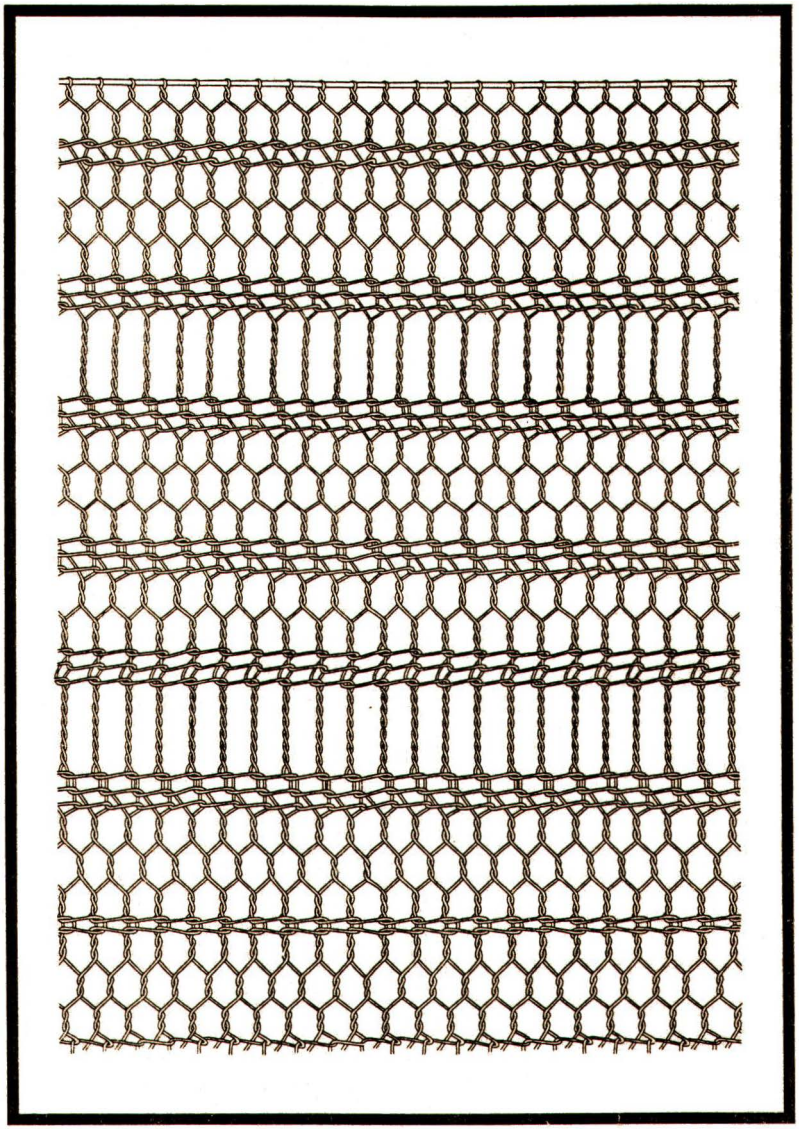
Archaeological Textiles Newsletter



Borum Eshøj, Denmark. Analysis of hairnet by Margrethe Hald.

Number 23 Autumn 1996

Production and Layout - E.E. Peacock

Printed at Vitenskapsmuseet
The Norwegian University of Science and Technology
1998

ISSN 0169-7331

From the Editorial Board

Editorial

Archaeological Textiles Newsletter reappears after a pause. The pressures of work in the present-day climate of archaeology and conservation make it increasingly difficult for a full-time officer in post to take on additional voluntary tasks like the managing and editing of ***ATN*** - however vital they may be to the peer group. The demands of a post naturally take priority, as our Editor has had to recognise. But the log jam is now broken, and the next numbers of ***ATN*** follow in rapid succession, thus bringing the newsletter up to date.

The poster session which was a significant part of the sixth NESAT Symposium in Borås in May 1996 contributes two more items to the present number of ***ATN***, both on Iron Age topics; the twill and sprang from a fourth-century burial near the terp of the Fallward, Bremem, and the use of cloth in casting Viking-Age tortoise brooches. The later Medieval world has its share of attention, too: a review of some outstanding tablet-woven braids from an archbishop's tomb in Bonn and the textile fragments (again including tablet weaves) from a grave beneath the floor of Caesarea Cathedral, Israel.

The role of ***ATN*** as a noticeboard is perhaps its most vital function, and there is no lack of notices in this number, from the story of the Ypres conference on the Flanders cloth industry (at which ***ATN*** subscribers were strongly in evidence) to news of the founding of a study group on what everyone tries to avoid calling *Coptic* textiles. And if you have not already visited the lively reconstruction of a Medieval village and its crafts at Düppel in Berlin, there is no better time to do so than now.

The quality of ***ATN***'s regular bibliography (**Source Materials**) depends upon *you*, the reader. Please send entries on books newly appeared, and particularly on articles and notes published in out-of-the-way places - especially if they have been written by you! Don't assume we know already. A glance at this number's **Source Materials** will show you the format we have adopted.

John Peter Wild
Department of Art History and Archaeology
The University of Manchester
Oxford Road
Manchester M13 9PL
UK

Table of Contents

Analysis

Tabletwoven Bands from the Grave of Siegfried von Westerburg

During excavations in the former West Choir of the Münsterkirche in Bonn in 1947, a grave was discovered. It was known to be the grave of Siegfried von Westerburg, the second of four Cologne archbishops who were buried in Bonn and the only one buried in the West Choir. The grave had been opened and partly robbed in the 17th century so there were only a few pieces of his jewellery left, the most important of which was a Byzantine enamel roundel from one of his gloves. Also remaining, although in a very fragmentary state, were parts of his ecclesiastical vestments. These included the remains of a mitre, a stole and maniple, a *cingulum*, a knitted glove, several unattached bands, silk embroideries, and a fragment of a thin material. The textiles have been dated to 13th century Palermo except for the silk embroideries which belonged to the cushion under his head. It is thought by Rademacher (1957) that these embroideries were made in Cologne.

Tabletwoven bands formed an intrinsic part of the burial vestments of this archbishop. The *cingulum* is such a band as well as the binding ties on it. The cuff of the knitted glove is finished with a tabletwoven band, and the smaller bands on the mitre are tabletwoven. Other now unattached bands were undoubtedly used as trim on other items of clothing now missing, such as an alb, dalmatic or chasuble. All the bands were woven with a supplemental brocading weft using one or the other of two of the most common ground weaves in medieval tablet weaving. In one the ground weave is formed by alternating the tablets S and Z giving a chevron appearance. In the other the center tablets are oriented to form a twill while the edge tablets are oriented alternating S and Z to keep the band from twisting. All the brocading patterns are geometric in nature except for one example of small birds (?eagles) on Band B (and possibly on Band F), and none of the bands have border patterns.

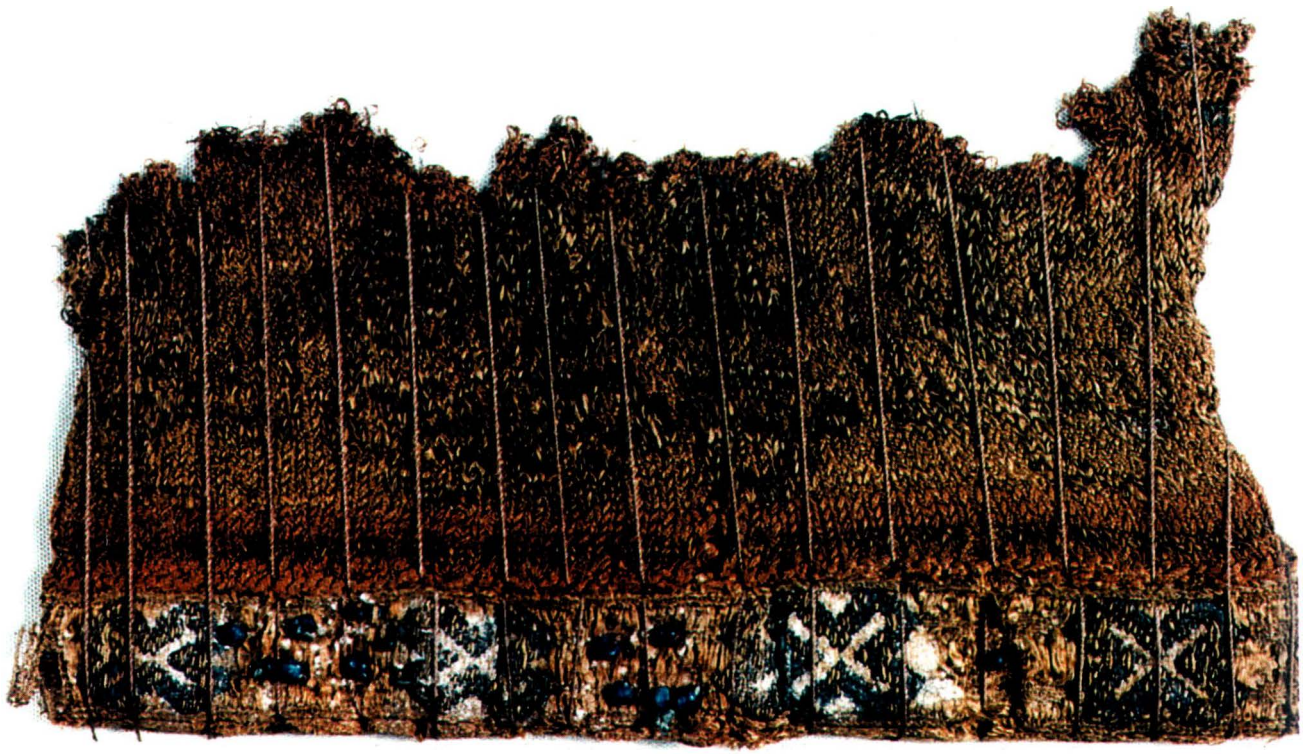


Figure 1 Band A. Finishing band on cuff of knitted glove (x 1.35). (Photo: Thomas Zwillinger.)

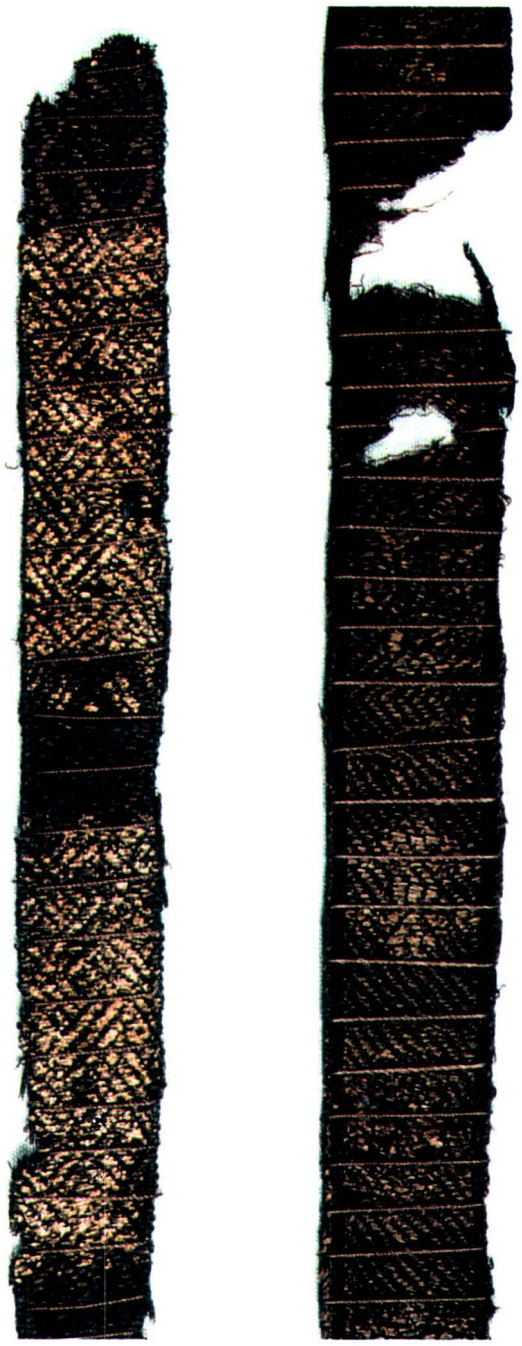


Figure 2 Band C. Binding tie on cingulum (x 1.3). (Photo: Thomas Zwillinger.)

Band A
Function: finishing band on cuff of knitted glove
Width: 1.5 cm
Length: 12.3 cm
Number of tablets: ca. 35
Threading per tablet: all four holes = ca. 140 warp ends
Orientation of tablets: alternating S and Z
Warp: now light brown ?silk
Weft: now light brown ?silk, ca. 23 per cm
Brocading wefts: spun-gilt silver, S-spun around core; used single; ca. 23 per cm; coloured ?silk; used single
Brocading pattern: saltires (St. Andrew's crosses) alternating with rectangular fields filled with geometric motifs; tie downs are under one thread.

Band B
Function: *cingulum*
Width: 1.8 cm
Number of tablets: ca. 43 (4 at each edge, ca. 35 in center)
Threading per tablet: all four holes in 4 edge tablets
Orientation of tablets: alternating S and Z in edge tablets; twill in centre tablets
Warp: now light brown and dark brown ?silk (threaded 2 tablets light, 2 tablets dark, ca. 35 tablets light, 2 tablets dark, 2 tablets light)
Brocading wefts: coloured ?silks (now appearing beige, pale red, pale blue-green); ca. 15 per cm
Brocading pattern: geometric motifs, such as saltires, and birds (?eagles) on a background of narrow 2/1 diagonals; tie downs are under two threads.

Band C
Function: binding tie on *cingulum*
Width: 0.6 cm
Length: one fragment attached to *cingulum* and still knotted; one separate fragment 9.0 cm
Number of tablets: 15
Threading per tablet: all four holes = 60 warp ends
Orientation of tablets: alternating S and Z
Warp: now light brown ?silk
Brocading wefts: coloured ?silks, now mainly light brown; ca. 23 per cm
Brocading pattern: small geometric motifs alternating with diamonds with a dot in the middle and an *armed* motif.

Band D
Function: band on vestments (still attached to fabric fragment; a loop still attached to one side of the band)
Width: 1.4 cm
Number of tablets: ca. 23
Threading per tablet: all four holes = ca. 132 warp ends
Orientation of tablets: alternating S and Z
Warp: now brown ?silk
Brocading wefts: spun-gilt silver, S-spun around core; used single; ca. 16 per cm
Brocading pattern: repeating motif of a 'fat 8' pointed at both ends filled with various smaller geometric motifs with triangles formed from diagonals in between the fat 8's.

Band E
Function: band on vestments
Width: 1.5 cm
Length: 13.5 cm
Number of tablets: ca. 35
Warp: now brown ?silk
Brocading wefts: spun-gold, S-spun around core; used double; 20 per cm. Spun-gilt silver, S-spun around core; used double; 16 per cm. Now brown ?silk; used single; 16 per cm
Brocading pattern: large geometric motifs worked in gilt silver and silk spaced out on a gold background of 3 x 3 lattice; tie downs are under one thread

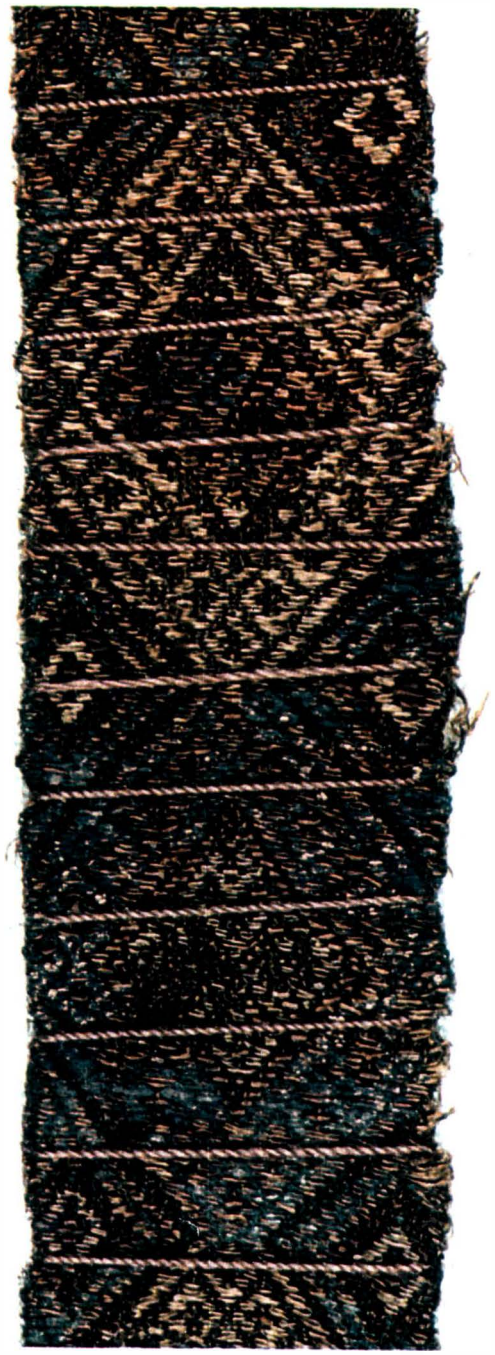


Figure 3 Band F. Band on vestments (x 3.15). (Photo: Thomas Zwillinger.)

Band F
Function: band on vestments
Width: 1.8 cm
Number of tablets: 41 (3 at each edge; 35 in centre)
Threading per tablet: all four holes in edge tablets
Orientation of tablets: ZSS in edge tablets on one side, SZS in edge tablets on the other side; twill in center tablets
Warp: now light and dark brown ?silks (threaded outer tablet light, next two tablets dark forming a stripe on each side of band)
Brocading wefts: spun-gilt silver; used double; ca. 18 per cm coloured ?silks, now light brown; used double; ca. 18 per cm
Brocading pattern: various motifs (?flowers, ?birds, ?geometric) on a background of 3/1 diagonals; tie downs are under two threads.

Band G
Function: small bands on mitre
Width: 1.7 cm
Number of tablets: ca. 53
Threading per tablet: all four holes = ca. 212 warp ends
Orientation of tablets: alternating S and Z
Warp: now light brown ?silk
Brocading wefts: spun-gilt silver (now almost completely missing any metal); used double; 21 per cm
Brocading pattern: geometric motifs such as diamonds and knotwork.

Band H
Function: band on vestments
Width: ca. 1.8 cm
Number of tablets: ca. 45
Threading per tablet: all four holes = ca. 180 warp ends
Orientation of tablets: alternating S and Z
Warp: now brown silk
Brocading wefts: spun-gilt silver, S-spun around core; used double; ca. 23 per cm now beige ?silk
Brocading pattern: large diamonds filled with triangles and a central armed motif with triangles in between the large diamonds filled with diagonals and smaller diamonds; tie downs are under one thread.

All the textiles from the grave of Archbishop Siegfried von Westerburg are in the Rheinisches Landesmuseum in Bonn, Germany, on loan from the Münsterpfarre in Bonn. The analysis of these bands was made possible with the outstanding help of Dr. Ingeborg Kreuger of the Rheinisches Landesmuseum, Mrs. Gudrun Sporbeck of the Schnütgen Museum, and Thomas Zwillinger who took the excellent photographs.

References

Alte Gewebe in Krefeld. Krefeld, Germany, 1949.

Der Name der Freiheit, 1288-1988: Aspekte Kölner Geschichte von Worringen bis heute. Cologne: Kölnisches Stadtmuseum, 1988.

Rademacher, F. (1957). Ein byzantinisches Goldmail-Medaillon aus dem Grab des Kölner Erzbischofs Seifried von Westerburg in der Bonner Münsterkirche. *Festschrift für Erik Meyer zum 60. Geburtstag.* Hamburg.

Nancy Spies
475 Crisfield Drive
Abingdon, MD 21009
U.S.A.

NESAT 1996 Poster Session

Textilien aus dem Mädchengrab der Fallward

Seit 1993 wird in der Marsch bei Bremen (Abb. 1), in unmittelbarer Nähe der Wurtensiedlung Fallward, nur wenige hundert Meter südlich der Wurt Feddersen Wierde, ein Gräberfeld des 4. und 5. Jh. n. Chr. von der Archäologischen Denkmalpflege des Landkreises Cuxhaven unter der Leitung von M. D. Schön untersucht.

Im Sommer 1994 konnte ein verschlossener Sarg im Zentrum eines 8 m großen Kreisgrabens unter einer Lage aus Strauchwerk und zwei Spaltbohlen aus Eiche freigelegt werden. Die Dendrodatierung der Eichenbohlen ergab als Fälldatum das Jahr 327. An eine Seite des Sarges war ein kleiner Holztisch gelehnt, auf der anderen Seite fanden sich verschiedene Holzgefäße (Schön 1995).

Der Sarg wurde auf der Grabung vorsichtig geöffnet. Dabei zeigte sich, daß der Sarg neben der Bestattung und weiteren Beigaben bis zur Oberkante mit

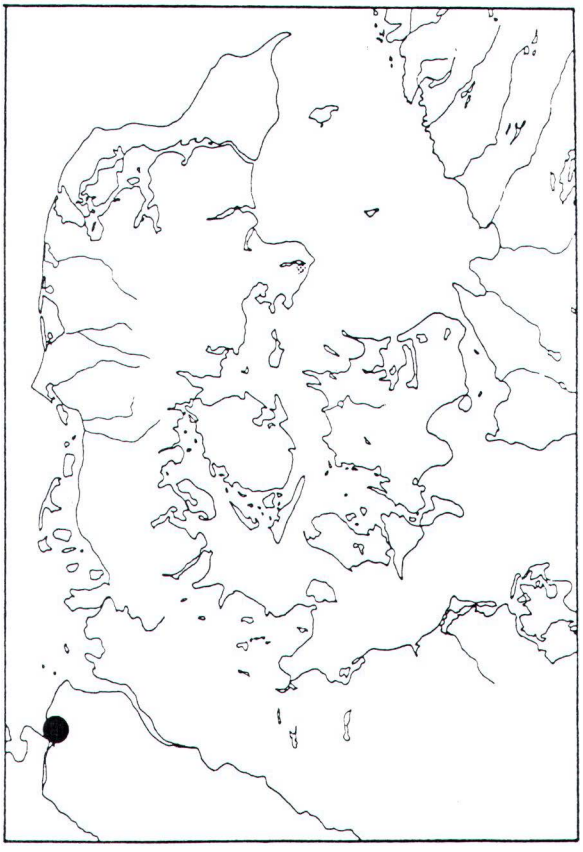


Abb 1 Lage des Fallward.

Abb. 4 Foto des Sprangs.

Textilien gefüllt war (Abb. 2). Der Befund wurde im Block geborgen und zu weiteren Untersuchungen nach Schleswig in die Werkstätten des Archäologischen Landesmuseums der Christian-Albrechts-Universität gebracht.

Nach verschiedenen Röntgenvorgängen wurden die archäologischen Untersuchungen im Forschungslabor des Archäologischen Landesmuseums unter der Leitung von Dr. Inga Hägg fortgesetzt.

Die Textilien werden im Rahmen einer Diplomarbeit bearbeitet, die voraussichtlich Ende 1996 abgeschlossen sein wird. Zur Zeit werden die Textilien unter dem Mikroskop auf technische Merkmale und Mikrostratigraphie hin untersucht. Dabei zeigte sich, daß - bestenfalls - nur noch die Struktur der Textilien erhalten ist, da die einzelnen Garne völlig aufgelöst sind. Da diese Arbeiten noch nicht abgeschlossen sind, kann hier nur ein Einblick

Abb. 2 Foto des Sarginhalts.

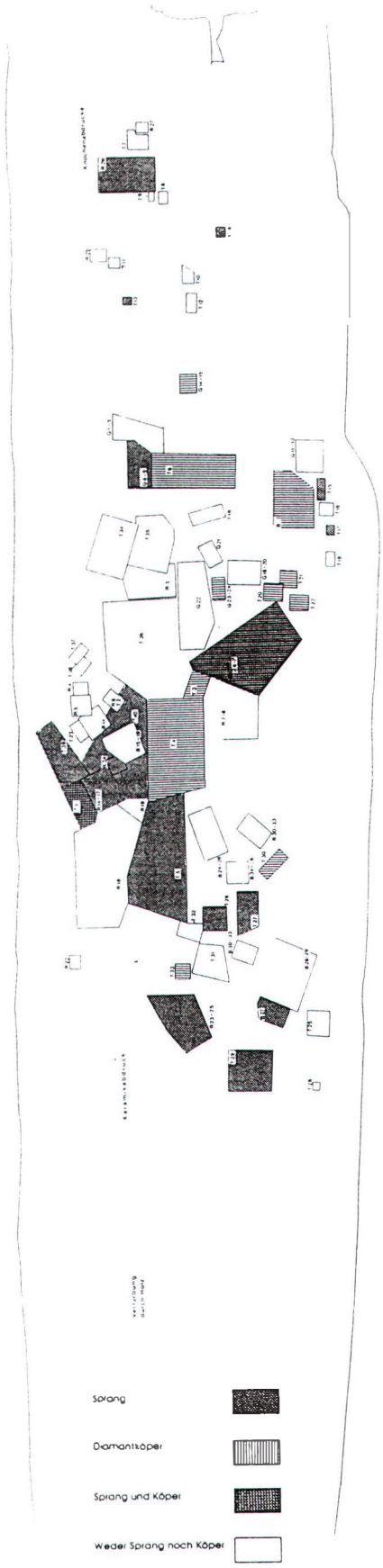


Abb. 3 Sargdeckelplan mit Legend.

auf den momentanen Stand der Untersuchungen gegeben werden.

Die am Sargdeckel haftenden Textilreste und der Inhalt des Sarges wurden geborgen. Es stellte sich heraus, daß es sich anhand der Größe des Skeletts und der Art der Beigaben um ein kleines Mädchen handelt.

Es sollen hier nur zwei verschiedene Textilien vorgestellt werden, zu denen sich schon etwas näheres zur technischen Seite sagen läßt. Auf dem Sargdeckelplan (Abb. 3) wurden nur die Flächen gerastert, auf denen Sprang oder Köper bzw. Diamantköper bestimmt werden konnten. Flächen mit anderen Textilien und unsicher bestimmte Textilien blieben frei. Es wurde keine Unterscheidung zwischen den genau bestimmten Diamantköper und dem nur bis Köper bestimmten Geweben gemacht.

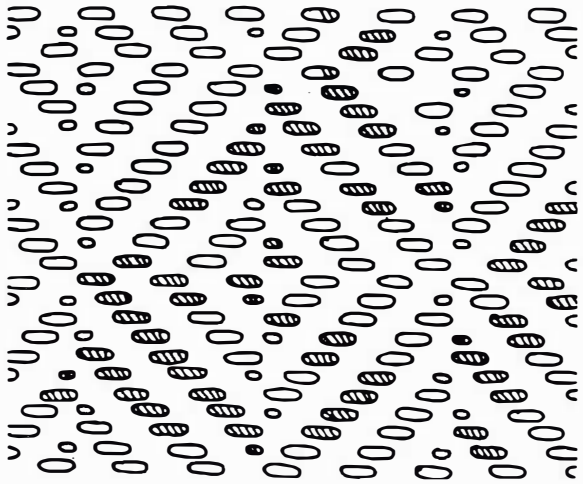


Abb. 5 Rapport des Diamantköpers.

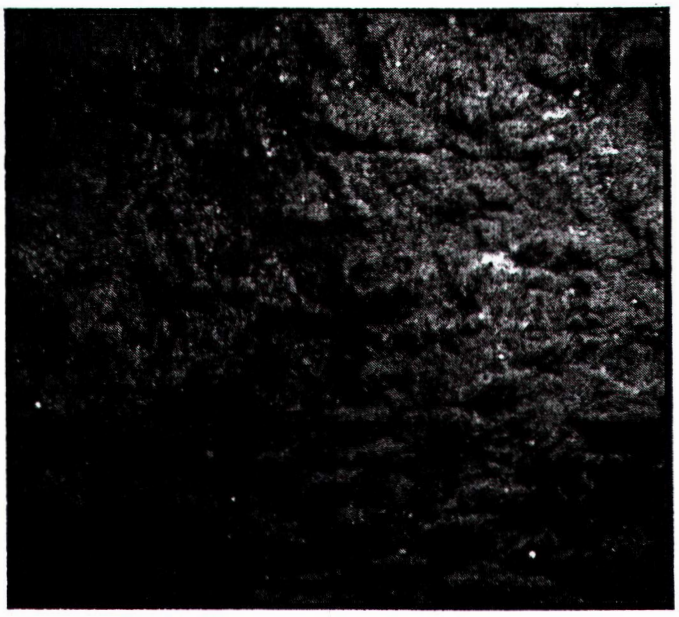


Abb. 6 Foto des Diamantköpers.

Sprang

Auf dem Sargdeckel zeichnet sich eine Verteilung des Sprangs von Kopf bis Fuß ab. Dies bestätigt sich auch beim bisher untersuchten Inhalt des Sarges.

Eine genaue Bestimmung der Technik des Sprangs war bisher nur sehr vereinzelt möglich (Abb. 4). Dabei deutet sich bei den sehr wenigen größeren Fragmenten ein "Einfacher Einhängesprang mit Überspringen einer Reihe" (nach Seiler-Baldinger 1991) an. Die Farbe des Sprangs ist mit einer Ausnahme ein ausgebleichter rötlicher Ton. Eine genaue Analyse des Farbstoffs soll noch erfolgen.

Diamantköper

Wie auf der Zeichnung (Abb. 5 und 6) zu erkennen ist, handelt es sich um einen Diamantköper mit einem Rapport von 10 mal 11 Fäden. Da bisher noch keine Seiten- oder Anfangskante gefunden wurde, kann nicht gesagt werden, was Kett- und Schußfäden sind. Die Farbe des Diamantköpers ist heute braun. Ob es sich ursprünglich um eine andere Farbe gehandelt hat, wird die genaue Analyse des Farbstoffs ergeben.

Der Sarg und die Holzbeigaben wurden konserviert und werden seit Ende Oktober 1995 in der Burg Bederkesa bei laufender Grabung als *Werkstattausstellung* der Öffentlichkeit präsentiert.

Literatur

Schön, M.D. (1995). Der Thron aus der Marsch. *Museum Burg Bederkesa Begleitheft zu Ausstellungen* **1**. Bremerhaven, 38ff.

Seiler-Baldinger, A. (1991). Systematik der Textilen Techniken. *Baseler Beiträge zu Ethnologie* **32**, Basel, 62.

Frauke Drögemüller
Eckernförder Str. 224
D-24119 Kronshagen
Deutschland

Textile Impressions on Tortoise Brooches from Birka and Vendel, Sweden

While I was taking part in excavations at an iron age settlement in Vendel, Sweden in 1994 (Arrhenius and Isaksson 1995) a set of paired oval (tortoise) brooches was recovered. Textile impressions were found on the reverse of both these brooches. I became interested in the origin of these impressions while I was conserving these finds (Malmius 1995). The following study is based upon 98 brooches from Birka and two from Vendel.

Tortoise brooches have been studied from many aspects. They have served as sources for chronological seriation and their ornamentation has gained the interest of art historians (Jansson 1985). Other researchers have concentrated on moulds for the production of these brooches and have focused on the production technique and whether the textile impressions in the brooches were of aesthetic or of practical character. Zachrisson (1960) thought that fabric better enabled handling the mould before dried, and Arrhenius (1975) suggested fabric was used to achieve thin castings. Lønborg (1992) built upon the hypothesis of Arrhenius and used fabric together with warm wax to form the thickness of the castings.

Through experiment, I tried to determine the function of the textile in the casting process. It appears that the fabric together with wax had more than one function: to form the thickness of the casting and to act as a membrane. The wax also prevented the fabric from getting frayed or wrinkled. To produce an oval brooch tempered clay is placed on the front side of a finished oval brooch or a wax model. This upper piece of mould is dried and shrunk. A piece of cloth is dipped in warm wax and placed in the shallow mould. The warm wax makes it possible to position the fabric without any creases. The lower piece of the mould is then produced. It is important that this clay mixture is uniform and soft. The fabric-wax layer acts as a membrane, the water in the clay does not reach the upper piece of the mould to damage the ornamentation. After drying, the lower piece of the mould is lifted off. It now has textile impressions all over the surface, but the thread counts are denser than in the original fabric. When the clay shrinks upon drying the thread count increases and the fabric impression is denser than the original fabric. The waxed fabric is removed, the upper and lower pieces of mould are joined together and warmed, and the molten bronze poured into the mould. The area vacated by the fabric-wax layer becomes the thickness of the castings. The form of the textile is hence transferred to the brooch itself.

Figure 1a Compression of fabric in a concave form.

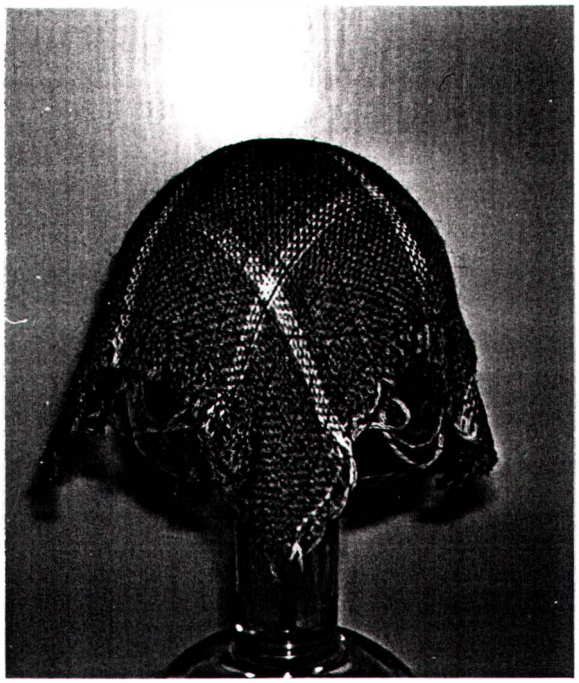


Figure 1b Compression of fabric in a concave form.

The fabrics used in the casting process were thin in cross-section, a point established by measuring the thickness of oval brooches from Birka and Vendel. (Henry Freij, Archaeological Research Laboratory, University of Stockholm, has purposely constructed a tool for this.) Of the measured castings (n=37), 28% varied between 0.35-0.57 mm, 62% varied between 0.60-0.80 mm and 10 % varied between 0.88-1.07 mm in thickness. The remaining brooches were double-shelled preventing measurement.

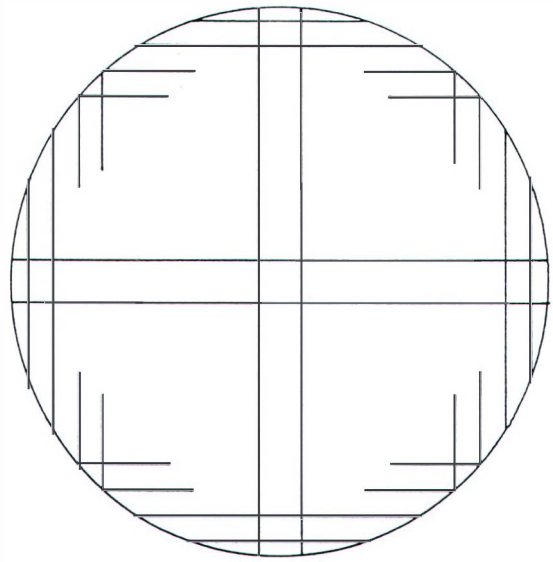


Figure 2a The directions of warp and weft threads in the circular piece of fabric.

The fabrics used to produce the Birka and Vendel brooches were woven in 2/2 diamond twill, 2/2 diagonal twill, 2/2 broken chevron twill and tabby. To determine the thread count, it is necessary to find out how the flat fabric is compressed when it is in place in a concave rounded form (Figs 1a and 2a). The textile model shows that the thread count is unchanged in the centre of the fabric (i.e. brooch) in both warp and weft direction and that the fabric is compressed at the four corners (Figs 1b and 2b). The fabric buckles here and the form of the fabric changes. The thread count at the corners is, however, unchanged! This is the case as long as the number of threads is counted along the warp and weft in the normal manner.

To be able to compare the thread count in fabrics of the same binding system, it is necessary to compare them after the same unit of measurement, in this case, threads/cm. In those cases where it is only possible to count the threads over a length less than one centimetre the number of counted threads per cm becomes less certain. To adjust for this source of error a thread count range is calculated.

For example, 6 threads/0.4 cm is measured, but the number of threads should perhaps be 5.5 or 6.5, something that is difficult to decide when the length is so short. These values are extrapolated using 5.5 and 6.5 threads/0.4 cm giving 13.75-16.25 threads/cm.

To translate the thread count of a textile impression in an oval brooch to the *original fabric* one has to allow for the shrinkage of the clay and the copper alloy. The dry shrinkage of raw clay is usually 5-6%, depending on the amount of temper and the quantity of water; that of the copper alloy is less than 1%. For this work a standard shrinkage of 6% was assumed, giving a corrective factor of 0.94 This shrinkage corresponds to an upward adjustment of 5.3-6.4%. For the purposes of this work 6.4% was used for the dry shrinkage of the clay and the copper alloy.

For example, a fabric with a thread count of 19 threads/cm gives an impression in the oval brooch of 19 x 1.064 = 20.22 threads/cm. To work out the original fabric the thread count of the impression is multiplied by 0.94. Using the previous example (13.75-16.25) x 0.94 = 13-15.5 threads/cm. The figures are rounded to the nearest half thread. To adjust the impression in the mould to the original fabric, the upward adjustment factor is somewhat lower, about 5.4%.

To identify a fabric two parameters in addition to thread count were used: rib factor, R, and total thread count, T. The rib factor is the relationship between warp and weft thread counts and the thread count amount is the sum of the two thread counts. Both are useful when comparing textiles. A fabric which easily lines a bowl has a low rib factor.

Thread count amount, T, is the number of threads per centimetre in the warp added to the number of threads per centimetre in the weft.

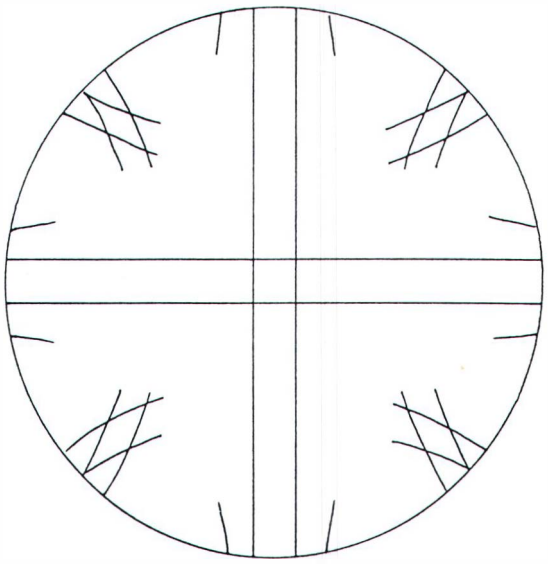


Figure 2b The fabric in the concave form. The directions of the threads along the middle of the fabric are unchanged, but are compressed in the four corners.

The rib factor, R, is the larger thread count divided by the smaller thread count, minus 1. R = 0.0 is a *balanced* fabric, R = 0.1-0.9 a *ribbous* fabric, and R = 1.0 or greater a *ribbed* fabric.

Classifying a textile

Traditionally a fabric is classified by, for instance, 26x20 threads/cm. This fabric can be additionally classified with a rib factor and thread count amount.

R = 26/20 - 1 ⇒ R = 0.3. T = 26+20 ⇒ T = 46.

This tells us that the fabric is weakly ribbous and of very fine quality.

Classifying a fabric from an impression

When the number of threads in the oval brooches are counted and adjusted to the original fabric intervals of uncertainty arise when the areas of impression are small (e.g. 35-39 x 25-30). Both warp and weft directions have intervals of uncertainty. The uncertainty within these intervals is not normally distributed but has a rectangular distribution (i.e. all values within the interval have the same probability of being the correct number of threads per centimetre of the fabric).

To characterise the thread distribution of the complete fabric, a rib factor diagram is constructed. In this diagram the uncertainty rectangle of a fabric can be drawn where all points within have the same probability of being the thread count of the fabric.
A rib factor diagram is constructed using the formula: x = y/(R+1). The diagram is dissected with lines between balanced (y = x) and ribbed (y = 2x). Lines y = >2x are also included.

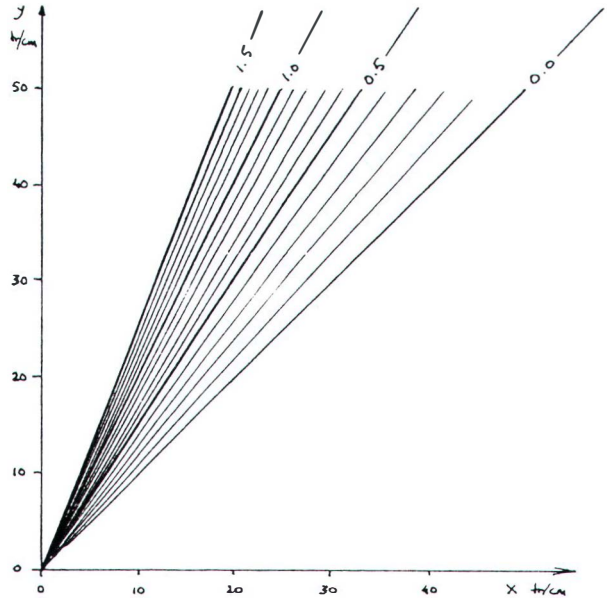


Figure 3 Rib factor where lines are marked for every tenth R-factor.

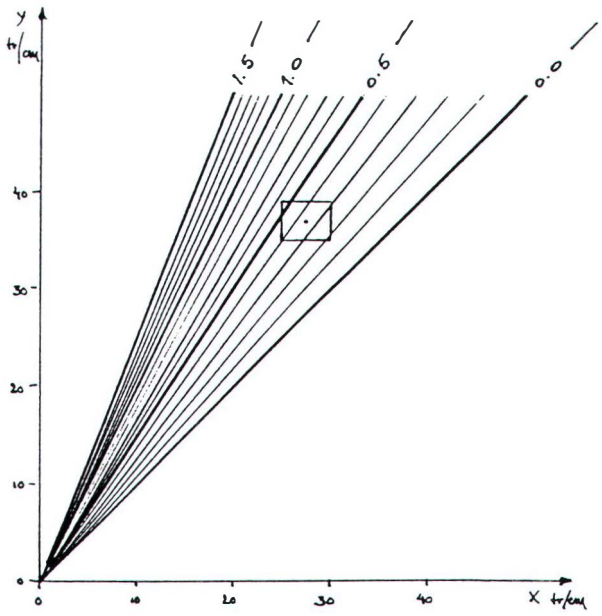


Figure 4 Rib factor diagram where a fabric with a 35-39 x 25-30 threads/cm is marked.

For example, given R = 0.5 and y = 33. x = 33/(0.5 + 1) ⇒ x = 22. This diagram is constructed as large as possible to facilitate easier interpretation (Fig 3).

When the thread relationship of a fabric is to be determined, the uncertainty rectangle is drawn on the R-factor diagram. The larger thread count is along the y-axis. Then one works from the mean value, that is the thread count amount, and then the rectangle is marked (Fig 4). After that the R-factor is determined. By a combination of the thread count amount, T, and the R-factor the fabric is clearly defined.

A fabric with 35-39 x 25-30 threads/cm; mean value 37 x 27.5 threads/cm is clearly characterised by this method when written: T 64.5; R 0.2-0.6. This method gives one not only a *picture* of the fabric, in this case a very fine, dense and weakly to middle ribbous fabric, but also a quick and simple way to compare fabrics with uncertainty factors. When the uncertainty rectangles of the fabrics overlap, these fabrics have the same thread count.

The quality of a fabric is dependent on raw material, spinning/twisting, yarn thickness, binding system, thread count, etc. From textile impressions on oval brooches it is above all information about binding system and thread count that can be gathered. These two parameters provide a certain picture of the fabric quality. To be able to produce a certain type of fabric all above-mentioned components must be in harmony. Knowing the binding system and thread count the rest of the components can - to a certain degree - be

gathered. But two fabrics with the same thread count can look quite different. It is therefore most important that as many parameters as possible are elucidated for a correct description of the origin fabric.

To determine these parameters, the oval brooch original fabrics from Birka and Vendel were compared with contemporary textiles from Birka (Geijer 1938, Hägg 1984, 1986) and Haithabu (Hägg 1984). These textiles have been studied and supplemented with thread count amount and rib factor. To determine whether fabrics used in the production of Birka and Vendels oval brooches correspond to fabrics used for the oval brooches from Denmark (Bender Jørgensen 1986) and Uppland, Sweden (Rosborg 1991), the thread count amount and rib factor of these original fabrics were compiled and compared as well.

Results

Fabrics used in the production of oval brooches at Birka and Vendel were:

* 2/2 diamond twill. Early Viking Age (4). T 34-43.5; R 0.0-0.5
* 2/2 diagonal twill. Early Viking Age (3). T 31.25-37.5; R 0.1-0.5
* 2/2 broken chevron twill. Early Viking Age (4), Middle Viking Age (6). T 31.5-60; R 0.1-0.5
* Tabby. Early Viking Age (21), Middle Viking Age (62). T 16-37; R 0.0-0.6
* were thin in cross-section, mostly < 0.8 mm
* made of wool, the yarn was single-plyed, giving a plastic and elastic fabric. The warp was Z-spun.
* mostly weakly or medium ribbous, sometimes balanced, due to their elasticity compared to those of strongly ribbous or ribbed
* mostly placed in the mould with the warp fairly parallel with the length axis of the brooch
* consumed during the casting
* seven pairs of brooches, of 30, had pieces of fabrics that might have come from the same original fabric
* originated from different fabrics intended for garments or used garments
* show a great correspondence to the Danish and the Upplandic oval brooches

References

Arrhenius, B. (1975). Die technischen Voraussetzungen für die Entwicklung der germanischen Tierorna-mentik. *Frühmittelalterliche Studien* 9 Band (93-109).

Arrhenius, B. and Isaksson, S. (1995). Interim report. *Rapport avseende de arkeologiska undersökningarna vid Vendels kyrka, Vendels sn, Uppland 1994.*

Bender Jørgensen, L. (1986). *Forhistoriske textiler i Skandinavien. Prehistoric Scandinavian Textiles* Nordiske Fortidsminder, ser. B, Bd. 9. Copenhagen.

Geijer, A. (1938). *Birka III. Die Textilfunde aus den Gräbern.* Uppsala.

Hägg, I. (1984). Birkas orientaliska praktplagg. *Fornvännen* 79 (204-223).

Hägg, I. (1984). *Die Textilfunde aus dem Hafen von Haithabu.* Bericht **20**. Neumünster.

Hägg, I. (1986). Die Tracht. In G. Arwidsson (Ed), *Birka II:2.* Stockholm (51-72).

Jansson, I. (1985). *Ovala spännbucklor.* Uppsala.

Lønborg (1992). Fremstillingen af vikingetidens skålformede fibler. *Kuml 1991-92.* Århus.

Malmius, A. (1995). *Conservation Report.* Stockholms universitet.

Rosborg, B. (1991). *Textilavtryck i ovala spännbucklor.* C-uppsats. Inst. för arkeologi. Uppsala universitet.

Zachrisson (1960). De ovala spännbucklornas tillverkningssätt. *Tor* **VI**.

Anita Malmius
The Archaeological Research Laboratory
Stockholm University
S-106 91 Stockholm
Sweden

Comment

The Borum Eshøj Dress

During the past few years an increasing number of museums and historic workshops have been interested in either acquiring or producing copies of ancient textiles and complete garments. The resulting products reflect the conditions and circumstances of the individual projects, i.e. the level of ambition, the financial constraints, the theoretical background and practical experience of those involved.

Lise Bender Jørgensen invited discussion of the topic of copies in her paper delivered at NESAT **5** (Bender Jørgensen 1993). In light of this I would like to comment on the contribution of Carina Holm and Per Olin, The Bronze Age Lady from Borum Eshøj, Denmark, which appeared in *ATN* **20** (Holm and Olin 1995). Carina Holm recreated the burial garment of the Borum Eshøj woman for the mobile education service of the Kalmar Läns Museum in Sweden.

The article described a large *skirt* which was constructed as a tubular weaving on a large upright two-beam loom equipped with a third (extra) backbeam in order to increase the length of the warp. A sketch of the loom and some photographs of the finished garment being modelled accompany the article. I wish to thank the authors for their article. Too few projects of this nature have been documented and even fewer have been published.

At the outset of the project both Holm and Olin visited the National Museum of Denmark, which houses the original garment, and the museum's Textile Conservation Department. Had they been familiar with the published literature of earlier discussions on reconstruction of this group of textiles - listed in the accompanying bibliography - they would have already had a platform to build upon.

The following comments on the skirt and the project have been written in good faith, and it is hoped they will be seen in a positive light.

1. The complete Borum Eshhøj garment also consists of a blouse in addition to the skirt and hairnet (Fig 1). This blouse is identical to those found at Egtved and Skrydstrup, both in Denmark.

2. Enlarging the warp from 341 cm to 645 cm "to be on the safe side" needs further explanation.

3. The suggestion of four loom weights tied to the two laze rods to stretch the warp sounds reasonable. Experiences by others and myself plus ethnographic examples of this type of loom point to hammered-in wedges of wood or some sort of rigging to control the bars and consequently the stretching of the warp.

4. One way to avoid purls in a single-spun yarn with a high degree of spin, e.g. 45-50°, is to spin with a low-mounted spindle whorl and with the spindle resting in a bowl.

Figure 1 The Borum Eshøj woman's garment.

5. It is a surprise that Holm chose to use two heddle rods instead of taking advantage of the natural shed with a broad-bladed shed rod which can easily be raised on its edge providing a nice open shed.

6. It is interesting also that Holm was weaving while standing and beating the weft upwards. A two-beam loom, horizontal or vertical, certainly is more advantageous than the warp-weighted loom, exactly because one can sit down at work and profit by the

law of gravity when driving home the weft downward (or forward). There is no difficulty in reaching the heddle rod, not even for a 2/2-twill weave with three heddles and a shed rod if these are placed appropriately.

7. The "weaving wedge" in the presumed terminal area of the original skirt refered to by Holm is not a weaving wedge. The large wedge-shaped area has developed because the edge that is sewn to the opposite plaited edge has been cut on the bias in order to be drawn out to fit the length of the plaited edge. In Margrethe Hald's drawing (Fig 2) the bias cut is edge a-b and the plaited edge is c-d.

8. A tubular weaving warped over a stick or string, the so-called warp lock, has the advantage that one need not cut the fabric when finished. By drawing out the warp lock the cloth will open as though it had been fastened by a zipper. The result is a piece of cloth with four closed edges (selvedges). The term *tubular* loom is misleading as the loom itself is not tubular or round. Only the product is tubular of shape before being opened.

9. What are a "tablet braid on a rigid heddle" and a "normal loom"?

In conclusion, the work of Holm and Olin is a serious experiment and attempt to produce a copy of the Borum Eshøj textiles. This work must be appreciated. In the future, if textile specialists who want to reconstruct ancient fragments of garments build upon the work of their predecessors, we will advance a bit further. We need not begin with Adam and Eve each time.

Bibliography

Bender Jørgensen, L. (1994). Ancient costumes reconstructed. *Textilsymposium Neumünster*, NESAT **5**. Neumünster (109-113).

Bender Jørgensen, L., Munksgaard, E. and Stærmose Nielsen, K.-H. (1981). Melhøj-fundet. En hidtil upåagtet parallel til Skrydstrup-fundet. *Årboøger for nordisk oldkyndighet og historie* (17-47).

Nielsen, K.-H. (1971). Tilskæring. *Skalk* **5** (13-15).

Nielsen, K.-H. (1979). *Kvindedragten fra Skrydstrup. Beretning om en ny rekonstruktion af en 3000 år gammel dragt*. Haderslev Museum, Haderslev.

Nielsen, K.-H. (1980). Guldhøjsnuden. *Skalk* **2** (9).

Nielsen, K.-H. (1980). Ti slags garn. *Skalk* **5** (12-15).

Holm, C. and Olin, P. (1995). The Bronze age lady from Borum Eshøj, Denmark. *Archaeological Textiles Newsletter* **20** (21-23).

Stærmose Nielsen, K.-H. (1989). Bronzealderdragterne som blev en messe værd. *Fynske Minder (Årbog for Odense Bys Museer)*, 31-66.

Thrane, H. (1990). Fyns Stiftsmuseum. *Fynske Minder (Årbog for Odense Bys Museer)*, 117-118 and 141.

Karen-Hanne Stærmose Nielsen
Ved Gærdet 7
Vinderød
DK-3300 Frederiksværk
Denmark

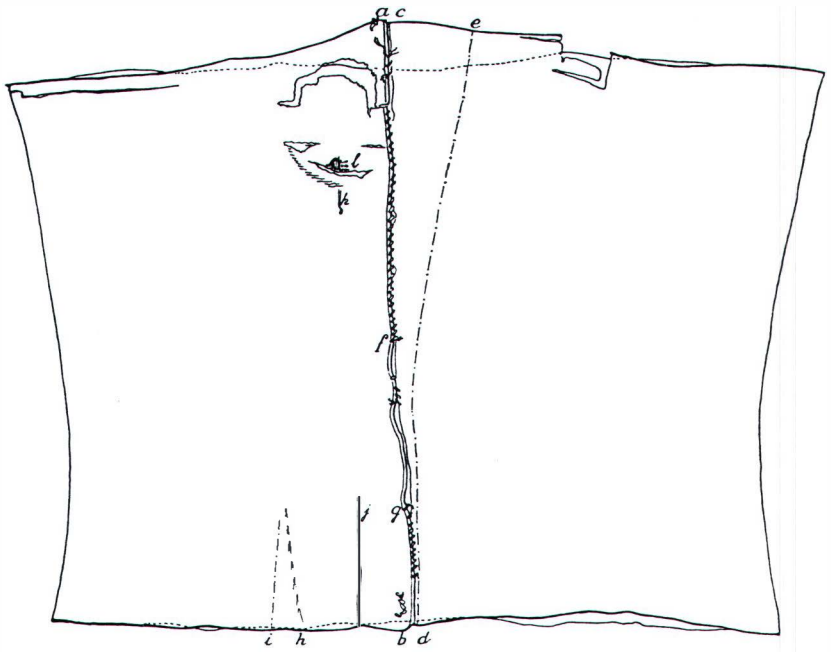


Figure 2 Borum Eshøj, Grave C. Piece of cloth sewn together. (Drawing: Margrethe Hald). (Broholm, H.C. and Hald, M. (1935). Danske Bronzealders Dragter. *Nordiske Fortidsminder* ***II****(5 and 6), p.268.)*

Worth Noting

Textiles from a Crusader Burial in Cesarea

Remains of textiles were discovered in the 1995 excavations carried out at the Crusader city of Cesarea on the shore of the Mediterranean Sea, on behalf of the Israel Antiquities Authority under the direction of Josef Porat.

The textiles were discovered in a Christian grave under the pavement of the Crusader Cathedral in Cesarea (locus 10584, basket 38754). The burial was in a wooden coffin with iron nails. The small textile fragments were in several layers, one on top of the other, in a very poor condition - partly carbonised and very fragile. It seemed almost impossible to separate the layers without breaking the fibres. Nevertheless some fragments could be analyzed and described. It is assumed they are fragments of the coffin lining and of the shrouds and/or vestments of the deceased.

There are two fragments of a silk tabletwoven band, brocaded with a gilded membrane lamella wound on a silk core. There are one sheer silk tabby and one silk tabby brocaded with similar gilded threads as those of the tabletwoven band, probably a piece of the sheer silk tabby fragment. There are also a small fragment with pile loops, and the remains of a coloured silk braid. Three of the compound woven fragments and one fragment of the tabletwoven band are embroidered with blue silk and shiny cream threads of a vegetal origin that could not be identified as one of the conventional textile plants. No motifs or patterns could be recognized.

The silk compound weaves of the Cesarea grave could have been made in Europe as well as in the Near East. Although the technique of tabletweaving originated the Eastern Mediterranean, no tabletwoven bands with metal brocading has been discovered in the region. As the Cesarea tabletwoven band with gilded silver brocading closely resembles bands made in Europe (Britain or Germany), it can be assumed that it was made there. It is similar in weaving technique, as well as in the technique of the gilded membrane lamella wound on a silk core, to bands made in North Europe.

Using splendid silks in burials of high ranking church and secular dignitaries was customary in medieval Europe, and many such textiles have been preserved and studied. The tabletwoven band brocaded with gilded lamella is a sign of high social status either of a church dignitary of the rank of a bishop or above or of a secular aristocrat. In both cases they would have been buried in the cathedral.

Alisa Baginski
Israel Antiquities Authority
POB 586
91 004 Jerusalem
Israel

Alter Name - neuer Status: Museumsdorf Düppel Berlin

Seit 1968 wurde im Südwesten Berlins der vollständige Grundriß eines mittelalterlichen Dorfes ausgegraben, das um 1200 n.Chr. dort etwa 30 Jahre gestanden hatte. Auf diesen Standspuren der Häuser sollte das alte Dorf neu errichtet werden. 1975 wurde ein Verein gegründet, um die Projekt *Museumsdorf Düppel* zu verwirklichen. Das Museumsdorf entstand also aus einer Bürgerinitiative, in der von Anbeginn zahreiche Mitglieder des Trägervereins tatkräftig und ohne Bezahlung den Aufbau des Dorfes vorantrieben und es mit Leben erfüllten.

Es entstanden mannigfache Arbeitsgruppen, die im Experiment vorwiegend mittelalterliche Handwerkstechniken anwenden, die sie z.T. selbst wiederentdeckt haben. Das Museumsdorf Düppel ist heute ein national und international anerkanntes Museum und ein Zentrum für verschiedene Bereiche der experimentellen Archäologie, nicht zuletzt auf dem Gebiet der Wollverarbeitung. Hier sollen als Beispiel die Nachbildungen des Reepsholtkittels von ca. 200 n.Chr. (vielleicht mittelalterlich?) und der Manipel des Heiligen Ulrich von 900 n.Chr. genannt werden (Goldmann 1991 und Stolte 1991).

Im Rahmen der durch die Wiedervereinigung Berlins notwendig gewordenen Neuordnung der Museumsstrukturen ist im September 1995 das Museumsdorf Düppel auf das neugegründete *Stadtmuseum Berlin* übergegangen. In dieser *Stiftung Stadtmuseum Berlin - Landesmuseum für Kultur und Geschichte Berlins*, dem neuen Verbund zahlreicher zuvor städtischer musealer Einrichtungen ist das Museumsdorf Düppel nun der Prähistorischen Abteilung des Märkischen

Museums zugeordnet. Es hat damit eine sichere, in die Zukunft weisende Grundlage erhalten.

Der ehemalige Trägerverein wird künftig als *Fördererkreis des Museumsdorf Düppel e.V.* gemäß einer vertraglichen Vereinbarung die weitere Arbeit im Museumsdorf weiter entscheidend mitgestalten.

Literatur

Goldmann, A. (1991). Webversuche nach Befunden von Reepsholt und Emden. In Experimentelle Archäologie. Bilanz 1991. *Archäologische Mitteilungen aus Nordwestdeutschland, Beiheft 6* (353-360).

Stolte, H. (1991). Zweiter Versuch der Mustern-achbildung eines Brettchengewebes: Manipel des Heiligen Ulrich. In Experimentelle Archäologie. Bilanz 1991. *Archäologische Mitteilungen aus Nordwestdeutschland, Beiheft 6* (339-346).

Annelies Goldmann
Stiftung Stadtmuseum Berlin
Museumsdorf Düppel
Clauertstr. 11
D-14163 Berlin
Deutschland

Research Group - Textiles from the Nile Valley. Roman to Early Islamic Period

At the sixth International Congress for Coptology in Münster, Germany, (20.-26. July 1996) textile specialists and experts in related disciplines held a working session and set up an international research group. The idea and aim of this group is to facilitate and promote scholarly exchange. It is considered particularly important to increase the exposure of textile research to other specialist subjects and, at the same time, establish a forum for those working in related disciplines.

Scope of Activity

The region focused on is textiles from Egypt and Nubia; therefore, in the title of the research group *from the Nile Valley.* The chronological framework (with a certain flexibility) agreed upon is post-Pharaonic textiles of the 1st millenium, i.e. of the Roman to Early Islamic periods.

Tasks

Close contact with scholars who deal with other subjects of this region and period (not only archaeology and art history, but also papyrology, epigraphy, theology, literature, etc.). The group can be considered a forum within which project groups covering special topics can be set up. Closer cooperation with restoration specialists regarding technical aspects of textiles and proper storage, conservation and processing of textiles in excavations and in museums.

Contacts with archaeologists who expect to find or have found textiles in excavations and referral of specialists for retrieving and processing such material. Regular information on current and planned projects, exhibitions, recent literature, announcement of meetings, exchange with other textile organisations, etc.

Organisation

In order to ensure a regular exchange of information, meetings are planned to take place at two year intervals and on particular occasions. A projected date for a future meeting is the International Congress of Papyrology in Florence in 1998, provided our involvement is possible. A meeting in the coming year is also being considered on the occasion of the Journées de l'Association Francophone de Coptologie (29.-30. May 1997) in Colmar. Offers of other places for conferences have been received, for example from the Abegg-Stiftung in Riggisberg.

As a newly founded forum, this group welcomes all suggestions, ideas, help and initiative. We are open to all who are interested.

Current contacts are:

Cäcilia Fluck, Emil-Nolde-Straße 23, D-25899 Niebüll, Germany.

Sabine Schrenk, Bonner Wall 100, D-50677 Köln, Germany.

Dr. Sabine Schrenk
Bonner Wall 100
D-50677 Köln
Germany

Some Interesting Facts about Brocaded Tabletwoven Bands

Of the approximately 220 bands for which tablet orientation can be determined, ca. 84% are oriented alternating S and Z (with an occasional variation such as blocks of S and Z, while a handful are haphazardly S and Z, such as S,3Z,S,Z,2S, etc.). Only ca. 16% are oriented all in the same direction (generally excluding border tablets) for weaving twills.

Of the approximately 340 bands for which width measurements are available, ca 44% measure 1.3 cm (ca. 0.5 inch) or less; ca. 67% measure 2.5 cm (ca. 1 inch) or less; ca. 89% measure 5.1 cm (ca. 2 inches) or less. Only ca. 11% of the bands are wider than 5.1 cm. The narrowest bands are ca. 0.2 cm in width while the widest known band is 18.1 cm (ca. 7.25 inches).

The shortest lengths recorded are only a couple of brocading wefts long. The longest band measures ca. 485 cm (ca. 191 inches) in length.

Nancy Spies
475 Crisfield Drive
Abingdon, MD 21009
U.S.A.

Information Wanted

Viking Age Female Dress

I am making a copy of a Viking Age female dress for the archaeological experimental centre of Turku Provincial Museum, Finland. The dress is modelled after dress remnants found in a Viking Age grave dating from the beginning of the eleventh century. The dress is composed of eight pieces of wool fabric with tablet-woven borders. Seven of the pieces are woven in a twill weave, one is in lozenge twill. The fabrics have 8-16 threads/cm in both warp and weft. In general the warps are made of 2-plied yarn (2Z/S) and wefts are single-ply (Z). In the practical work long-haired wool is combed with wool combs and spun with a spindle. The wool is dyed with natural colours using woad and mushrooms.

Six pieces of fabric are now finished. There have not been excessive difficulties in weaving these because the of two-plied warp. Next a piece of cloth will have to single-ply warp. The strength of a single-ply warp in the warp-weighted loom is somewhat questionable for me. I would be glad to know if someone had experiences with strengthening and weaving single-ply warp. Also knowledge of dyeing unspun wool with woad is welcome. I speak Swedish, some English and German.

Sari Raito
Akankatu 5 B 11
SF-20540 Turku
Finland
e-mail: timo.kuokkanen@utu.fi

Update

TWINE Now TWIST

The organization of tablet weavers, previously known as **TWINE**, is happy to announce it will henceforth be known as **TWIST** (Tablet Weavers International Studies and Techniques).

Nancy Spies
475 Crisfield Drive
Abingdon, MD 21009
U.S.A.

Reviews

Conferences

"A Good Yarn!" Archäologische und Historische Forschungen zur mittelalterlichen Tuchindustrie von Flandern

Am 29. und 30. November 1996 trafen sich in der nach ihrer Zerstörung im ersten Weltkrieg wiederaufgebauten, historischen imposanten Tuchhalle in Ypern in Belgien ca. 120 Interessierte verschiedener Wissensgebiete aus neun mitteleuropäischen Ländern. Anlaß des Treffens war die erste großflächige Ausgrabung des flämischen Tuchmacherzentrums Ypern, in der eine systematische Entnahme von tierischen und pflanzlichen Resten durch das (einladende) Instituut voor het Archeologisch Patrimonium IAP erfolgte.

Historiker, Archäologen und Naturwissenschaftler legten erste Ergebnisse ihrer Forschungen vor. Es zeigte sich, daß die mittelalterliche Tuchindustrie gerade durch eine fächerübergreifende Zusammenarbeit am ehesten verstanden werden kann.

Marc Dewilde und Stephan van Bellingen stellten die in Ypern ergrabenen Hinweise auf Werkstätten mit Feuerplätzen, große Gruben, sowie Webgewichte, Tuchsiegel und Abfallprodukte vor. Nun kommt es darauf an, ob diese Spuren durch die stadtgeschichtlichen Untersuchungen von Octaaf Mus mit bestimmten Phasen der Tuchproduktion in Einklang gebracht werden können.

Der Archäozoologe Jaap Schelvis aus Groningen in den Niederlanden entdeckte in Ypern den ersten flämischen Rekord von Schafektoparasiten, zum Teil in Zusammenhang mit Hühnerexkrementen. Diese könnten zum Walken oder Entfetten der Wolle vor dem Färben genutzt worden sein. Jaap Schelvis beschrieb einen Versuch, durch Vergleiche der arthopoden Fauna der verschiedenen Fundplätze, die Plätze, wo Wolle verarbeitet wurde, von Plätzen zu unterscheiden, wo lebende Schafe sich aufhielten.

Der Zoologe Anton Ervynck von IAP referierte u.a. über die Frage, ob Knochenfunde von älteren für die Fleischversorgung unbrauchbaren Schafen einen Beweis für Wollverarbeitung darstellen können.

Einen Beitrag zur Farbbestimmung lieferte der Biochemiker Jan Wouters aus Brüssel. Nur eine Identifizierung und Quantifizierung repräsentativer Farbkomponenten an historischen und im Laboratorium geschaffenen und künstlich gealterten Beispielen ist sinnvoll. Die zur Zeit beste technische Methode ist HPLC: high performance liquid chromatography. Das heißt unter anderem hohe Teilungssystemflexibilität, Mengenaufteilung durch Eingliederung auf jeder gewünschen Wellenlänge im UV-VIS Bereich von 200 bis 800 Nanometer und brauchbare Archivierungsmöglichkeiten mit dem Computer. Es ist hiermit eine volle Farbanalyse von weniger als 0,5 Milligramm Garn möglich.

Der Archäobotaniker Alan Hall von der Universität in York in England stellte unter anderem "clubmoss" (*Diphasiastrum complanatum*) vor, gefunden in angloskandinavischen Schichten in York und wahrscheinlich im Zusammenhang mit anderen Färbepflanzen zum Beizen genutzt.

Frieda Sorber aus Antwerpen gab einen Überblick über die Praxis der Wollverarbeitung vom Vlies bis zum Tuch, wobei sie sich auf die Regeln der Gilden und besonders auf die Verbote in den Vorschriften bezog. Wichtig waren zum Beispiel bestimmte Farben in den Kettfäden der Seitenkanten und in den Anfangs- und Endkanten der Stoffe. Für viele Qualitäten war nur Kämmen der Wolle vor dem Spinnen zugelassen. Die größte Verantwortung lag bei den Stoffausrüstern, die mit Hilfe von heißem Wasser und Fett die genau vorgeschriebenen Ausmaße der Tuche erreichen mußten.

Der Historiker Patrick Chorley von der Universität London zeigte auf Grund von kaufmännischen Aufzeichnungen, Eintragungen in Handelsregistern, Verträgen, Lagerinventarlisten und Siegelkäufen den Stellenwert von Ypern auf dem internationalen Markt auf und die Veränderung dieser Stellung als Folge des steigenden Wettbewerbs im 13. und 14. Jahrhundert. Während Ypern zunächst eine große Spannbreite an Qualitäten und besonders hochwertige, farbige Kammgarne über weite Entfernungen in Europa verkaufen konnte, begann ab Mitte des 13.Jahrhunderts eine Verdrängung durch Chalons in Frankreich und später durch andere Tuchzentren in Brabant. Nach einem Versuch, sich nun auf hochwertige scharlachrote Gewebe zu spezialisieren, konnte Ypern schließlich nur noch billige Stoffe verkaufen, die teilweise in Italien überfärbt wurden.

Eine zeitlich - räumliche Verbreitung der Tuche aus Ypern und die Rolle der Hanse dabei war das Thema

von Simonne Abraham-Thisse von der Universität in Lille in Frankreich.

An diese Stelle, nach den beiden wirtschaftsgeschichtlichen Referaten, hätte gut ein Beitrag von Jerzy Maik aus Lodz gepaßt, der bereits 1987 in York (NESAT III, erschienen 1990) in Danzig geborgene flämische Textilien ausführlich dargestellt hat.

Nico Arts aus Eindhoven in den Niederlanden sprach über Ausgrabungsbefunde in Eindhoven und Helmond von mit Moos und Zweigen ausgefütterten Gruben, in denen möglicherweise Wollstoffe gefärbt oder gewalkt wurden. Es fehlen schriftliche Quellen, die zu entscheiden erlauben, weshalb die beiden Ansiedlungen gerade dort entstanden.

In Arras in Frankreich hat die Zusammenarbeit zwischen dem Archäologen Alain Jaques und dem Historiker Laurent Coulon Früchte getragen: Sie stellten ein durch schriftliche Quellen gut deutbares Paradebeispiel einen Privathauses mit angeschlossener Produktionsanlage zum Färben und Walken von Tuchen aus dem 13. Jahrhundert vor, die direkt am Fluß lag. Damit war das Wasser für alle Spülvorgänge leicht zugänglich.

Antoinette Rast-Eicher und Renata Windler berichteten über Webkeller aus Wintherthur in der Schweiz, wo Webstühle mit pflanzlichem Material, auch schon Baumwolle, nachgewiesen wurden. Parallel zur negativen Entwicklung in Flandern, ist auch hier im Spätmittelalter ein Ende der florierenden Produktion zu beobachten.

Elisabeth Wincott Heckett von der Universität in Cork in Irland zeigte Textilien aus Waterford, Cork und Dublin aus dem 13. und 14. Jahrhundert, darunter auch das typische irische "Shaggy Pile", ein zottiger Umhang. Hier bekamen die Tagungsteilnehmer zuletzt noch einige Abbildungen von Garn und Geweben zu sehen.
Das Bild der flämischen Tuchindustrie im Mittelalter wurde abgerundet durch kompetente Ausführungen von Kapazitäten der Universitäten Gent, Löwen, Brüssel und Antwerpen über die naturgegebenen Voraussetzungen in der Landschaft zur Entwicklung der Schafzucht und über frühe soziale Unruhen und Revolten.

Die Tagung war sehr gut und liebevoll organisiert von Marc Dewilde und seinem Team. Die Teilnehmer kamen zu einem regen Gedankenaustausch, besonders beim Konferenzdinner und den abendlichen Empfängen. Eine Veröffentlichung der Referate ist geplant.

Annelies Goldmann
Stiftung Stadtmuseum Berlin
Museumsdorf Düppel
Clauertstr. 11
D-14163 Berlin
Deutschland

Source Materials

Publications

Recent Publications

Adovasio, J.M., Soffer, O. and Klima, B. (1996). Upper Palaeolithic fibre technology from Pavlov I, Czech Republic, c. 26,000 years ago. *Antiquity* **70**(269) (526-534).

Axelsson, S. (1995). Växtfiber och textil - forsök med nässlor. *Bohusläin Årsbok* (31-36).

Balfour-Paul, J. (1997). *Indigo in the Arab World.* Curzon Press, Richmond, UK.

Banck, J. (1996). Feine Tuche für den Fürsten. In Biel, J. (Ed), *Experiment Hochdorf, Keltische Handwerkskunst wiederbelebt. Schriften des Keltenmuseums Hochdorf/Linz* **I**. Stuttgart (40-63).

Bartel, A. (1990). Zur Erhaltung und Identifikation der Pontifikalschuhfragmente Papst Clemens II (1047). *Jahrbuch der bayerischen Denkmalpflege* **44** (16-20).

Bartel, A. and Codreanu-Windauer (1995). Spindel, Wirtel, Topf. Ein besonderer Beigabenkomplex aus Pfakofen, Lkr. Regensburg. *Bayerische Vorgeschichtsblätter* **60** (251-272).

Bowkett, L.C. (1995). The Hellenistic dyeworks, in Taylour, W.D., French, E.B. and Wardle, K.A. (Eds). *Well Built Mycenae: The Helleno-British Excavations within the Citadel at Mycenae 1959-1969*, Fasc. **36**, Oxbow.

Coatsworth, E., Fitzgerald, M., Leahy, K. and Owen-Crocker, G. (1996). Anglo-Saxon textiles from Cleatham, Humberside. *Textile History* **27**(1) (5-41).

Cork, C.R., Cooke, W.D., and Wild, J.P. (1996). The use of image analysis to determine yarn twist level in archaeological textiles. *Archaeometry* **38**(2)(337-346).

Crowfoot, E. (1995). Textiles from recent excavations at Nimrud. *Iraq* **LVII** (113-118).

Fell, V. (Ed) (1996). *The Anglo-Saxon Cemetery at Snape, Suffolk: Scientific Analyses of the Artefacts and Other Materials.* Ancient Monuments Laboratory Report **9/96**. London.

Fujii, H., Sakamoto, K. and Ichihashi (1996). Textiles from At-Tar Caves - Part II-(4): Cave 16, Hill C. *Al-Rāfidān* **XVII** (145-173).

Good, I. (1995). On the question of silk in pre-Han Eurasia. *Antiquity* **69** (959-968).

Hadingham, E. (1994). Riddle of the Chinese mummies. *Discover* **1994** (68-77).

Hardman, S. (1996). Infrared analysis of the textile samples. In Bell, M., Fowler, P.J. and Hillson, S.W. (Eds.) *The Experimental Earthwork Project 1960-1992.* Council for British Archaeology Research Report **100** (174-176).

Hardouin-Fegier, E. et al. (1994). *Les Etoffes.* Dictionnaire Historique, Paris.

Hägg, I. (1994). Über quantitative Bearbeitung und Deutung eines archäologischen Textilmaterials. *Acta Archaeologica* **LXV** (197-202).

Islamische Textilkunst des Mittelalters: Aktuelle Probleme. Riggisberger Berichte, Band **5** (1996). Abegg-Stiftung, Riggisberg.

Janaway, R. (1996). The textiles. In Bell, M., Fowler, P.J. and Hillson, S.W. (Eds.) *The Experimental Earthwork Project 1960-1992.* Council for British Archaeology Research Report **100** (160-168).

Kawanishi, H. and Tatsuno, M. (1995). Technological study concerning textiles, in *Akoris: Report of the Excavations at Akoris in Middle Egypt 1981-1992*; Kamanishi, H. (Ed), Koyo Shobo, Kyoto (277-293).

Knape, A. and Nockert, M. (1996). Nya dateringar av kände fynd. *Fornvännen* **1996/1** (43-44).

Mair, V.H. (1995). Mummies of the Tarim Basin. *Archaeology* **1995** (28-35).

Min, Wu (1996). Study on some ancient wool fabrics unearthed in recent years from Xinjiang of China. *Al-Rāfidān* **XVII** (1-20, col.pls 1-7).

Montegut, D., Indictor, N. and Summerfield A. and J. (1996). Technical examination of metal threads in some Indonesian textiles of West Sumatra. *Textile History* **27** (101-114).

Muthesius, A. (1995). *Studies in Byzantine and Islamic Weavings.* London.

Nadel, D., Danin, A., Werker, E., Schick, T., Kislev, M.E. and Stewart, K. (1994). 19,000-year-old twisted fibers from Ohalo II. *Current Anthropology* **35**(4) (451-458).

Peacock, E.E. (1996). Characterization and simulation of water-degraded archaeological textiles: a review. *International Biodeterioration and Biodegradation* **38**(1) (35-47).

Peacock, E.E. (1996). Biodegradation and characterization of water-degraded archaeological textiles created for conservation research. *International Biodeterioration and Biodegradation* **38**(1) (49-59).

Peacock, E.E. (1996). X-ray fluorescence analysis of burial-degraded textiles. In *Proceedings from the 6th Nordic Conference on the Application of Scientific Methods in Archaeology, Esbjerg 1993*, Mejdahl, V. and Siemen, P. (Eds). Arkæologiske Rapporter nr.**1**, Esbjerg Museum, Esbjerg (13-22).

Piponnier, F. and Mane, P. (1995). *Se Vêtir au Moyen Âge*. Paris.

Rast-Eicher, A. (1995). Die Filze und Geflechte, in *Die Býčískála-Höhle: Ein hallstattzeitlicher Höhlenopferplatz in Mähren*, Parzinger, H., Nekvasil, J., Barth, F.E.(Eds), Römisch-Germanische Forschungen **54** (167-174).

Riboud, K., Desrouches, J.-P., Myers, M., Simcox, J., Jera-Bezard, R., and Lorquin, A. (1996). *Soieries bouddhiques chinoises / Chinese Buddist Silks*. AEDTA, Paris.

Riis, P.J. (1993). Ancient types of garments. Prolegomena to the study of Greek and Roman clothing. *Acta Archaeologica* **LXIV**(2) (149-182).

Sassen, M.M.A., Oostendorp, C.E.C.M., Boon, J.J., van der Heijden, E., Stassen, P. and Op den Camp, H.J.M. (1995). Rope from the Rutten cog, a 13th century seagoing vessel found in the Netherlands. *Journal of Archaeological Science* **22**(4) (551-559).

Sidebotham, S. and Wendrich, W. (1996). *Berenike '95. Preliminary Report of the Excavations at Berenike (Egyptian Red Sea Coast) and the Survey of the Eastern desert*. CNWS Publications. Special Series No. **2**. Leiden.

Soffer, O. and Adovasio, J.M. (1996). Les Tissus paléolithiques de Moravie. *L'Archéologue* **25** (9-11).

Stauffer, A. (1995). *Textiles of Late Antiquity*. Metropolitan Museum of Art, New York.

von Kurzynski, K. (1996). *Textilfunde und Textiltechnologie der Hallstatt- und Latènezeit und ihr Kontext*. Internationale Archäologie **22**. Verlag Marie Leidorf.

Windler, R., Rast-Eicher, A. and Mannering, U. (1995). Nessel und Flachs - Textilfunde aus einem frühmittelalterlichen Mädchengrab in Fluringen (Kanton Zürich). *Archäologie der Schweiz* **18** (155-162).

Recent Theses

Banck, J. (1995). *Die Textilfunde aus dem späthallstattzeitlichen Fürstengrab von Eberdingen-Hochdorf und weitere Grabtextilien aus Hallstatt- und Latènezeitlichen Kulturgruppen - unter Hinzuziehung von Funden aus Norddeutschland, Italien und Griechenland*. Inaugural Dissertation zur Erlangung der Doktorwürde der Philosophischen Fakultäten der Albert-Ludwig-Universitä't zur Freiburg i. Br.

Subscription

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

Subscription payments should be sent to:

John Peter Wild
Department of Art History and Archaeology
The University of Manchester
Oxford Road
Manchester M13 9PL
UK

Payments are accepted in pounds sterling (£) only. Payment **must** be in the form of a bank/cashier's cheque, and should be made to: J.P. Wild - ATN.

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, as well as from all parts of the world are of interest. Contributions to the ***Newsletter*** are welcome, and should be in accordance with this concept.

1. Contributions can be in English, German or French. Items in Russian will be accepted, but these will be translated into English.

2. Contributions may include references to recently published books, journals and articles, and to announcements and reviews of exhibitions, seminars, conferences, special courses and lectures, information related to current projects, and any queries concerning the study of archaeological textiles.

3. Work in Progress. This is a general category which includes research/activities related to archaeological textiles from recent excavations or in museums. Projects can encompass technology and analysis, experimental archaeology (e.g. reproduction), documentation, exhibition, conservation and storage. These contributions can be in the form of notes or longer feature articles.

4. Send submissions in typed form preferably on computer diskette produced in IBM compatible WordPerfect or Word format. Bibliographic references must be supplied in full. Line drawings and photographs are accepted, but must be originals of high reproduction quality. Items for illustration should not be affixed to other backings.

5. The editors reserve the right to suggest alterations in the wording of items sent for publication.

6. The deadline for contributions is May 30th and November 30th, for the Spring and Autumn issues respectively.

Submissions should be addressed to:

John Peter Wild
Department of Art History and Archaeology
The University of Manchester
Oxford Road
Manchester M13 9PL
UK

Fax: (44)-161-275-3331
Tel: (44)-161-275-3019

Advertisements

Advertising information is available upon request.

Disclaimer

The views expressed in advertisements and by authors in articles printed in the ***Archaeological Textiles Newsletter*** are not necessarily those of the Editorial Board, and are the responsibility solely of the individual contributors.

The ***Archaeological Textiles Newsletter***, No. 23, 1996 is published at Vitenskapsmuseet, The Norwegian University of Science and Technology, N-7034 Trondheim, Norway.

Editorial board: L. Bender Jørgensen, A.M. Docog, K. Tidow, J.P. Wild and E. Wincott Heckett.

Editor: E.E. Peacock

Publication dates: twice-yearly, Spring and Autumn.

ISSN: 0169-7331