht, da K 3/1-Spitzgrat und K 3/3-Spitzkaro auch in anderen Städten ausgegraben wurden und wie Leinwand wohl Handelswaren gewesen sind.

Gewebe aus Kirchenschätzen stellen für die Erforschung der Leinenweberei eine wesentliche Ergänzung dar, da es sich um Gewebe handelt, die im Gegensatz zu Bodenfunden noch in ihren ursprünglichen Farben erhalten sind. Wir haben im Rahmen unserer Untersuchungen Futterstoffe von Chormäntel, Kaseln und Dalmatiken aus Sammlungen in Braunschweig, Lübeck, Danzig und Stralsund aus dem 14. und 15. Jahrhundert untersucht. Neben gebleichten und ungebleichten liegen auch gefärbte Gewebe vor. Fast alle sind in Leinwandbindung gewebt. Nur einmal konnte der Köper K 2/1 nachgewiesen werden (Kaselfutter aus der Danziger Marienkirche). Auch die baumwollenen Futterstoffe und die Mischgewebe aus einer Leinenkette und aus einem Baumwollschuß sind Gewebe in Leinwand/Kattunbindung. Hervorzuheben sind die zwei Gewebe aus Leinen-Baumwoll-Mischgarnen aus der Danziger Marienkirche, für die bisher nur ein Vergleichstück benannt werden kann, nämlich eine Mitra des hl. Bischofs Otto I von Bamberg (Letztes Viertel 13. Jh.). Baumwolle und Leinen unterscheiden sich in ihrer Stapellänge um den Faktor 10. Deshalb muß die Leinenfaser durch ?Cottonisieren? der Faserlänge der Baumwolle angepasst werden. Heute geschieht dies durch mechanisches Zerreißen der Fasern mit Hilfe von Maschinen oder durch chemische Aufschlussverfahren. Auf welche Weise dieses Problem im Mittelalter gelöst wurde, ist bisher nicht bekannt. Ebenso wenig, aus welchem Grund solche Mischgarne von Interesse waren.

Eine weitere Besonderheit ist ein Ramiegewebe, ebenfalls aus der Danziger Marienkirche (Kaselfutter). Ramie ist ein Nesselgewächs, das vornehmlich in China und Indien angebaut wird und deren Fasern vermutlich von dort importiert wurden.

Die Gewebe aus pflanzlichen Fasern aus den Kirchenschätzen von Braunschweig, Lübeck, Danzig und Stralsund sind im Allgemeinen feiner als die aus Stadtgrabungen, die bis auf wenige Ausnahmen zu den mittelfeinen Qualitäten gehören. Erwähnenswert sind auch die geglätteten (gechinzten) Gewebe,

die ein wichtiges Ausrüstungsverfahren belegen.

Ausführlich werden unsere Untersuchungsergebnisse im Tagungsband von NESAT IX des Symposiums in Braunwald/Schweiz veröffentlicht.

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Bronze Age Textiles in the Saltmines at Hallstatt

Hallstatt in Austria, the eponymous site of the Early Iron Age, is famous for the well preserved organic items from its saltmines. There exist textiles from a wide time-range (Hundt 1987; von Kurzinsky 1996). The oldest woven fragments found at Hallstatt belong to the Bronze Age, about 1500-1000 BC (Stadler 1999, Abb.2, Tab.2). They have been found in the so-called 'Nordgruppe' and in the Christian-Tuschwerk of the 'Ostgruppe' (fig.28). This site has been excavated in recent years by the Museum of Natural History, Vienna (H.Reschreiter kindly provided information).

The greatest number of textile objects came from the Hallstatt-period sites of the 'Ostgruppe', dated to 800-400 BC (Early Iron Age). Moreover, there are about 58 fragments from about 39 different textiles or textile complexes of Bronze Age date. (136 textile complexes have been found in the Early Iron Age saltmines, some of them not yet published.

The saltmines of Hallstatt provide a unique opportunity to understand the development of textile technology from the Bronze Age to the Iron Age on a single archaeological site (Grömer 2005). The differences between the Bronze Age and Iron Age textiles here are evident in many respects; for example there are no patterns in the Bronze Age. By contrast, nearly half of the Hallstatt-period textiles from the saltmines display patterns of various kinds, such as spin-patterns and coloured patterns. In Hallstatt there are textiles with stripes, various checkered motifs and hounds-tooth patterns. Pieces which display the use of different colours in warp and weft for weaving twill are also known. Rep ribbons usually show striped patterns, tablet woven ribbons can be decorated with figures like meanders and filled triangles.

The Bronze Age textiles from Hallstatt are usually made of wool tabby: only one wool 2/2 twill and one zigzag twill have been found and two 2/2 twills of flax or hemp. In terms of thread count and thread diameter they are usually coarse (densities of about 5 threads per cm in warp and weft; thread diameters about 1-1.5mm). Very fine textiles with a density of more than 20 threads per cm and a yarn diameter of 0.3mm can also occasionally be seen.

In contrast, the Early Iron Age textiles are of finer quality. They show thread diameters of 0.2-0.8mm and thread counts around 10-15 threads per cm.

As mentioned above, the Bronze Age textiles are usually tabby and seldom twill, but the Hallstatt Age textiles from the saltmines display far more variants than their Bronze Age counterparts.We encounter all the types of weave structure known from Iron Age Europe, namely tabby, basket weave, diagonal twill, herringbone, zigzag and lozenge (diamond) twill, half basket weave, rep ribbons and tablet weave.

There are no complete garments in the prehistoric saltmines. The textiles are mostly in a very fragmentary state; many pieces were found torn into strips. Usually the textiles are interpreted as pieces of clothing in secondary use in the saltmines, such as carrier slings, handle reinforcements or to refix tools (an example of the re-use of a richly patterned fabric as a wrapping of a tool-haft has been found at the saltmines of Dürrnberg (Klose 1926).

The archaeological evidence at the Bronze Age Tuschwerk and form criteria indicate that some of the woven fabrics can be interpreted as carrier bags. The location excavated in the Tuschwerk is thought to have been a loading station for the carriage of salt to the surface within the Bronze Age mine (Reschreiter 2005). The textiles found there are woven in tabby with a density of 5 x 5 per cm^2. These textiles were all made of

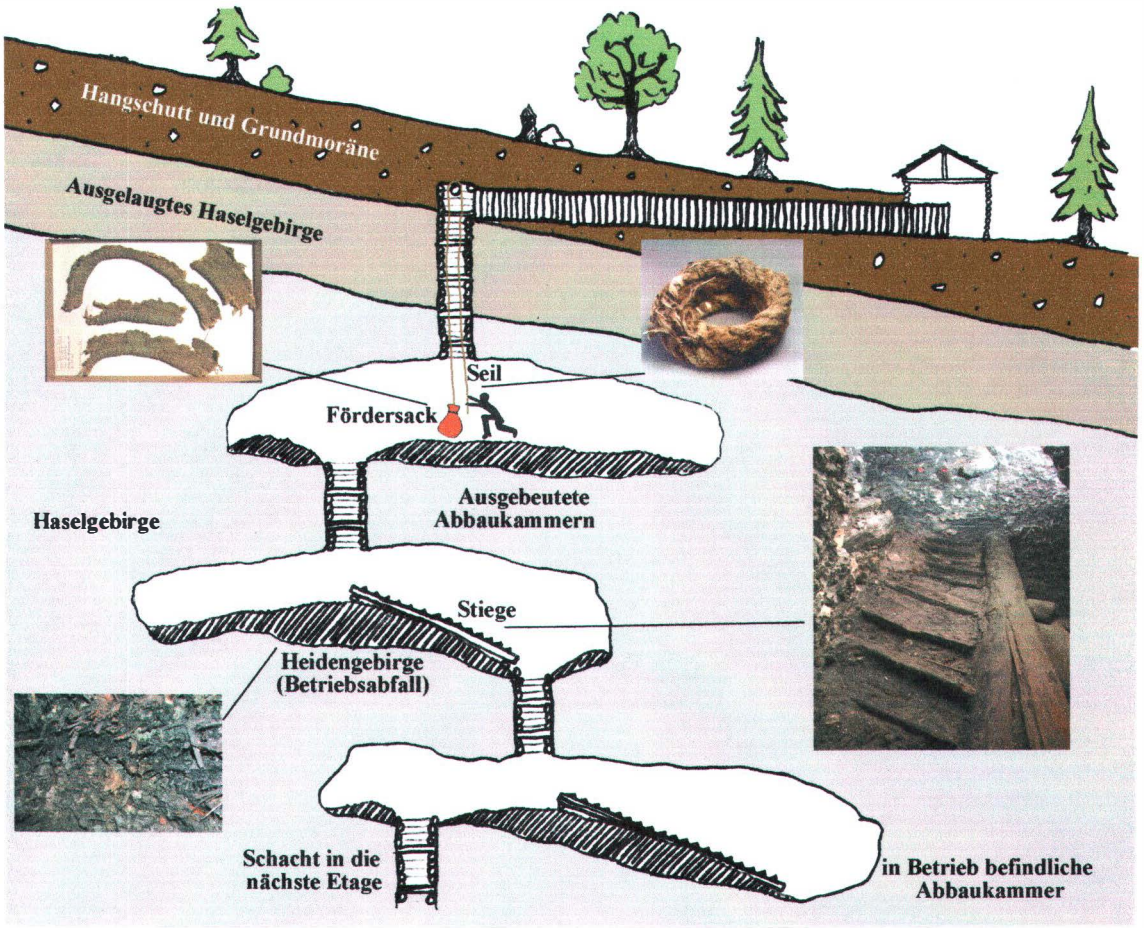

Fig.28 Hallstatt: Scheme of the mining in the Bronze Age Christian-Tuschwerk (Copyright: Museum of Natural History, Vienna. Collage: K. Grömer)

very thick threads, 1.5-2mm in diameter, in a natural white-brown colour. So far as preserved, these pieces have a very strong trimming or edging; usually they used rep for a starting border. Sometimes it is additionally reinforced with another seam, hem or cords. Often the surface of the fragments appears strongly felted; probably they were fulled or milled before use in order to strengthen the texture.

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Die römischen Stoffe aus Mainz, Baustelle Große Langgasse/ Ecke Emmeransstraße

Im Zusammenhang mit der Gründung eines Geschichtsvereins in Mainz-Bretzenheim kam A. Böhme-Schonberger vor einigen Jahren mit Prof. Dr. K. Ewe ins Gespräch. In dessen Verlauf stellte sich heraus, daß er mehr als 100 römische Stoffstücke aus einer Baustelle von 1982 an der Emmeransstraße besitzt. Er und andere 'Raubgräber' hatten damals diese und unzählige weitere Fundstücke notgeborgen. Es waren unter anderen ein Helmbruchstück, ein Pfriem, ein Schreibtäfelchen und römische Keramik, vor allem Terra Sigillata, Fibeln, Münzen, Schuhreste, sowie weitere Leder- und Holzfragmente.

Die Fundstelle liegt im Bereich der vom Legionslager auf dem Kästrich ausgehenden Straße, die den Schillerplatz überquerte und durch die Emmeransstraße zur römischen Rheinbrücke führte. Auf der Sohle der Baugrube in der Großen Langgasse/ Ecke Emmeransstraße stieß ein Bagger im Frühjahr 1982 etwa 6-7m unter dem heutigen Laufniveau auf eine moor- bzw. torfartig beschriebene Schicht. Sie war deutlich abgegrenzt, aber ohne erkennbare Strukturen. (Akten im Landesamt für Denkmalpflege FM 82-008. Wenige Jahre später konnten in der Nachbarschaft weitere Funde, die den früheren entsprachen, aus derselben Schicht geborgen werden.) Dieser Bodenaufschluß war offensichtlich auf eine ausgedehnte Abfallschicht gestoßen, die bereits früher schon mehrmals beobachtet worden war (Wild 1970, 104).

Das Material aus dieser Abfallschicht stammt aufgrund seiner Zusammensetzung aus einem militärischen Kontext (Helmteil, caligae usw.). Die Entfernung der Fundstelle zum Lager beträgt allerdings mehrere hundert Meter, so daß eine Interpretation als Abfallhalde direkt vor dem Legionslager auszuschließen ist. Man kann aber annehmen, daß Abfall aus dem römischen Lager hierher gebracht worden war. (Alle dort geborgenen Fundstücke müßen als Abfall gelten, auch wenn sich wie neu erscheinende Fundstücke darunter befanden, so.z.B. eine caliga.) Wir haben es hier mit einem Gelände zu tun, das damals wohl noch im Bereich der Rheinüberschwemmung lag, wie der moorartige Charakter des Bodenaufschlusses verdeutlicht.

Näher untersucht sind von den Funden neben den Lederresten (Göpfrich 1991) bisher nur die arretinischen Terra Sigillata Gefäße und die Münzen. Die Münzen, die 1982 geborgen werden konnten, geben einen ersten deutlichen Hinweis auf die Datierung dieser Fundstelle und damit auch auf die Zeitstellung der Stoffe. Insgesamt wurden damals 26 Münzen geborgen (Tabelle 1).

Abb.29 Beispiel für eine Naht

Abb.30 Beispiel für farbige Musterung

Nominal	Typ/ Münzherr	Datierung	Anzahl
D	Caesar	44 v.	1
As	Nemausus Ser. I	28/ 16 v.	11
Dp	Münzmeister Ser. Ib	18/ 17 v.	1
Dp	Münzmeister Ser. II	16/ 15 v.	2
As	Lug. Altarserie I	10/ 3 v.	2
AE	Germani Indutilli I	nach 15 v.	1
AE	"Aduatuci"	2./ 1. Jahrzehnt v.	8

Tab.1 Die 1982 geborgenen Münzen, nach P. Eschbaumer

Die älteste Münze ist ein 44 v. Chr. geprägter Denar Caesars. (Die Münzen werden freundlicherweise bestimmt von J.Gorecki, Frankfurt a.M.) Die übrigen 25 Exemplare sind augusteisch: 15 Augustusmünzen, die meisten Nemaususprägungen, acht Münzen der Aduatucer und einer Münze der Treverer. Von den elf Nemaussusstücken, die zwischen 28 und 16 v. Chr. geprägt wurden, sind vier halbiert und sieben mit einem oder zwei Gegenstempeln versehen. Auffällig sind die acht Aduatuci Bronzenominale, die ins 2. bzw. 1. Jahrzehnt v. Chr. gehören (Wigg 1996 schreibt (S.393), daß die so-genannten 'Aduatuci-Kleinbronzen etwa im letzten Jahrzehnt v. Chr. am Niederrhein geprägt wurden. Sie gehörten zum normalen Münzumlauf in Nordgallien und wurden zusammen mit römischen Münzen vom römischen Militär mitgebracht; so wie auch hier in Mainz der Bodenfund dieses Bild widespiegelt.) Die jüngsten Stücke sind die beiden Asse der 1. Altarserie Lugdunums, deren Prägung nicht vor 10 v. Chr. einsetzte.

Durch die Untersuchung der Arretinagefäße aus dieser Schicht gibt es, zusammen mit den geborgenen Münzen, gute Gründe anzunehmen, daß diese 'Abfälle' um die Mitte des letzten Jahrzehnts vor der Zeitenwende, also ca. 5 v. Chr., in den Boden gelangten (Eschbaumer 1995).

Auffällig ist das Fibelspektrum dieser Fundstelle. An Scharnierfibeln wurden nur Aucissafibeln gefunden. Von den zehn Exemplaren waren fünf aus Eisen und ebenso viele aus Bronze gefertigt. Keine trug einen Namensstempel. Bemerkenswert ist der Fund von fünf aus Eisen gefertigten Aucissafibeln. Insgesamt sind nur wenige eiserne Exemplare dieser Form überliefert und wurden wohl deshalb noch nicht einer eingehenderen Untersuchung unterzogen. Die Wertung der eisernen Exemplare als Ausdruck eines speziell (ost)gallischen Geschmackes, wie S. Rieckhoff meint, gilt es zu überprüfen. Möglicherweise gehören sie einem besonderen zeitlichem Horizont an. Die Mainzer Stücke jedenfalls sind sicherlich um die Zeitenwende in den Boden gelangt. Das Herstellen von eisernen Aucissafibeln 'auf Schwierigkeiten bei der Versorgung mit Bronzestücken' zurückzuführen, wie dies N. Hanel (1995, 43) tut, darf als abwegig bezeichnet werden.

Alle Spiralfibeln besaßen untere Sehne und vier Spiralwindungen. Sie waren ebenfalls aus Eisen hergestellt. Eine von diesen weist einen geschlossenen Nadelhalter auf. Die drei weiteren Exemplare haben demgegenüber einen durchbrochenen Nadelhalter. Der Bügel der Spangen ist einmal drahtförmig, zweimal bandförmig ausgebildet. Die Länge variiert zwischen 7 und 9cm bei den Spiralfibeln und bei den Aucissafibeln zwischen 4.6 und 6.7cm.

Aus diesem Fundkomplex, der demnach aller Wahrscheinlichkeit nach um 5 v. Chr. in den Boden gelangte, und der wohl nur aus Überresten aus dem römischen Legionslager bestand, befinden sich derzeit 136 Textilien in den Reiss-Engelhorn-Museen in Mannheim. Rechnen wir die 19 Fragmente, die von J. P. Wild 1970 publiziert wurden und als Fundstellenangabe Große Langgasse / Emmeransstraße haben, noch hinzu, so stehen damit über 150 Originalstoffstücke, die sicher in das römische militärische Umfeld der Okkupationszeit aus Mainz gehören, zur Verfügung. ((F.S.Pelgen hat durch seine Forschung im Stadtarchiv Mainz 25 weitere Textilfragmente von den Grabungen 1857 in diesem Bereich im böhmischen Schloß Kynczvart aufgespürt.) Man darf dies mit Fug und Recht als eine Sensation bezeichnen. [AB]

Die Größe der Objekte, die derzeit in

Mannheim untersucht werden, bewegt sich in einem Bereich zwischen ca. 3cm² bis hin zu etwa einem halben Quadratmeter. Die allgemeine Erscheinung der Stücke spricht dafür, daß es sich dabei nicht um technische Textilien, sondern um Elemente der Bekleidung handelt. Ihre Farbigkeit stellt sich durch die Bodenlagerung dunkelbraun bis schwarz in verschiedenen Nuancierungen dar, wobei verschiedentlich Spuren von rötlichen und blauen Färbungen deutlich werden. Technisch handelt es sich überwiegend zum einen um gewebte textile Flächen, zum anderen auch um Bänder, Schnüre oder Kordeln wohl ausschließlich aus Keratinfasern. Es finden sich die unterschiedlichsten Bindungstypen mit zahlreichen erhaltenen Webekanten. Die Stücke sind allesamt verarbeitet, d.h. sie zeigen klare Formgebungen durch beschnittene Kanten, systematische Faltungen und auch einige Nähte in verschiedenen Ausführungen (Abb.29)

Die qualitative Bandbreite der Stücke ist enorm, wobei viele Objekte sicherlich eher im höher- bis hochwertigen Bereich anzusiedeln sind. Sie zeigen eine überwiegend feine Fadendichte mit zum Teil weichen, voluminösen Qualitäten, was darauf hindeutet, daß es sich hier nicht um einfache Zweckware handelt. Einige Stücke weisen sogar eingewebte Musterungen auf (Abb.30).

Der aktuelle Zustand der Textilien stellt sich überwiegend gut dar, die meisten Stücke sind am Römisch-Germanischen Zentralmuseum in Mainz zu Beginn der 80er Jahre gereinigt und gesichtet worden.

In Vorbereitung einer Ausstellung an den Reiss-Engelhorn-Museen in Mannheim, die vom 16.3. bis zum 11.9.2009 vorgesehen ist, werden die Stücke nunmehr dort analysiert und konserviert. Erste Ergebnisse der Untersuchungen wurden bereits am 22./23.7.2005 einem Arbeitskreis vorgestellt und diskutiert. In den weiteren Forschungen soll der Frage nach der Herkunft und der Entwicklung römischer Textiltraditionen nachgegangen werden. Die die Ausstellung begleitende Publikation soll dieser Konzeption folgen. [SM]

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Report

Toolmakers?

Among the excavated textile tools dated to the Viking Age in Scandinavia one can find a great variety of tools of many different materials. Some tools seem easy to make and others rather difficult, for example sandstone whorls which have marks as if they had been turned. Why is that, and does it say anything about textile production? I chose to look more closely into this subject when I worked on my master's thesis in archaeology at the University of Lund in Sweden (Mårtensson 2003). The following text is a short presentation of this study. The results were also presented in NESAT IX 2005 in Braunwald.

Little is known about the production and distribution of textile tools. The main purpose of my study was therefore to see if there were tools used in the production of textiles that were made by craftsmen. Could the production of tools have been the task of some kind of specialised toolmaker to make the production of textiles easier?

I have studied how textile tools, for example spindle whorls, loom weights and needles, might have been made, if craftsmen *had* made them, and what *kind* of craftsmen. The study is based on registration lists of artifacts and literature. I mainly used Eva Andersson's material, registrations and re-registrations from her work with textile tools from Birka and Hedeby (Andersson 2003). I have also made use of my own experiences from working with different traditional and prehistoric techniques as a basis for the understanding of the making of tools. The study focuses on material from Birka and Hedeby in Viking Age Scandinavia. These two places are known for their trade and handicraft during the Viking Age. Based on the appearance of textile tools and a discussion about how they might have been made I discuss whether there are tools made by craftsmen and if these tools were objects of trade. The manufacturing of the tools and traces of this process indicate that some of the textile tools, such as the conical ceramic spindle whorls, loom weights, the tools made of metal and some of the bone needles may very well have been made by craftsmen. There are also indications of long distance trade, most notably smoothing stones made of glass and some spindle whorls made of stone.

It is hard to decide on the character of the craft production. It may have taken place as a side-line at home or in connection with similar handicrafts in similar materials. It is possible that craftsmen such as the combmaker, the potter, the smith, the wood-worker or the stone-worker also made some of the textile tools. From pre-industrial and industrial times in Sweden, craftsmen such as shuttlemakers, makers of weaving-reeds, makers of spinning-wheels, cardmakers and needlemakers are known (Nyström *et al.* 1996, 370-392). Perhaps similar concepts should be used when we are interpreting Viking Age textile tools?

Most probably many people were involved in work with textiles, such as fine worsted fabric and sails, and this work would have required many tools of the same kind. I believe that differences in the appearance and production methods of the textile tools can be linked to the different forms of textile production that occurred. Some kinds of tools could very well have been produced to respond to the needs of large scale textile production, while other types rather could be linked to production of textiles for household needs. For example, the conical ceramic whorls which were probably made by special craftsmen, could have been classified for large scale textile production.

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Obituary

Elisabeth Grace Crowfoot

Elisabeth Crowfoot, who was for forty years the doyenne of archaeological textiles in Great Britain, died peacefully in hospital on 31 August 2005 aged ninety-one after a short illness. Born in Cairo on 12 January 1914, the third in a family of four girls, Elisabeth was taken to England with her older sisters shortly before the outbreak of World War I. Her father, John Winter Crowfoot, was Director of Education in the Sudan Civil Service, and in this capacity he was ably assisted by his redoubtable wife, Molly, who was a qualified midwife. During the next four years Elisabeth lived in Sussex on the south coast of England, where she was brought up by her nanny, Katie Stevens, to whom she became very attached. After the war, the girls were taken to their

mother's family home at Nettleham, Lincolnshire. Here their mother taught them a curriculum of her own devising which included making books showing the clothes and artefacts of the Roman and Anglo-Saxon periods. In 1920 the Crowfoot family moved to the neighbourhood of Beccles on the Suffolk/Norfolk border, finally settling in the village of Geldeston, where Elisabeth was to live for much of the rest of her life. Six years later John Crowfoot retired from his post in Khartoum but, as he was appointed Director of the British School of Archaeology in Jerusalem in 1927, he did not finally return to live in England until 1937.

During her childhood Elisabeth saw her parents only for short periods when they came home on leave. Often this would be at Christmas when her mother would organise village pageants to raise funds for the League of Nations. Elisabeth's acting ability shone through these amateur productions and, when her rather erratic schooling came to a conclusion, she attended the Central School for Voice and Drama in London at her mother's suggestion. Subsequently Elisabeth performed under the name of Liz Bayly in provincial repertory companies. In particular, she took on many leading Shakespearean roles in Donald Wolfitt's Company during the years of World War II.

Elisabeth retired from the stage in the early 1950s and moved back to Geldeston where she brought up her son, John, who was born in 1952, wrote a children's book, *The Brotherhood of the Cave*, which was published in 1956, and looked after her elderly parents. Gradually she became her mother's helpmate in analysing and making technical drawings of archaeological textiles from sites in the Near East, as well as from East Anglia, which included the renowned assemblage from Sutton Hoo. Thus it was not until she was in her forties that Elisabeth found her true vocation and, when Molly died in 1957, Elisabeth was ready to take on her mother's mantle as an expert on archaeological textiles.

By the early 1960s Elisabeth had become a consultant to the Ancient Monuments Laboratory (AML), a role in which she continued until the early 1990s thereby achieving the distinction of the longest collaboration with the laboratory of any consultant. In all she wrote more than 150 reports for the AML and was equally discerning in discussing Iron Age twills or eighteenth-century bandannas (handkerchiefs). In preparing her reports, Elisabeth spent many hours at Fortress House, Savile Row in London's West End, where she became a familiar figure to many of the in-house team of conservators, to whom she taught much about textiles. In the 1970s she undertook the task of cataloguing the many hundreds of textiles recovered from 'Baynard's Castle' site beside the river Thames in London, which formed the core of the book, *Medieval Finds from Excavations in London: 4. Textiles and Clothing*, written with Frances Pritchard and Kay Staniland for the Museum of London and published in 1992. In addition, Elisabeth acted as a consultant to the British Museum where she principally worked on Anglo-Saxon grave finds, many of which were in a mineralised state. Archaeological units and museums throughout the country turned to Elisabeth for her unrivalled expertise and all her reports were written with style and clarity and beautifully illustrated, often by herself. No textile was too mean for her attention and, although the subject can seem very dry and technical, her lively and accessible prose lit up every report she wrote. Among her most influential writings was her article on 'Early Anglo-Saxon gold braids' jointly written with Sonia Chadwick Hawkes in *Medieval Archaeology* 11 (1967) and her contribution on textiles to volume three of R. L. S. Bruce-Mitford, *The Sutton Hoo Ship Burial* (1983). But these are really only the tip of the iceberg and it is a pity that no publication exists of her whole corpus of reports on Anglo-Saxon textiles.

The Near East always remained dear to her heart and in the late 1970s and early 1980s she enthusiastically seized the opportunity to record the textiles from Qasr Ibrim, which was being submerged by the rising waters of Lake Nasser. This brought her back to Egypt, her first home. Despite her considerable age she was also thrilled to be asked to analyse in the early 1990s a group of textiles from royal graves at Nimrud dating to the 8th century B.C. and this proved to be one of her last reports (published in *Iraq* LVII, 1995).

Almost single-handedly Elisabeth ensured

Fig.31 Elisabeth Crowfoot

Fig.32 Elisabeth Crowfoot at Qasr Ibrim 1980 (Photo: Nettie Adams)

that the subject of archaeological textiles was not neglected in England throughout the 1960s and she perpetuated her mother's high standards with much determination and dedication. She was always alert to new scientific advances in respect to textiles and sought out the best experts to help her - Mark Whiting with dye analysis and Harry Appleyard with fibre identification are two who stand out. She went on to encourage and inspire all subsequent archaeological textile specialists. No one was excluded from her generosity and her eager enthusiasm for the subject was infectious. She was a modest person, who never received the honours and full acclaim she deserved. Living a quiet, though eventful, life in Geldeston she was saddened by the disappearance of the corncrake from the surrounding fields and relished the annual local produce show, which took place in her large garden every August. But she was never narrow minded and on the broader world stage she was passionate about Palestine, Russia (her son lived in Moscow for many years) and human rights.

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Elisabeth Crowfoot: An Affectionate Remembrance

I first met Elisabeth Crowfoot in Egypt, at the archaeological site of Qasr Ibrim. She had joined the expedition in order to study in the field the hundreds of textile remains that were being unearthed with each excavation season. Previously she had catalogued several hundred textiles from earlier Qasr Ibrim seasons that had been brought to Cambridge University, so she was familiar with the extraordinary variety and splendid preservation of the cloth.

I had gone to Qasr Ibrim to help with the study of the pottery. But after only two days, Elisabeth asked me if I could help her with the textiles. She was overwhelmed by the amount of material that was being brought to her after such a short time. I knew nothing about the systematic study and recording of textiles, but I was delighted with the opportunity to give it a try. Thus began more than 25 years of friendship and collaboration.

In the beginning, she taught me by dictating the description of each textile as I recorded, both of us looking at the textile in question. I learned how to recognize the various fibers, to record the spinning direction of yarns, how to tell the warp from the weft in most cases, how to record and draw weaves, selvedges and borders, to measure thread counts. She was wonderful at explaining things. After several weeks, I started out on my own, knowing that she was there to discuss problems and to correct my mistakes.

We had five seasons together at Qasr Ibrim. We not only analyzed and recorded each cloth specimen; we had to develop systems for deciding which textiles to catalogue, wash, photograph, and submit for division with the Egyptian Antiquities Service, and which to rebury on the site after recording. In 1980, our total corpus was 23,432 specimens - each one was analyzed and recorded. We usually recorded in the mornings and washed in the afternoons. Photography was always done between breakfast and lunch because of the light, but was stressful because of wind, bits of chaff that got on the cloth, and the challenge of keeping the numbers straight.

She had phenomenal skills when washing. A dirty, stringy rag, after several minutes in her washing tray where she floated, shifted, and lifted threads, emerged from the water as a recognizable and often beautiful textile. She had endless patience, and was particularly adept at washing silk. During our many hours of washing, we talked about our families, and experiences. I heard about her sisters and their children, about her extraordinary parents, her son, and about her life in the little village of Geldeston and her neighbors.

We were set up in the roofless cathedral on the site, whose high walls protected us somewhat from the wind, and where we had the clear, brilliant light of the Egyptian sun for our work. However, we were not spared the attentions of ever-present flies. Elisabeth seemed to be particularly attractive to them. One day she said, 'perhaps my makeup is what is attracting them - tomorrow I'm going to leave it off and see if it helps'. I had not realized that she was

making up each morning - because of her earlier experience as an actress, she could make up without looking made up! The next morning I could see why she used makeup. Her skin was so pale and delicate that it almost seemed translucent, and the flies were as bothersome as ever.

Random memories: Elisabeth had an encyclopaedic knowledge of the relevant literature. That first season we had no reference books, but she could remember works that illustrated motifs and patterns that we were finding, relating our material to the larger world of archaeological textiles. She was clever at replicating weaves, braids and plaits with knitting yarn and string to help us better understand how they were made. Her drawing was confident and seemed effortless and she could reproduce the most complicated structures on paper. The Qasr Ibrim collections are housed in the basement of the Faculty of Oriental Studies at Cambridge and we spent many days there together sorting and organizing the textile collections after their arrival from Egypt.

The world of archaeological textiles has lost a leading figure. It was my great good fortune to know her. I will always be grateful for her patience and enthusiasm as my teacher and mentor, and I cherish her memory as my friend.

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Reviews

NESAT IX, Braunwald, Switzerland, 13-16.5.2005

The ninth NESAT (North European Symposium for Archaeological Textiles) meeting was held in an Alpine resort with a splendid view and a generous and caring personnel. There were interesting visits to the Glarus valley textile industry, renowned for its cotton prints, and the museum in Zürich with the famous Neolithic textiles from the lake dwellings.

The meeting was held in the same place as the lodging, and all meals were served in the restaurant of the hotel. This meant that there were a lot of opportunities for informal meetings and discussions. This social part of the meeting is as important as the scientific presentation to generate contacts in the network of archaeological textile research, a field that is both geographically and thematically wide, and where researchers sometimes work in isolation.

NESAT is a meeting of old friends and colleagues, introduces the next generation of textile researchers and fosters contact with southern and eastern Europe. There were participants from more than 20 nations including Greece and Spain (These can not be considered as parts of North Europe, but are areas where textile archaeologists and their textiles are overshadowed by the archaeology of 'harder' subjects, and need support.)

About 40 papers and 10 posters were presented in English and German. They covered a wide time span ranging from the Neolithic age up to the 19th century, and dealt with different types of material, from fragile and mineralised fragments to church relics and waterlogged textiles in excellent condition. There were presentations of new finds of archaeological textiles and revisions of old finds. Many museums hold neglected collections of textiles and many collections are re-evaluated in the light of new research. Other presentations included important theoretical, ethical, and methodological discussions, source critique and history of research, reflecting the development of the textile research field and influences from a multicultural society. The connection of the different fields of textile research - historians, archaeologists, curators, conservators and craftsmen - is important. Time was devoted to considering methodology and terminology, areas where views from different perspectives and cross-disciplinary studies are fruitful. There were also presentations of new technical methods of analysis and their achievements in textile research using computer programs and advanced electronic technology.

NESAT was founded 20 years ago by textile archaeologists working isolated in different parts of northern Europe. Since then the

field of textile archaeology has grown both geographically and by subject. There is an ambition to keep the conferences to a manageable size and keep an informal atmosphere. This is contradictory to the other goal to open the field for younger colleagues and develop interdisciplinary and international contacts. The dilemma cannot be avoided in an expanding field, but the NESAT organisation managed to make a conference on a high scientific level friendly and welcoming.

Warm thanks to the hosts and organisers Antoinette Rast-Eicher and Renata Windler.

NESAT X will be held in Copenhagen in 2008 organised by CTR (Centre for Textile Research).

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European Archaeologists' Association Conference: 5-11.9.05, Cork

The European Association of Archaeologists held their 11th annual meeting at the University of Cork, Ireland, between 5-11 September 2005. A full day session on textiles was organised by Elizabeth Wincott Heckett, Eva Andersson and Carmen Alfaro Giner, following on from the successful textile session at EAA in Lyon in 2004. Eva opened the session with an introduction to the new Centre for Textile Research in Copenhagen, emphasising how important and integral textile studies have become in archaeology. Thereafter, the session was organised chronologically, beginning with three studies on the importance of cloth as artefact types in prehistoric northern Italy (Susanna Harris), as visual social signifiers in Copper Age Alpine Europe (Stephen Keates), and as markers of cultural change in Bronze Age Denmark (Sophie Bergerbrant). Judit Pásztokai-Szeoke gave a very interesting paper on Roman period textile tools and wool bale tags from the Pannonian region. Sue Harrington compared textile and tool evidence in burials from Jutish Kent to burials in southern Scandinavia to further understand migration and settlement in England in this period. Susan Möller-Wiering discussed the analysis of grave goods from old Saxon Liebenau to show how fabric types were related to different groups of people, not always following the idea that quality goods are found in 'rich' graves, nor that gender can always be accurately identified from grave goods. Two papers on Irish textiles followed: Maria Fitzgerald discussed her PhD. research into textile production in pre-modern Ireland, looking at regionalism and the impact of Norse textile traditions on Irish finds and Elizabeth Wincott-Heckett presented finds of complex textiles from Irish bog and crannog finds. Yarns of Late Iron Age headcoverings from Turku were analysed by Heini Kirjavainen, interpreting their fineness as locally produced rather than imported garments. Gender and spinning in eastern European archaeology was the topic of Dr. Erzsébet Marton's study. A lively paper was presented by Timm Weski on the diversity of historical costumes from the Alpine region, arguing that colour plays an important part in the variety and presentation of costume but that the clothing itself can be reduced to uniform shapes and cuts. Zvezdana Dode presented a very interesting paper on images found on a 16th century silk cloth of Iranian origin from a burial in North Ossetia, suggesting that the cloth and its images was used as propaganda by Iranian shahs transportable into the Northern Caucasus region. Lise Bender Jørgensen concluded the day with a presentation on two forms of knowledge - academic and craftsman's - often seen as polar opposites but in fact quite similar to one another in many ways.

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Grand Opening of the Danish National Foundation's Centre for Textile Research at the University of Copenhagen

On the 16th September 2005, the University of Copenhagen celebrated the opening of the Centre for Textile Research (CTR) that has been awarded a five-year grant from the Danish National Research Foundation. Director, Dr Marie-Louise Nosch, greeted a full auditorium with an introduction to the CTR and the ideas behind it, including an

overview of the role of textiles in society and their inherent research potential. Speakers included the Rector Magnificus Linda Nielsen, and the Director of the Danish National Research Foundation, Ole Fejerskov, who congratulated Dr Nosch and her associates on the Centre. Dr Karsten Friis-Jensen welcomed the Centre on behalf of the Faculty of the Humanities and the Saxo Institute, eloquently referring to the many textile metaphors employed by Homer and other Classical authors, and to the three ancient women lodged in the deep cellars of the National Research Foundation who had just begun spinning the life-thread of the CTR. Dr Jana Jones of the Macquarie University in Australia gave a brief lecture on fibre analysis. Speakers were introduced by staff members Ulla Mannering (Denmark) Eva Andersson (Sweden), Margarita Gleba (Lithuania, USA, Italy), Marta Guzowska (Poland) who also presented themselves, striking a very international chord. At the end of the formal speeches the audience was invited to follow the common thread, a red yarn that wound through the maze of buildings to the CTR's rooms for an informal reception, further speeches and snacks. In the evening, the merrymaking was continued by a ball that attracted many young prospective scholars of textiles.
Further information on the CTR may be found on its website http://ctr.hum.ku.dk/

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Resources

Recent Publications

D'Amato, R., *Roman Military Clothing (3): AD 400-600,* Osprey Publishing, Botley, 2005 (with illustrations by Graham Sumner)

Baker, P., A.Hammon, M.Revell, 'The sheep project: developing methodologies in zooarchaeology', *English Heritage Research News* 1, 2005, 36-39

Sakamoto, K., 'Textiles excavated in Xinjiang by the German expeditions', *Bulletin of the Ancient Orient Museum* (Tokyo) XXIV, 2004, 17-44

Veldmeijer, A.J., '"Knotless" netting in ancient Egypt. A reappraisal on the basis of archaeologically attested material from Berenike and Qasr Ibrim', *Göttinger Miszellen* 206, 2005, 91-102

Wyeth, P., R.Janaway, *Scientific Analysis of Ancient and Historic Textiles,* Archetype, London, 2005

Dissertation

A recent (2005) MPhil dissertation by Vera Hügel (*"Paa en Stang Struden efter hannem bære": Forskning på hetter og struthetter fra Nordens middelalder*) on medieval hooded garments can be downloaded from the digital library of the University of Tromsø
<http://www.ub.uit.no/ETD-db/ETD-browse/browse?first_letter=all;browse_by=department>

News in Brief

Textiles and Text: Re-establishing the Links between archival and object-based Research: Winchester, 11-13.7.2006

The focus of the third Annual AHRC Conference of the Research Centre for Textile Conservation and Textile Studies at the Textile Conservation Centre, University of Southampton, will be on the relationship between archival/bibliographical research and the study of extant objects. Sessions will be devoted to considering how archival and bibliographical research can shed light on the production, dissemination, consumption and deterioration of textiles and how the study of extant objects can deepen this analysis. The problem of how to investigate the textiles of non-literate cultures and how analysis by scientific and photographic means can aid this process will also be reviewed. The chronological remit will stretch from prehistory to the present day over as wide a geographical span as possible. For further details visit <www.soton.ac.uk/~contex>

Early Textiles Study Group: Manchester, 8-10.9.2006

The theme of the 2006 biennial conference of the Early Textiles Study Group will be 'Clothing and Textiles from the Near East up to AD 1600'. This reflects the exhibition in the Whitworth Art Gallery of Manchester University entitled 'Clothing Culture: Dress in Egypt in the First Millennium AD' which will run from 5th May to 10th September 2006.
Further details will in due course be available from Frances Pritchard at the Whitworth Art Gallery (<frances.pritchard@manchester.ac.uk>) and be published in *ATN* 42.

Subscription

ATN has a 2-year subscription term (4 issues). Subscription rate is £20 (private individual) and £30 (institution) per term.

Subscription payment should be sent to:

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Guidelines for Authors

The *Archaeological Textiles Newsletter* aims to provide a source of information relating to all aspects of archaeological textiles. Archaeological textiles from both prehistoric and historic periods and from all parts of the world are covered in the *ATN*'s range of interests.

1. Contributions can be in English, German or French.

2. Contributions may include announcements and reviews of exhibitions, seminars, conferences, special courses and lectures, information relating to current projects and any queries concerning the study of archaeological textiles. Bibliographical information on new books and articles is particularly welcome.

3. Accounts of work in progress. This general category includes research/activities related to archaeological textiles from recent excavations or in museums/galleries. Projects may encompass technology and analysis, experimental archaeology, documentation, exhibition, conservation and storage. These contributions can be in the form of notes or longer feature articles.

4. Please send submissions in hard-copy, typed, form (lines not justified). (An accompanying disk in Word would be welcomed.) References should be in the Harvard system (eg Smith 1990), with bibliography at the end.

5. Line drawings and photographs are welcomed, but must be originals of good contrast for reproduction. Artwork should not be mounted or incorporated into text. Captions, please !

6. The Editorial Board reserves the right to suggest alterations in the wording of manuscripts sent for publication.

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The *Archaeological Textiles Newsletter* is published at the Ancient Textile Unit in the University of Manchester.

Publication dates: twice yearly, Spring and Autumn.

ISSN 0169-7331