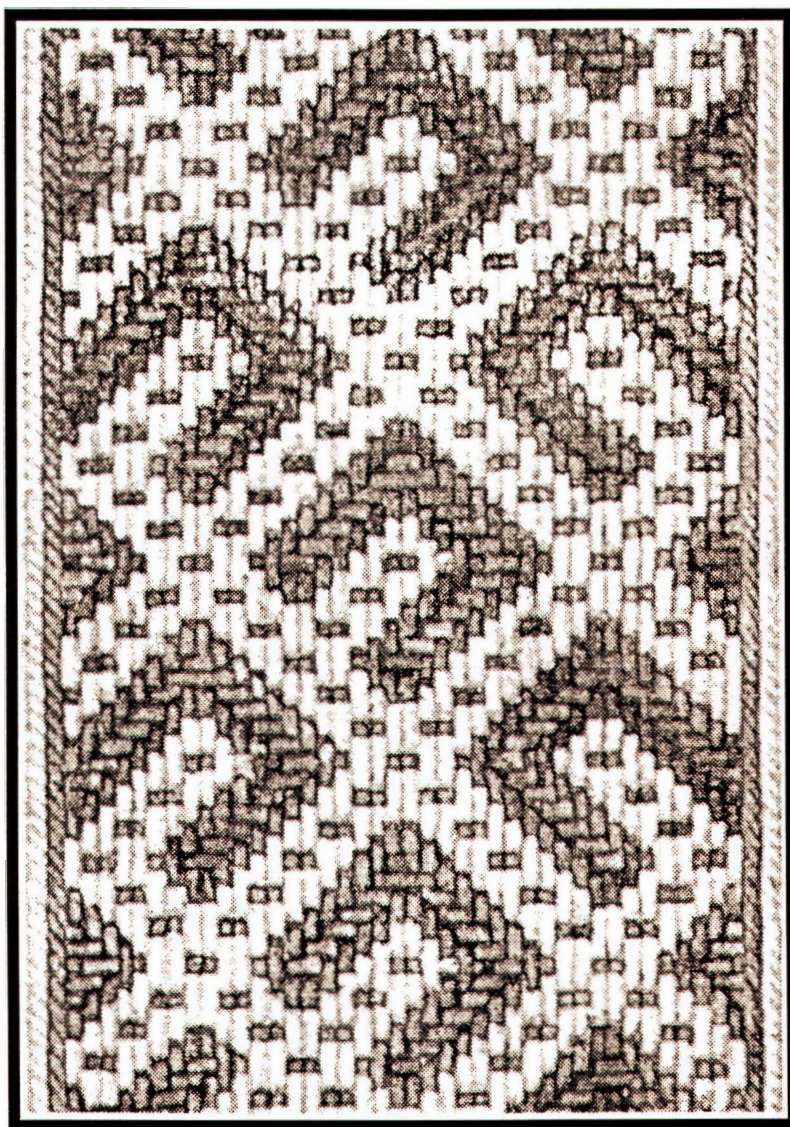


Archaeological Textiles Newsletter



Tablet-woven belt from the 11th century from Rāmūlda, Latvia

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Textiles on Contract

In recent years, several specialists, including textile scholars, have met with less pleasant problems when working for various projects. The *ATN* Editorial Board feels that the time has come to discuss these problems, hoping to protect colleagues from falling into the worst traps. Projects abroad, and in particular the Near East, are a particular danger zone, but you may well meet up with similar situations at home too.

At desert sites, textiles are so abundant that the textile scholar soon has his/her bag full. Two projects are normally the maximum. Fresh people are consequently in demand, and often inexperienced specialists are going out. Project directors in these parts of the world as often as not are tough determined people who are trying to do - and get done - a maximum amount of work for a minimum of money, and also in a minimum amount of time. They have to be like that, or they would never get their projects off the ground. They want their textiles done quickly, efficiently and inexpensively, with a report to show for it, and a chapter in their publication on the site.

If the specialist for some reason - health, security, lack of grants - cannot come when called for, directors tend simply to ask someone else, sometimes without informing the first one of his/her replacement. Paid travel expenses often all the specialists are offered for their hard work. Work conditions, expenses, scholarly rights, copyrights and particularly salaries are rarely discussed in advance. Research students working for a PhD are particularly popular, as they offer an acceptable academic standard, are eager to publish and make a name for themselves, and do not expect to be paid very much. All this leaves the specialists vulnerable to exploitation, and conflicts with professional ethics.

Project specialists are rarely salaried. The glamour of adventure in the desert is alluring, and most specialists have gone for that the first time. The first season is short and sweet, but the rent at home has got to be paid, too, while away. Several seasons may well follow, of two or three months each. Afterwards, reports have to be written, and manuscripts for final publications. Equipment, photographs, drawings, translations or language revisions all cost money: who is paying for it? Before signing on to a project for the first time, it is wise to discuss these aspects with the project director.

Some project directors tend to think that the splendid offer of ancient textiles to investigate and publish is more than sufficient to fulfill their obligations to the specialist. Seeing things in this way, they may well argue that the responsibility for applying for visas to work, for money, etc. is up to the specialist herself. Arguments like these can be persuasive, being in line with the ideal of pure scholarship. For the inexperienced, this situation may be difficult to handle.

To avoid these problems, the Editorial Board of *ATN* strongly recommends always to ask for a contract in which the mutual obligations of Project and Specialist are stated. Make sure that it is made clear who arranges and who pays for the following points:

General

- Your salary during field work and afterwards
- Visas and security clearances
- Access to finds and archives, also after the field work has ended
- Safe transport of you from your home to the site and back
- Suitable housing, washing and lavatory facilities
- Food and clean drinking water
- Medical care and medical supplies
- Insurance
- Replacement, if you are prevented from coming or from continuing your work
- General information on the project, including addresses of all members
- Access to necessary information on other aspects of the site, such as stratigraphy and chronological framework

Work Conditions

- Access to suitable workroom and working facilities such as tables, chairs, lamps and washing facilities for textiles including water
- Working hours and breaks
- Equipment such as microscope, photo stand, cameras, first-aid conservation equipment
- Maintenance of equipment
- Film, index cards and other office supplies
- Packing and storage materials: boxes, bags, envelopes, labels
- Film development and printing

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Copyright

- Publication conditions, deadlines, and copyright ownership of:
 - preliminary reports
 - final reports
 - publications, oral, in writing and in electronic media
 - texts, photographs and drawings
- What happens in each of these instances if you discontinue your work for some reason and are replaced by another?

The members of the Editorial Board of *ATN* will be pleased to offer you additional advice if you need it.

Lise Bender Jørgensen
Klaus Tidow
Gillian Vogelsang-Eastwood
John Peter Wild
Elizabeth Wincott Heckett

Features

Invisible Crafts

While working in archaeology I am surprised to find how seldom textile production and fur and skin processing are put into context and discussed. As a defense it is often said that finds of textiles are few and that there is no knowledge of fur processing. But is this the truth? Certainly, the textile corpus is small compared, for example, to iron fragments, worked flint, and pottery shards. At the same time there are also many different textile implements like needles, spindle whorls, and loomweights that survive. Several prehistoric textile techniques like spinning, weaving on a warp-weighted loom, and tablet weaving are traditions which have continued up to today. Intensive research has been carried out; Agnes Geijer, Margrethe Hald, Marta Hoffman, Ann-Marie Franzén, Margaretha Nockert, Inga Hägg and Lise Bender Jørgensen are only a few examples of textile specialists who have studied different aspects of prehistoric textile material.

What significance were these crafts given in prehistoric society? How is our general knowledge of textile production, fur processing, and clothing presented? What are future archaeologists taught about these crafts, and finally what picture do archaeologists present in popular literature to the general public? To get an overview of how these crafts are presented, I decided to carry out a careful review of eight survey works, a total of 19 volumes, from Sweden, Denmark, Norway and Finland.

Difference and Indifference - Cause and Effect

The survey revealed several interesting differences between on the one hand textiles and fur preparation and on the other hand other crafts. The Danish surveys, however, are more balanced than the others.

Textile production and fur processing are seldom

discussed under headings about crafts. Imported textiles are mentioned in passing, but there is no proper discussion about choice, origin and distribution.

The general picture one gets of fur craft is poor. Certainly nobody denies its significance, but the *craft* disappears into the text. The function of the tools used is mentioned in an offhand way when different flint tools are described or when trade contacts are discussed. If the actual process of preparation is ignored, we get no understanding of the time element or what significance fur treatment has had. Did scrapers really fulfill a practical function? At the same time all authors agree on the significance of skins and furs as export goods during the Late Iron Age.

With the exception of the Danish surveys, there is a significant difference between information about textile implements and preparation on the one hand, and the finished textile product on the other. Textile crafts are seldom an integral part of a general discussion; rather they are mentioned in passing. Work with textiles is not, according to the surveys, craft in the traditional sense. Neither the economic significance of the work nor the question of professional manufacture in Scandinavia are discussed. Textile implements are mentioned in all surveys, but even when other techniques are mentioned, an explanation of the manufacturing process is missing. As the actual method of labour involved is consistently overlooked, there is little chance the reader will comprehend the significance of the work or time required. The result is that, except for the Danish surveys, one does not realise how, or even that, textiles have been made.

None of the authors has completely left out a description of costumes from the Bronze and Iron

Ages, but often one gets the impression that dress was only a complement to brooches and other ornaments.

Visible Crafts

Is it just fur processing and textile production to which the surveys give scanty mention or is this also the case for flint working, bronze casting, pottery production and iron smelting? As we know prehistory is divided into Stone, Bronze and Iron Ages and so there are of course many pages in the surveys devoted to these materials.

It appears that even if different manufacturing processes are not always described, the products of these other crafts are named in the general discussions. It is difficult to compare individual instances and a few lines of text with comprehensive analysis and description. For example a discussion about flint artifacts and pottery does not only concern the separate tool or the pottery form; lithicss and pottery shards provide dating information. One sees a development in the description of technique; the objects are given different status dependent upon the context in which they are found, etc. At the same time these crafts and artifacts are included in a discussion of environment and climate change, way of life, farming, hunting, etc. However, there are few headings (except the Danish surveys and *Arkeologi i Sverige*) which refer to crafts in general.

Is the Difference Relevant?

Obviously one can argue that we have no knowledge of fur processing, textile techniques, etc., and one cannot disregard the fact that artifacts that are well represented in the archaeological material have great significance from a typological and chronological aspect. But in a discussion of status objects, gift exchange and export, social organisation and daily life, it is overlooked that although we lack exact actual knowledge, textile production and fur processing activities were ongoing, and in their own way, significant.

As I have tried to compare a large volume of information on different crafts it has often crossed my mind that fur and textile crafts do not fit into the traditional divisions of time: Stone, Bronze and Iron Ages. The picture suggested by the surveys leads us to believe that when people switched from flint to bronze, they switched from skin garments to clothes of woven woollen cloth, and that linen was introduced in the Iron Age. Instead of discussing Stone, Bronze and Iron Ages should we talk about the fur, woollen and flax ages? I do not think so, for the marks of these crafts suggests a different time perspective.

Men's Work, Women's Chores

Previously there was an automatic terminological division between men's work and women's chores which gave lower status to the work carried out by women. "Shears, spindle whorls, and linen brushes denote women's chores" (Kivikoski 1961:212). Chores are routine tasks which can be performed on the side, whereas work is tangible, important and essential for survival. Today I think there is a consciousness of the error of this distinction, but we nevertheless see how female work is associated with the domestic sphere, the farm and its immediate surroundings in a way that is different from the traditional male pursuits. Even if textile production above all has been domestic it does not prevent a weaver(ess) having the same high status as a smith. The authors do not personalise the textile and fur crafts as they do for instance smithing. Again, one gets the impression that all women had complete knowledge of and participated in the production of textiles just like domestic duties. Is this a true picture? Certainly many have taken part in the process from raw material to finished product, but this is valid not just for the textile crafts, but also for iron production and smithing, bronze working and so on.

Invisible Crafts

When textile production is associated only with the home, the work remains invisible unlike say the work of the smith which is often individualised and noticed. Today there is nothing which contradicts the view that textile crafts have above all been female work, but it is difficult to say whether there has been professional manufacture. One problem here is the treatment of archaeological material. In a tomb with metal or trade artifacts the deceased's trades and status are discussed; a tomb with weaving swords, spinning wheels, weaving tablets, etc. is decribed as a woman's tomb. Indeed we never read about the *weaveress' tomb* either in name or discussion.

Can the Invisible be Made Visible?

Is it justified to draw attention to and discuss anything of which we have only limited knowledge? This question does not just concern the textile and fur crafts but many aspects of archaeology such as cult, distribution of work, original significance of tombs, etc. If the purpose of archaeology is to create a credible comprehensive picture of prehistoric society, we must discuss different materials and problems. The textile research which has been carried out and is in progress (on costumes, analyses of textile fragments, practical attempts to weave fabric and so on) is very significant. Without this basic research we would not know much, but it is urgent that the knowledge be made widely known.

It is also important that different aspects within the research area are put into context. Certainly it is difficult to immerse oneself in different crafts and techniques; nobody can be a specialist in all things, but the effort must be made. Concerning textile and fur crafts I think that if we collate the knowledge we do have, we will find this material can be discussed from many different angles, and we can put it into context in a considerably more tangible manner than heretofore. I am convinced that when we define the general processes of production, respect will follow for the actual work performed. Through ethnoarchaeological and experimental archaeological investigations we can get realistic estimates of the time taken for cloth production. This knowledge will give us a better comprehension of what is important when excavating.

The textile and fur crafts should be discussed using the same premises as other crafts and should be put into the appropriate contexts. We must try to envisage prehistoric people's needs and we must not just transfer our own values. We do not have to presume that the status of crafts during prehistoric times depends on the numbers of relevant finds that archaeologists excavate today. Whether the skin worker, the weaveress, the potter, the bronze founder or the smith was a professional or whether they produced for the household, we know they existed.

We must dare to ask questions and discuss even if we do not always get tangible and easily interpreted answers. If we avoid problematic issues, we run the risk of getting a false image of the prehistoric period.

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Eva Andersson
Institute of Archaeology and the Historical Museum
Lund University
Sandgatan 1
S-223 50 Lund
Sweden

Burial Clothing of One of the First Counts of Toulouse

Near the southern portal of the romanesque basilica of Saint Sernin in Toulouse, France, outside the church but protected by a railing, a group of stone sarcophagi have traditionally been considered to be the tombs of the earliest Count of Toulouse. These were members of the Frankish aristocracy who at the downfall of the Carolingian Empire took over the reality of power in what is now the region of Languedoc.

In 1989, it was decided that the badly needed restoration of one of the tombs should provide an opportunity for a thorough investigation of its

contents. A number of specialists were gathered together under the direction of Christine Dieulafait, an archaeologist (Direction Régionale de l'Archéologie, Région Midi-Pyrénées) and Eric Crubézy, an anthropologist (Université de Bordeaux I). Cleaning and conservation of the numerous fragments of textiles found in the tomb were entrusted to Danièle Nadal (Restauratrice for the Musées Paul-Dupuy and Georges-Labit in Toulouse) and their study and publication to the present author. The joint publication of the multidisciplinary research on the tomb and the people buried in it (it was found to contain the remains of between 20 and 33 different persons)

	Linen Tabby A (less fine)	Linen Tabby B (finer)	Broken lozenge 3/1 twill, linen and cotton	Woollen Cloth 2/1 twill	Silk Strings
Number of fragments	19	12	34	37	5
Total area preserved	2005 cm ²	129 cm ²	2404 cm ²	2719 cm ²	

Table 1 The textiles in the sarcophagus.

has long been delayed for various reasons, but is now expected for the beginning of 1996.

Taking into account all their structural characteristics, the one hundred textile fragments found in the sarcophagus could eventually be classified into five different types of textiles: there are two different qualities of linen tabby, a 2/1 twill woollen cloth, a 3/1 twill-based broken lozenge in linen and cotton, and some silk braids in tubular tablet weaving (Table I). The comparatively small areas preserved, the fairly consistent situation of the different textiles in the tomb and above all the fact that, in each group, some of the fragments were found wrapped around or in direct contact with various parts of the body of the first person buried in the tomb, have led to the conclusion that they correspond to the rather close-fitting garments worn by an up to now mysterious Raimond, Count of Toulouse. Under a short, long-armed beige or yellow tunic, made of a linen and cotton fabric with a lozenge pattern, and fastened by red silk braids,

he was wearing one - or possibly two - white linen shirt(s) and red hose made of woollen cloth and going up to the thigh. A combination of the information provided by the radiocarbon dating of one of his bones, a thorough medical examination of his remains and new historical research into the genealogy of the first Counts of Toulouse has allowed a fairly precise dating for his death: either AD961 or 978, according to which of several Raimonds he actually was (Fig 1). In either case, his outfit corresponds to various iconographic documents of the time, or of a later period, from the same geo-graphical area (southwest France, Catalonia) (Fig 2).

Each group of textiles thus securely dated brings some interesting insights into the state of textile technology in the south of Europe or in the Middle East at the turn of the 1st millennium. This is developed in Chapter 4 of the forthcoming volume, where space allows for full discussion of these issues bringing in historical and iconographic evidence, but it can already be summarized as follows.

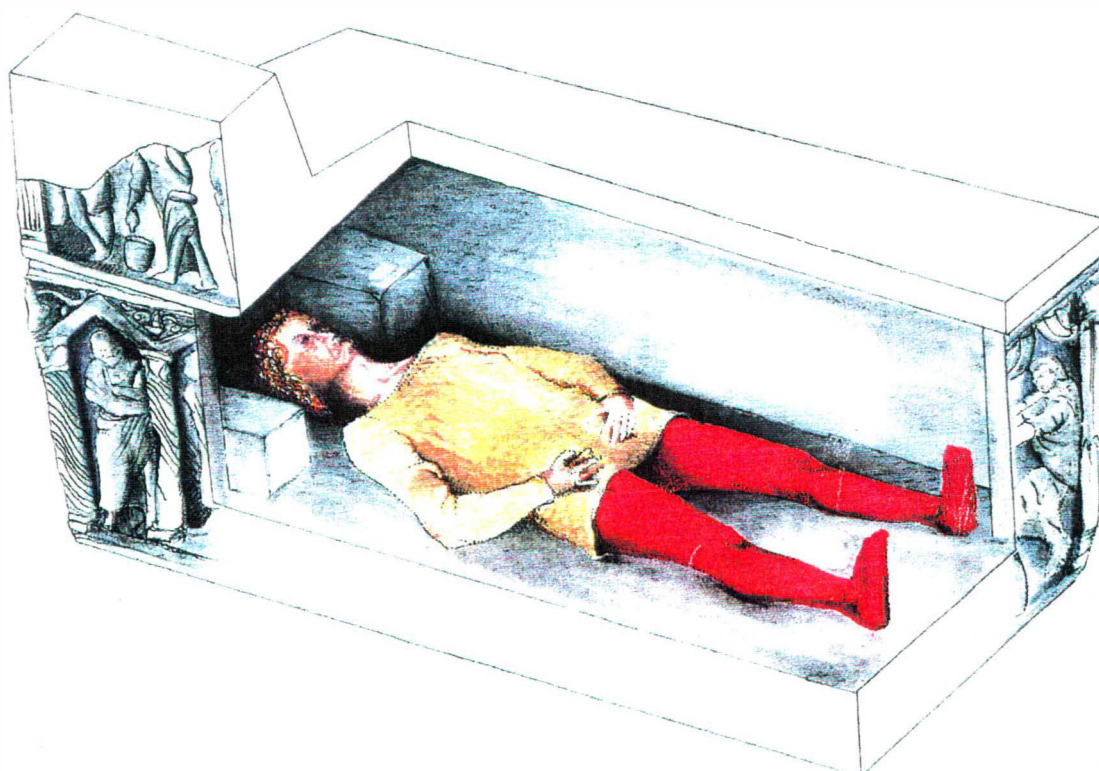


Figure 1 Artist's interpretation of the principal burial in the sarcophagus.



Figure 2a Altar front depicting the Three Wise Men. (Parish church of Espinelves, Catalonia, XIIIth c. Diocesan Museum of Vich.)



Figure 2b Short tunic and long hose as worn in the south of France. (Ambroise Autpert and Halitgaire de Cambrai, *Les Vices et les Vertus*, manuscript from Moissac, around AD1030, Bibliothèque Nationale, Paris, Ms latin 2077, f°168: Ira and Paciencia. Photo B.N.)

Linen Tabby A. z/z, 21-22/18 threads/cm. It shows some technical mistakes, some of which I attempted to interpret as characteristic of being woven on a horizontal loom (Fig 3).

Linen Tabby B. z/z, 32-35/32 threads/cm. This very fine material could probably be identified with *glizzum*, the fine linen cloth used by the Frankish aristocracy for their shirts, *camisia glizina* (Monk of Saint-Gall, *De gestis B. Caroli Magni*, Lib.I, cap.36, in Migne, *Patrologia latina*, XCVIII, col.1391-1392).

Woollen Cloth. 2/1 twill, Z, warp-faced, z/s, 14-15/11-12 threads/cm. This is not only important in

itself, but as the material of a pair of hose, the right one being rather well preserved. Apparently made out of one piece of cloth from foot to thigh, its total height is 84 cm, which fits its owner who, judging from his skeleton, must have been at least 1.90 m tall. It was cut on the bias, for better elasticity, and a line of stitching holes seems to show that a long seam used to run along the back of the hose and under the foot (Fig 4).

An analysis of the wool, following Michael Ryder's method, has shown it to be of a Fine, Generalised Medium type. Dye analyses by Penelope Walton Rogers (Textile Research Associates, York, UK) and Jan Wouters (IRPA, Brussels, Belgium) have

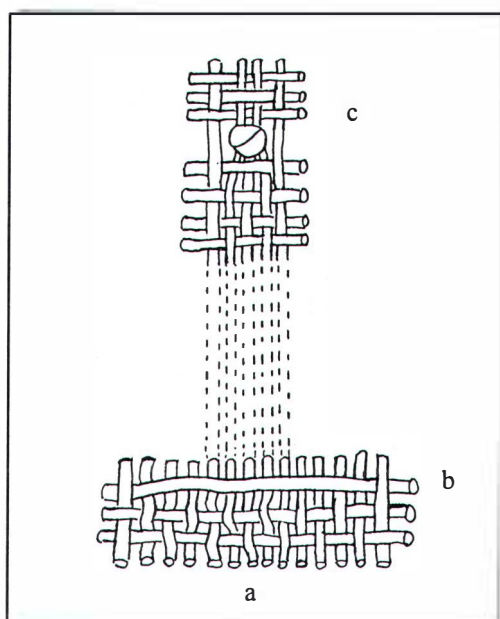


Figure 3 Technical mistakes characteristic of the horizontal loom: a) uneven tension of warp threads; b) utilizing a weaver's shuttle; and a) and c) entanglement of the warp.

identified kermes on both legs of hose. This early example of lightly fulled, napped woollen cloth finds interesting parallels in several accounts of woollen cloth from Toulouse, and of kermes-dyed cloth from other Languedocian towns in wills from the Xth-XIIth centuries.

Fabric of the Tunic. Broken lozenge 3/1 twill, linen (or possibly hemp, according to M. Ryder) warp, z, 26-28 threads/cm; cotton weft, z, 29-30 threads/cm (Fig 5).

The combination of fibres, spinning system, structure of this fabric appears to be without known parallel in Europe for that period. In the Middle East, the closest equivalent has been very kindly brought to my attention by Elizabeth Crowfoot. It belongs to the textiles from Qasr Ibrîm, a cathedral city in the south of Egypt. Two linen/linen s/s textiles, one of which is radiocarbon dated to AD780-950, have regular lozenges in 3/1 twill. Textile no. QI.66.T/3, difficult to date because the tomb had been disturbed, offers even more similarities. It has a linen warp, z, and a cotton weft, z, and is woven in 3/1 herringbone twill. It does not look at all like the broken lozenge from the Toulouse tomb; however, it is piece-dyed in blue, looser and thinner, whereas the textile of the tunic has obviously been carded and looks quite woolly.

After much reflection, I am inclined to venture the hypothesis it may have been woven by Muslim weavers in nearby Spain (the earliest silk samites in 3/1 twill are thought to come from there), and may represent an original, cooler, imitation on a horizontal loom of the diamond lozenges which were in such fashion among the Frankish and Viking aristocracies of the time in Northern Europe.

Silk Braids. Tubular tabletweaving on 16 4-hole tablets, silk warp, madder-dyed, z, 3 cords (= 12 threads)/2.5 mm; silk weft, doubled at each passage, both threads z, 6.6 threads/cm. Tablets were threaded in an identical direction, giving S twists; they were given half turns forwards after each passage of the weft, causing the braids to twist on their own axes in a Z direction (Fig 6). From a

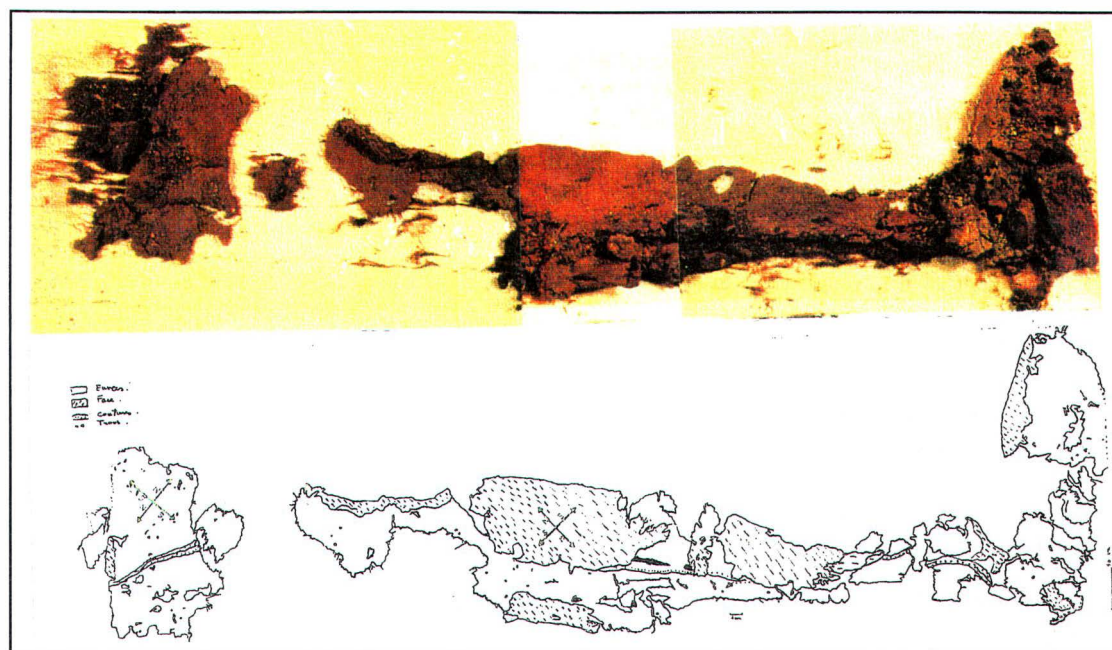


Figure 4 The better-preserved hose.

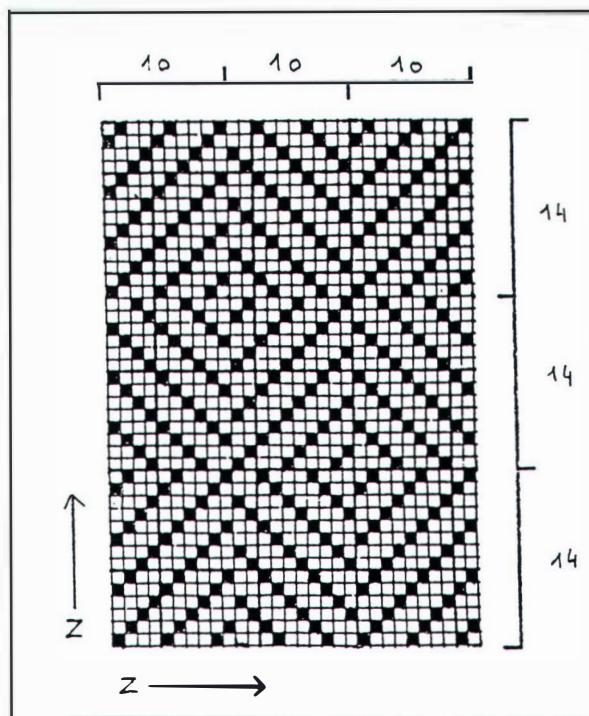


Figure 5 Fabric of the tunic.

discussion with Frances Pritchard (Whitworth Art Gallery, Manchester, UK), these braids appear to count among the earliest examples of tubular tablet-weaving found in Europe up to now.

By a fortunate coincidence, this burial clothing turns out to indicate a border zone and a transitional epoch. This Count, who died in the south of France at the end of the 1st millenium, was not only wearing fine examples of the technical achievements attained by the domestic system of textile production represented by the Carolingian *gynceea*, e.g. *glizzum* tablet-woven braids, but also what can be considered as prototypes of the future standard products of the European medieval textile industry: woollen cloth, fustian and average quality linen cloth, most probably woven already on the horizontal loom adopted from the Islamic world next door.

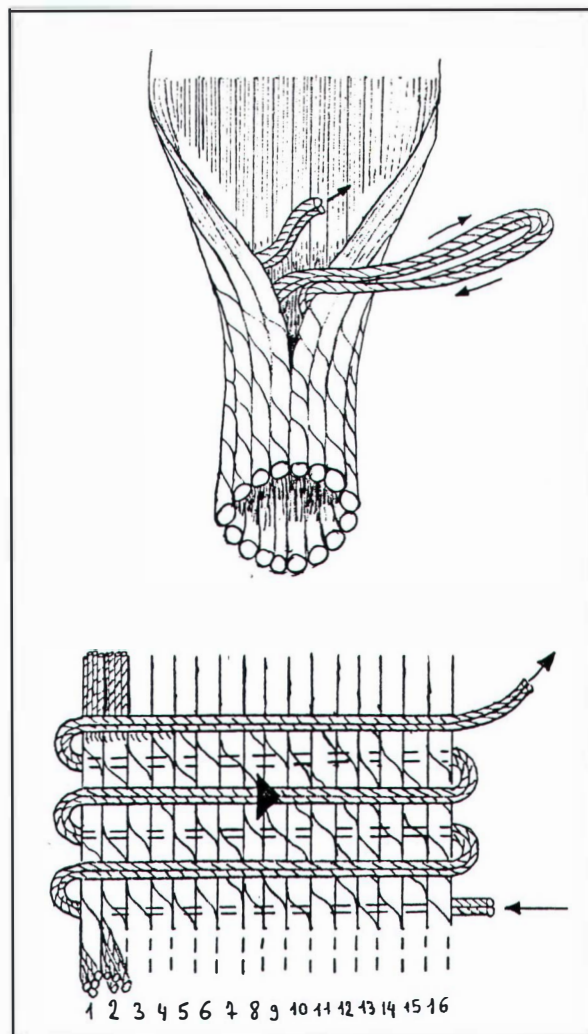


Figure 6 Diagrams showing how the tubular tablet weaving was produced.

Dominique Cardon
CNRS, UMR 9967
Le Vert
F-30460 Lasalle
France

A New Female Dress from the Migration Period: A Joint Scandinavian Project

As head of project development with responsibility for new exhibitions at the Museum of National Antiquities (Oslo University, Oslo, Norway) unsolvable problems are part of the job. With artifacts spanning 10,000 years of Norwegian cultural history, it is impossible for one person to have detailed knowledge of everything.

The museum has decided that the public should not just meet ancient objects separated from their historical context. This forces those of us involved

with exhibitions to make difficult decisions almost daily: how to evoke a picture of nature and society from the past? How to make the public understand the objects as part of a cultural context while realising that even the best scientist can never be certain? Our public is the average Norwegian. 30% are school children, a tiny minority are researchers. Our visitors ask questions about hunting, agriculture, housing, religion, how society was organised and how people were dressed.

Mytte Fentz (1994:97) has questioned the ethics of presenting reproductions. Whether we present objects in isolation or in an assumed context we may mislead our public. The heaps of flint arrow-heads that some museums sometimes choose to show can give rise to myths of a stone age with half naked warring apes. The stone age may not have been as refined and efficient as modern day tribal society, but the public should be made aware that the collected evidence in many cases points towards well organised small societies. We cannot, however, have any form of certainty, so we have to present our assumptions together with our reproductions as argued by Bender Jørgensen (1994:11).

When we open our new exhibitions in 1996 which lead the public from Mesolithic times up to the end of the Early Iron Age, they will meet fully clothed models. Associated with two rich women's burials from the Roman and Migration Periods, we will show how these women may have been dressed, complete with copies of the jewellery from the graves. The woman from the Roman Period will carry the dress that has already been reproduced from Lønne Hede, Denmark (Bender Jørgensen 1994:119, fig 2). In this paper I will describe the difficulties I met when I reproduced the female dress from the Migration Period.

I wrote my MA thesis on utilization of mountain resources in the Viking Period, not in reproducing textiles, so I have had to rely on the knowledge of others. There is, however, an enormous difference between reading studies of textile fragments, looking at some hypothetical sketches and actually producing a finished costume.

I developed the initial approach drawing on the expert knowledge of Margaretha Nockert (Statens Historiska Museum, Stockholm, Sweden). Later Lise Ræder Knudsen (Silkeborg Museum, Silkeborg, Denmark) designed the tabletwoven bands. Amica Sundström (University of Gothenburg, Gothenburg, Sweden) is making the horsehair ornamental bands for the male clothing that we are reproducing (p 24, this volume). All garments for this exhibition have been made by Anna Nørgaard (Copenhagen, Denmark).

Even with several finds from Norway of well-preserved fragments of woollen cloth from this period, the pieces are too small to allow us to infer how the entire dress in one single grave would have looked. Hence we decided to use knowledge gained from many burials. The reproduced woman's dress builds in part on the textile fragments from a rich woman's grave from Blindheim (Giske, Møre and Romsdal), one from Vestrum (Hedrum, Vestfold) and from a male burial (Burial II) from Snartemo

(Hægebostad, Vest-Agder) (Fig 1). For the man's dress we have used textile finds from three different male graves: Snartemo (Burial V), Evebø/Eide (Gloppen, Sogn and Fjordane) and the Swedish Högom find from Sundsvall (Hougen 1935, Magnus 1984 and 1988, Bender Jørgensen and Walton 1986, Raknes Pedersen 1988, Walton 1988, Nockert 1991).

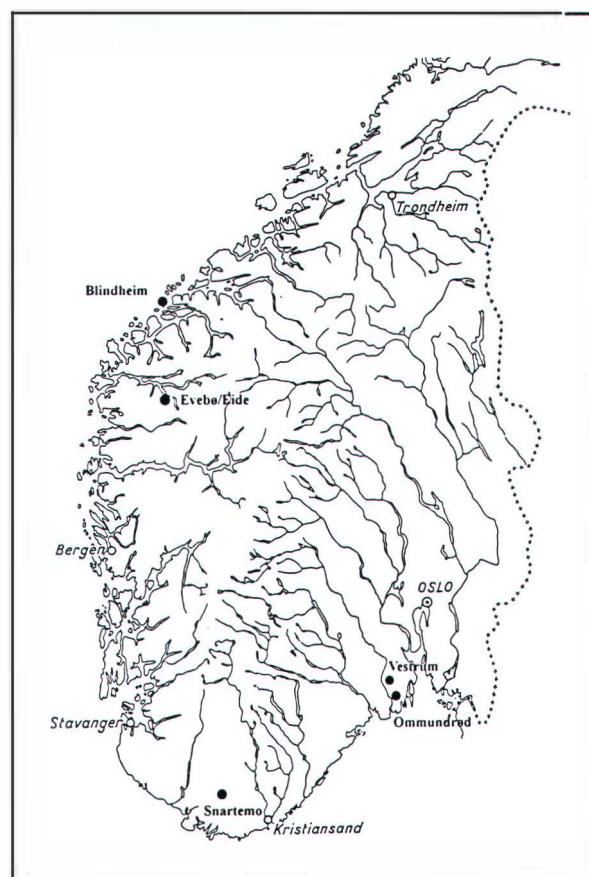


Figure 1 Map showing the sites of textile finds.

The model that we exhibit illustrates the woman buried sometime between AD450 and 500 at Ommundrød in Vestfold. This means that the position of the jewellery reported from the excavation of the grave decided several details. Various types of weaving technique are documented from cloth remains found on the back of the clasps and brooches. Both 2/2 twill and tablet-woven bands were found (Dybsand 1956:7ff). Since the brooches and clasps also have had a practical function we could attempt to decide where they belonged on her dress (Fig 2).

To use data from different parts of Norway may lead to imaginary hybrids. The textiles we use come from the southwest and west, whereas the burial we exhibit is from Vestfold in the east of the country. We do not have any large pieces of textiles from the eastern part of the country. This is unfortunate, because we know from other artifacts that there is a

sharp division in the finds between east and west Norway in the Migration Period. Burial customs and possibly religious beliefs are reflected in a tendency towards richer burials in the west. The burials from Vestfold are relatively rich, and many objects in Vestfold have parallels in the southwest (Slomann:1977), even the dresses may have been similar. There may even have been marked regional differences in costumes at the end of the 5th century. This is proposed by Martin Welch based on brooches and clasps found in English burials. He presents three substantially different types of female dress from Anglia, Saxony and Kent (1992:63 fig 42).

Given that we had to build on the textiles and the clasps that we have, the first decision we had to make was whether to build on the previous Scandinavian dress reproductions for the 2nd and 3rd centuries. Bente Magnus has proposed a reproduction of the woman's dress from the Blindheim burial. Several specialists have studied the textiles from this find (Hougen 1935, Magnus 1988, Raknes Pedersen 1988, Bender Jørgensen and Walton 1986). Magnus proposed a blouse without sleeves, a checked pattern skirt and a shawl (1984:197). This reproduction resembles the Danish reproduction of the blouse from the 1st century from Lønne Hede (Ribe, Denmark), and the skirt from the woman's

grave in Vrangstrup (East Jutland, Denmark) from the 4th century (Magnus 1988:114 with references).

Agneta Bennett (Stockholm, Sweden) has proposed a reproduction based on dress jewellery from the Migration Period in the Mälaren area of Sweden. Her point of departure was the dress found in Huldremose (Randers, Denmark) (Munksgaard 1974:144 fig 102). In addition to the tubular cloth dress, *peplos*, she suggests that the woman also had a long undergarment with long sleeves, and a cloak (Bennett 1987:105 fig 75, after Hald 1980 fig 438).

In England the reproduced Anglian female dress with hook and eye clasps has also been produced with an undergarment with long sleeves fastened at the wrist by metal clasps under a peplos dress fastened with a pair of brooches near the collar bone. The undergarment on a reproduced Saxon dress does not have long sleeves, and the long sleeves on the proposed Kentish dress do not have slits at the wrist (Welch 1992:64). In the last quarter of the 5th century, clasps established in Scandinavia appear in eastern England (Hines 1984:102). The small hook and eye metal fittings, wrist clasps, are extremely rare outside Anglian England. These clasps were probably developed in Scandinavia. Hines concludes that when these clasps turn up in eastern England they must have accompanied a change in dress and not just have been a separate import across the North Sea. The adoption of clasps in England requires the presence of people familiar with the fashion in Norway, particular in the last quarter of the 5th century (Hines 1984:109). In England they were worn only at the wrist as a female dress accessory. On the basis of this I chose to regard the Anglian style as related to the Norwegian. Against this, one may point out that the use of clasps is not so gender specific in Scandinavia. Here they occur both in male and female graves, even if the majority is found in women's graves. They have clearly had other functions than just as cuff-clasps (Blindheim 1947:79f).

If there is a connection between dress and clasps which appear in Norway about AD 400 (Slomann 1972:20) and are so typical for the Migration Period in Norway (Slomann 1977:63), a design close to the sleeveless Lønne Hede dress would not be reasonable. The tablet woven bands appearing at the same time may also signify changes in dress customs after the Roman Period. Slomann states that several of the clasp shapes from the 5th century show contacts with Angles, Saxons and Frisian lands (1977:72). One good example is the design of the pair of wrist clasps from the cemetery site in Willoughby on the Wolds in Nottinghamshire, UK,

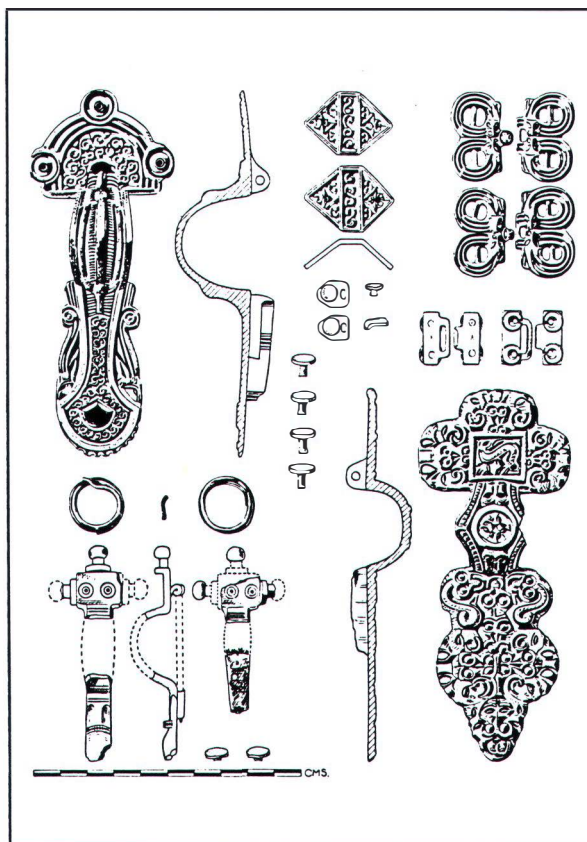


Figure 2 Jewellery from Ommundrød. (Drawing: M. Storms.)

which is almost identical to that of those which are found at Ommundrød, Vestfold (Hines 1984:94).

The dress we have made is not substantially different from the Anglian (Welch 1992) and from Bennett's design. Some of the dress jewellery from the grave at Ommundrød can be explained if the woman had both an over- and an undergarment. We have made the undergarment of white 2/2 twill with 20 threads/cm. We have let it go down to her ankles with a primary cut with wedges under the arms and round neckline with a split at the front. The slit at the end of the sleeves and round neck are edged with tabletwoven bands. We chose this simple form since we had no material indicating any details of construction or ornament. The density of the weave was decided so as to match the obvious wealth indicated by the jewellery. Equally fine textiles (18-20 threads/cm) have been found near Ommundrød.

Not having any information on colour, pattern or width of the tablet-woven band found at Ommundrød we chose to use a band that was already well documented from a site some 200 km further south. This also helped us stay within our budgetary limits. Since Lise Ræder Knudsen already had drawn up the pattern of the Snartemo II band we used this both at the neck and by the arms. To give the undergarment well-matched colour and to make it stand out from the overgarment we used yellow and light brown instead of the original red of the Snartemo band (Hougen 1935:68 with references, Nockert 1991:73).

On top of the subdued colours of the undergarment there is a more colourful square-patterned dress in red and green. The point of departure for the choice of cloth is research on the textiles from the woman's grave at Blindheim (Møre og Romsdal, Norway). Analysis shows that the cloth had been dyed with madder and indigo (from woad *Isatis tinctoria*) and an unidentified yellow (Bender Jørgensen and Walton 1986:185). Judging from its spectrum the unknown yellow dye is an orange shade of yellow, but if combined with blue indigo, it would have made either olive-green or black (Bender Jørgensen and Walton 1986:186). The weave is 2/2 twill with 21 x 18 threads/cm. as Hougen found (1935:65) and as shown by Raknes Pedersen at the selvages (1984). A particular feature of the Blindheim fragment is a tabletwoven edge made with 52 tablets. Due to budgetary constraints we did not edge the dress with this band since it was obviously sewn on after the cloth had been woven (Raknes Pedersen 1984:119) and did not form part of the thread systems of the cloth as Hougen believed (1935:64).

We had to guess how to cut the dress since we only had one fragment with a sewn-on tabletwoven band. It may not be correct to use a round-woven cloth since Bender Jørgensen has shown that this technique disappeared after B2 (1984), but we did not have any other examples to rely on than the Huldremose dress (see Munksgaard 1974:fig 102). However, I cannot see why a round-woven dress with the tabletwoven band sewn to the twill after the bodice was woven can not have been used. This sack-like dress requires a belt. The half pair of gilt, pretzel-shaped clasps at the midriff of the corpse may have been part of such a belt. We chose to use the 3.7 cm-wide band from the Blindheim discovery. We doubled this in width. If the clasps were to hold a belt, it must have been wide, since each clasp is 3.2 cm high. If, as seems logical, they had been placed above each other, the belt would have been about 7 cm wide.

It seems reasonable that cloaks would have been in use in the Migration Period since the average temperatures were 1-2 degrees celsius lower than today (Hofseth 1980:58, fig 50, with references). We still have not given her one, since a cape would have hidden the cruciform brooches that fasten the back piece to the front piece of the dress. We wish to focus attention on these brooches since we display variations of these in display cabinets near the reproduced dress.

Our point of departure was meagre: a tabletwoven band from a man's burial and a piece of twill with a tabletwoven band from opposite ends of the fifth century added to jewellery from a woman's grave. Still, we made the attempt and welcome further discussion.

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Ellen Høigård Hofseth
Universitetets Oldsaksamling
Frederiksgt. 2
N-0164 Oslo
Norway

Textiles from Krokodilopolis and Herakleopolis Magna in the Museum für Spätantike und Byzantinische Kunst, Berlin

For the last two years a project is underway sponsored by the Deutsche Forschungsgemeinschaft, to catalogue approximately 1100 unpublished late antique and early islamic textiles from Egypt. These are in the collection of the Museum für Spätantike und Byzantinische Kunst, Staatliche Museen zu Berlin - Preußischer Kulturbesitz. The team under the leadership of Prof. Dr. A. Effenberger, Director of the Museum, consists of Dr. C. Fluck - Coptologist, P. Linscheid - archaeologist, K. Meier - textile conservator and Dr. A. Unger - chemist in the Rathgen-Forschungslaboratorium who analyses the dyes and substances attached to the textiles.

Among these textiles is a complex of about 450 items which for two reasons deserves special attention: 1) each object is reliably attributed to Krokodilopolis or Herakleopolis Magna in the Fayum oasis; 2) many of the fabrics are nearly intact, because they have never been altered by any antique dealer. The intention of the German biologist and ethnologist Georg Schweinfurth was to "reconstruct the antique costume" when he gathered the textiles in 1886 from the burying grounds of Krokodilopolis and Herakleopolis Magna, brought

them to Berlin and handed them over to the Museum.

For some of the fabrics G. Schweinfurth made comments on the finding circumstances on labels which he attached to the cloth. He published a general description of the cemetery of Krokodilopolis in the *Zeitschrift der Gesellschaft für Erdkunde zu Berlin*, 1887, No. 1. Unfortunately up till now we have not found any documentation corresponding to the numbers written on the labels of each piece.

The catalogue includes a technical description, dye analysis, a general description and tries to indicate comparisons for each piece. Due to the good preservation of the fabrics the technical as well as the general description puts special emphasis on the function of the fabrics by recording edges, seams, construction details and lay-out of the pattern. Undoubtedly dating is the most difficult task. The material from Krokodilopolis as well as the textiles from Herakleopolis Magna seems to belong to different periods probably between the 6th and the 10th

centuries AD. For a lot of pieces the dating cannot be more precise. Some pieces may even date to Mamluk times.

The bulk of the Schweinfurth textiles derives from garments. The existence of larger parts of clothing and the identification and recombination of fragments originally belonging together to one piece allows us to distinguish between four types of garments. These are: 1a) tunic in one loompiece; 1b) tunic in one loompiece with additional cloth; 2) cut-to-shape tunics; 3) garments with gussets; and 4) coat. Within these types many variations in making-up and decoration can be observed.

First of all two types of tunic should be noted. In one type there are tunics with sleeves woven into shape in one loompiece. In the second, the majority, they are woven in three pieces. They are found with long as well as short sleeves. The sides are always straight. Within this group tunics with long sleeves are most common. The tunics consisting of three pieces are also loompieces and, like the one-piece tunic, are woven from sleeve to sleeve but with additional cloth. Because of the limited width of the loom it was necessary to lengthen the tunic by separately woven webs stitched to the upper front and back with horizontal flat seams.

Sleeves which became narrow to the lower end seem to have been very popular. After weaving, the long sides of these sleeves were slanted. Some of them show traces of a fastening (buttons, eyelets or cords) at the lower edges. The neck openings are cut out round or semi-circular. Only one tunic has a neckslit. The woven-to-shape tunic can be worn with open sleeves and sides as well as with closed ones. But tunics with sleeves which become narrow are always closed up to a few centimetres at the wrist. Normally a slit under the armpit and sometimes at the lateral bottom of tunics is left open for gaining more freedom of movement.

Another group of four tunics also consists of three pieces, but they differ in the way of making-up: instead of being woven to shape the sleeves and the "body" of the tunic were separately cut to shape from a basic weave and afterwards sewn together. Within this group sleeves and sides are always closed.

A dozen fragments belong to tunics without sleeves. Back and front are usually woven in one piece; only two samples are made from two pieces which are stitched together on the shoulders. The preserved neck-openings are semi-circular. With one exception all sides are destroyed. Consequently, one cannot say whether the people of the Fayum region preferred to wear this type of tunic open or closed.

A few samples from another kind of garment which differs from the usual tunic by adding one or two gussets to the long sides are known from both sites. All of them are made from three or more pieces cut to shape and then sewn together. Once again the neck openings are semi-circular. In several cases deep slits can be seen on one shoulder. Some of them are hidden behind small rectangular fastening flaps, cut out from the basic weave or from a different cloth. Sometimes buttons, eyelets or cords are preserved to fasten the slit or the flap. Garments of this type were without exception made for children.

There are also large rectangular sheets often used as coats. But these sheets could also have served for other purposes, e.g. coverings, hangings, etc. (see below). Perhaps the most remarkable are four fragments from Krokodilopolis which can be reconstructed as a coat cut out round or semi-circular. Each fragment has a slightly rounded edge and a hem. The hem is decorated with a border of small fringes. Coats like this seem to have been uncommon. We know a nearly complete example in the Musée Historique des Tissus, Lyon as well as small pieces in the Bankfield Museum (Halifax, UK) and in the Victoria and Albert Museum, London.

Most garments are decorated in the classical manner with *clavi*, round, oval or square panels and borders arranged symmetrically. The patterns consist of lozenges, bands of zigzag or waves and single geometric or floral motifs, partly arranged in pattern repeat. Figurative motifs are almost unknown. The patterns of the panels were made of wool and linen partly in tapestry weave, partly of *lancé* weft or brocading. A group of six tunics shows decoration of simple stripes parallel to the sides. A few garments, tunics as well as garments with gussets, are woven with brown or multicoloured pile on the inside. The basic weave of all garments was made of linen or wool usually in tabby. Only a few samples show twill. Twisted yarn mostly of linen was used for sewing.

Most numerous among the head coverings are the well known ones in sprang with tapering as well as rectangular base form. Two quilted caps seem to be of a younger date, since they are comparable to finds from medieval Islamic sites. A hat in nâl-binding with a tail ending in long tassels belongs to a rarer type. Unusual as well is a linen cap constructed from three pieces covering the top and the whole back and sides of the head, and which can be fastened under the chin by two linen strips.

Another type of head-covering is long, rectangular linen scarves in an openwork weave produced by alternating weft shots with warp threads left bare.

The short sides may be decorated by stripes and warp fringes.

Among the material from Krokodilopolis are four headbands. They consist of linen bands about three centimeters wide; unfortunately only one band is preserved in its original length of 59 cm. A note of G. Schweinfurth testifies that he found these bands on the heads of deceased persons. In the middle section, which lay on the forehead, the bands are decorated with a ribbon.

About 80 items are probably sheets. We suppose a fabric to be a sheet when it is of a relatively large size, has preserved several original edges and in spite of this relatively complete state shows no characteristics of tunics like weaving or cutting to shape, sewing at the edges or decoration typical for tunics.

The sheets survived as burial wrappings, but extensive darning on some samples testifies that they were used in life before. Some of them probably were furnishing textiles, others might just as well served as veils or mantles.

Except for two samples in a derivative plain weave the basic fabric is always tabby. According to weaving structure and decoration lay-out the sheets can be divided into several types.

Most numerous are undyed or dark brown woollen sheets in weft faced, medium dense plain weave, decorated near the short side, sometimes the long side with coloured, simple stripes and with the edges worked into a cord or finished by double twining.

Another group differs because an open weave is used. The woollen fibres are tightly spun and produce a crêpe-effect, the base fabric is brownish red or medium blue. The stripes are undyed and composed of several smaller or wider lines, and the

warp threads are worked into longer fringes. This group might have been used as veils.

Patterns in stripes at two opposite sides of sheets are mostly in brocade, always with coloured wool on a plain linen ground. The pattern is geometric mainly based on lozenges. Checks and stripes made by changing the colour of both warp and weft occur in great variety. The pattern may be large or small scale; some striped sheets are checked near the edge. The material is wool or flax, the use of cotton is still to be examined. The weaving is open or medium dense. Among the sheets with stripes there are some in a coarse weave probably not well-suited for clothing.

One sheet has all over multicoloured weft-loop pile about 6 cm long which on the other side of the fabric appears as stripes. There are three small sheets about 40 x 40 cm with an all-over design in brocading or checks. Because of their size they seem to serve a particular purpose. Since two of them have pile on the reverse side, they might be a cover or cushion for a seat.

A repeating all-over pattern in brocading occurs also on larger sheets, which measure minimum 110 x 90 cm. The geometric patterns are related to the brocaded stripes. Because of the non-directional decoration, these cloths seem to be furnishing textiles, presumably covers.

Any references to help our questions of dating and uses and hints at unpublished comparative material will be appreciated!

Petra Linscheid and Cäcilia Fluck
Museum für Spätantike und Byzantinische Kunst
Bodestraße 1-3
D-10178 Berlin
Germany

A Thousand Years of Brocaded Tabletweoven Bands

The most sumptuous form of textile trim for a thousand years in Europe was tabletweoven bands with supplemental brocading wefts. From early in the Germanic Migration Period after the end of the Roman Empire until the development of the art of lacemaking in the 1500's, these small, beautiful and incredibly durable little textiles have been used in an amazing variety of ways. Made from silk and different types of gold and silver threads, they were the preferred textile ornament, in addition to embroidery, of the aristocracy and the upper echelons of ecclesiastics. To date, no general study has been

made of these bands and the almost 100 years of literature on the subject. My research involves cataloguing the brocaded tabletweoven bands in the collections in Europe and North America which are dated from the 5th-6th century to the 16th century.

The great majority of these bands have been made of silk, single or plyed, rough or well-spun, and were woven in the classic tablet weaving method, i.e. with all four holes per tablet threaded with the same color of warp and the pack of tablets oriented alternating S and Z. There are some variations, such

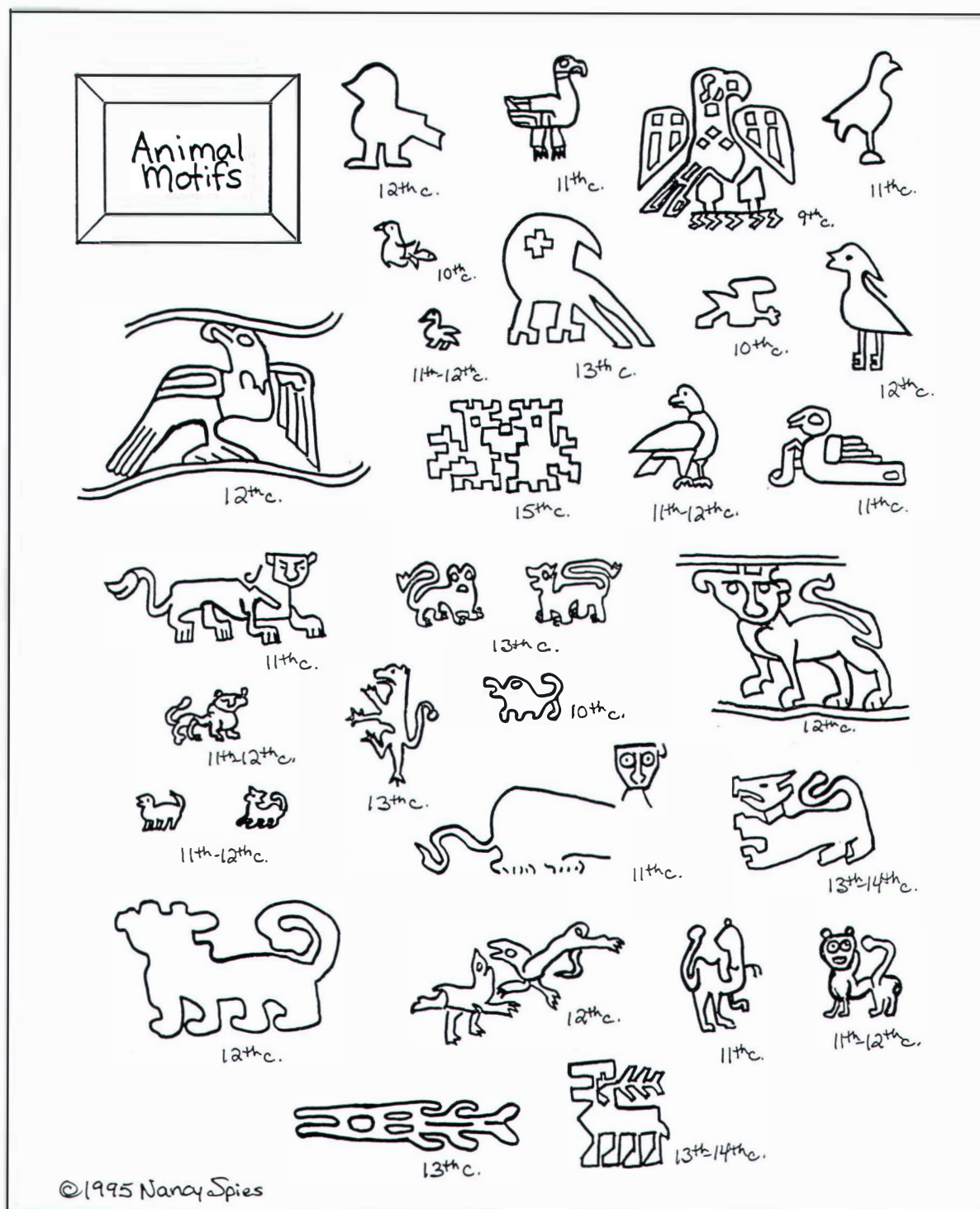


Figure 1 Animal motifs. (Drawing: N. Spies.)

as threading only two holes per tablet or orienting the tablets in more of a pattern, e.g. S,Z,S,35Z,S, Z,S. And there are the exquisite top-of-the-line bands which use 2-4 different colors of warp per tablet and are woven in a complicated 3/1 broken twill in addition to being brocaded. But generally the weavers used the classic method and allowed the brocading weft to produce the desired pattern effect.

Three different types of metallic threads were used: flat strips, *spun* threads, and drawn wires. Flat strips of gold, silver, or gilt-silver formed from beaten metal (*aurum battutum*) were used from the 5th to the 7th centuries, with flat gilt-silver membrane (*Cypriot gold*) strips appearing in the 11th century. Spun threads of flat gold, silver, gilt-silver, or gilt-silver membrane around cores of usually silk or linen were used throughout the period under study. All spun threads were S-spun, including two un-

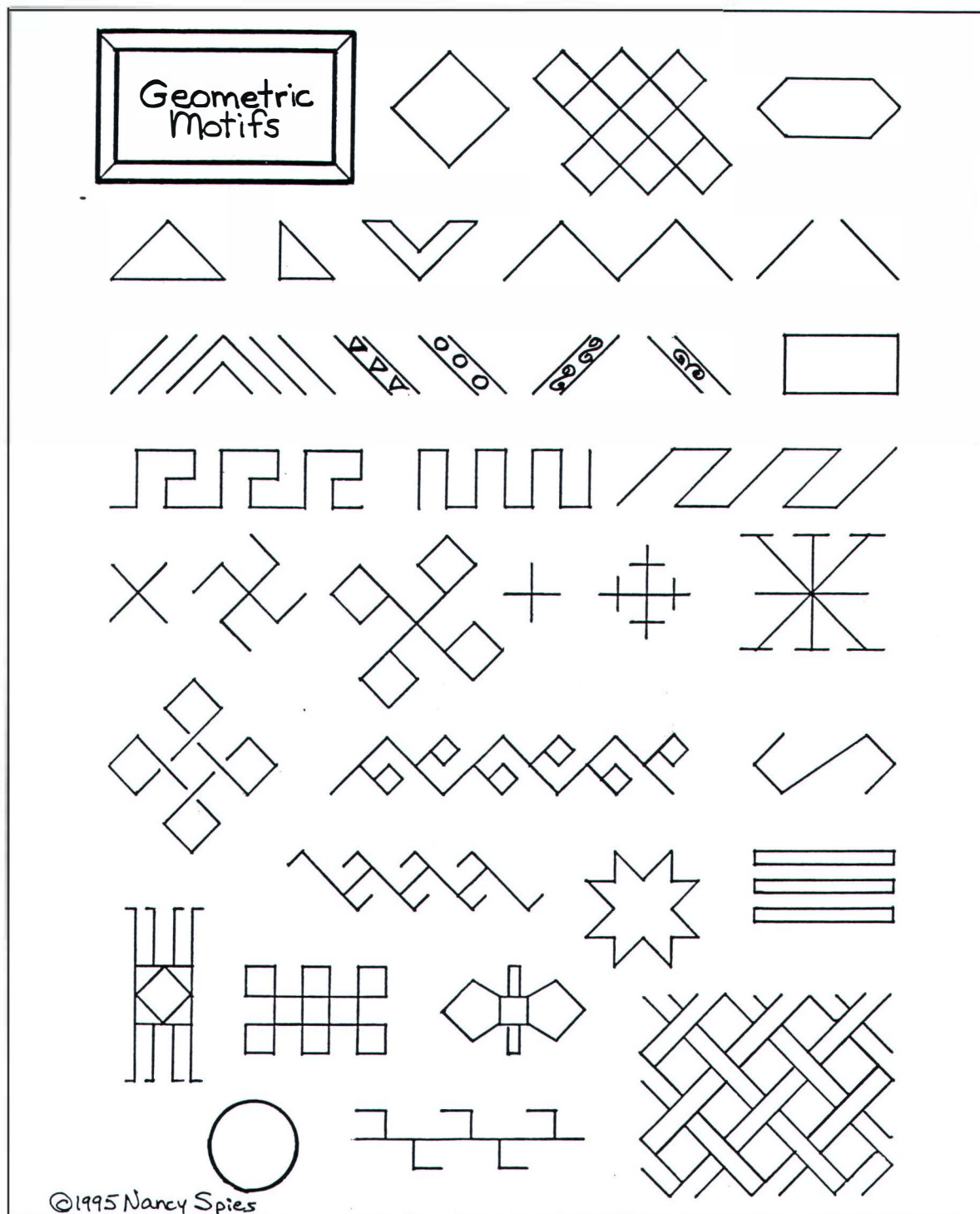


Figure 2 Geometric motifs. (Drawing N. Spies.)

usual examples of spun-gilt copper and spun-bronze. Drawn wire, either gold or silver, appeared on bands in northern Europe mainly up to the 10th century.

The creativity of tablet weavers who brocaded their bands is equal to anything found in other textiles. There are nine distinctly different types of design motifs utilized: geometric, animals, plants, Bayeux embroidery borders, letters and words, heraldry, architecture, stave/straight line, and unique. The

design motifs which I have thusfar catalogued are illustrated in Figures 1-4.

Although such motifs as the many geometric ones are found throughout the time period under study, others are more limited, such as the architectural motifs which appear only in the 12th-13th centuries. As with all other textile ideas at this time, the vast majority of designs came into Europe from the East (Persia, Byzantium, the Islamic areas), and tablet weavers took many of their ideas from the imported silks. Parallels can, however, also be found in other

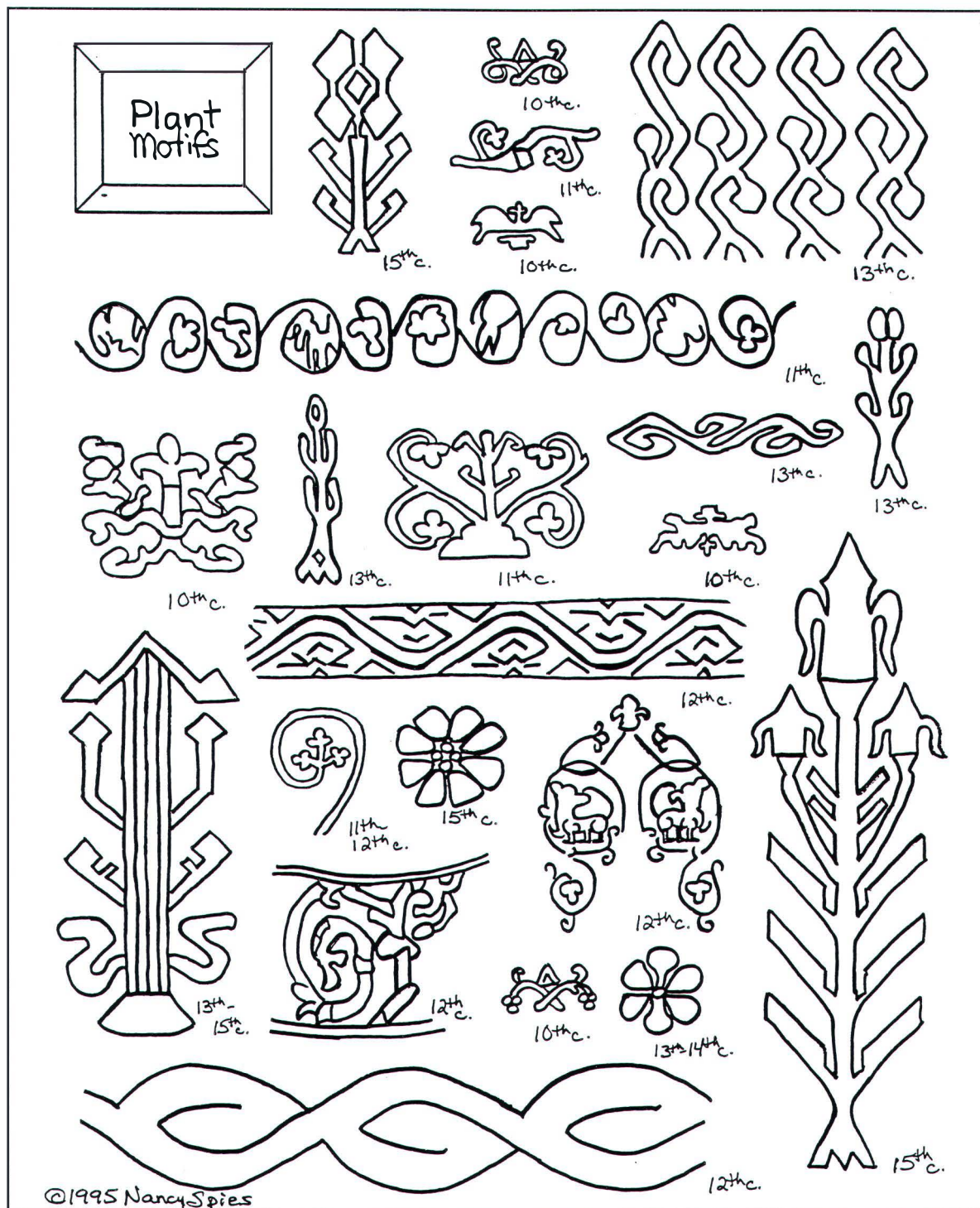


Figure 3 Plant motifs. (Drawing: N. Spies.)

media such as Carolingian book illuminations and Byzantine ceramics. Other motifs were probably *homegrown*, such as the lettering in Gothic Minuscule or Roman Capitals which appears to have been a German addition to the design repertoire.

The uses to which brocaded tabletwoven bands were put are even more varied. They can be divided into two broad categories: ecclesiastic and secular. In the church, bishops and above used them on any item of their vestments: mitre, alb, cingulum, tunic,

dalmatic, shoes, gloves, stole, maniple, and chasuble. There are many such examples directly from archaeological finds. Further ecclesiastical functions included edgings on antependia and trim on relic purses. Unfortunately for textile historians, the church did a very good job of convincing its flock that *you can't take it with you*, and hence, our knowledge of secular uses for these bands is not as extensive as it is for church textiles. However, again directly from archaeological evidence, we know that these bands were used as various kinds

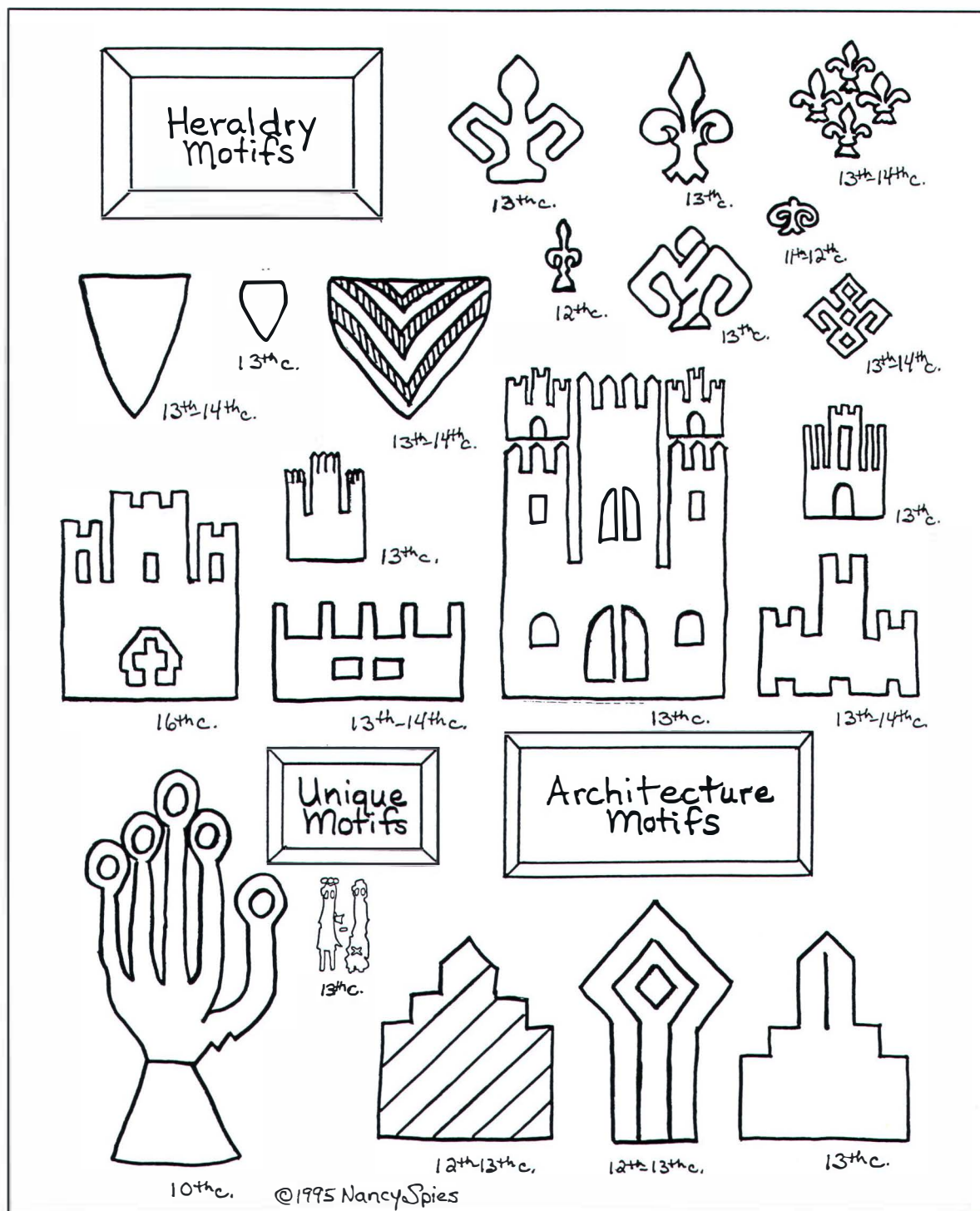


Figure 4 Heraldry motifs. (Drawing: N. Spies.)

of head gear, as trim on clothing (mainly various tunic types as well as mantles and capes), as belts, and as trim on coffins (a use only found in 13th-14th century Spain). Some of the more unique uses to which these bands were put include as a bracelet, as binding ties on capes or a priest's stole, and as seal tags on documents.

There are several very difficult problems involved in this research. One is attribution of provenance. These bands are extremely portable and could easily be made at one place and transported to a com-

pletely different place before they were sewn to the garment which is found in a grave eight hundred years later. Further, tablet weaving was practised all over Europe at this time, and a clever weaver in Germany could easily have incorporated into a band an Islamic motif from an imported fabric. The only bands to which I feel relatively comfortable in assigning a probable provenance are the coffin bands from Spain and the very intricate, both in technique and design, bands which perhaps came out of workshops in Sicily.

Another problem involves dating. Being very durable, these bands were often removed from older, worn-out garments and sewn onto newer ones. We also have evidence that such previously used bands were kept for future repair on other garments. Needless to say, this greatly clouds the issue, and care must be taken in assuming that a given date is carved in stone, although it will most certainly be the best-guess by the specialist who analysed the band.

By far the most difficult problem is proving to be the fact that some of the bands listed in the literature as *brocaded tablet weaving* are not worked in this technique. Many of these bands, often called

simply *gold bands*, are turning out to be what are referred to as *Palermo bands* which were worked in an exceedingly fine lampas weave. Because lampas weave looks similar to the intricate 3/1 broken twill used for some of the tabletwoven bands it is often extremely difficult to distinguish one from the other. However, the bottom line is whether there is twisting of the warp threads, and hopefully this research study will help clarify the situation.

Nancy Spies
7041 Yellow Bluff Road
Panama City, Florida 32404
USA

Textilfunde, die die Ausgräber vergessen haben... (Report 2)

Der Textil- und Lederfund von Silberbergen

Zur Sammlung des Textilmuseums Neumünster gehören eine größere Anzahl von Textilfunden aus schleswig-holsteinischen Mooren. Karl Schlabow hat sie fast alle in seinem Buch *Textilfunde der Eisenzeit in Norddeutschland* (1976) vorgestellt. Es ist jedoch nicht sicher, ob alle aus der Eisenzeit stammen. Einige sind wohl auch mittelalterlich oder neuzeitlich. Dazu dürfte der Textil- und Lederfunde von Silberbergen gehören. Der noch erhaltene Fundzettel sagt aus: "Silberbergen, Kr. Eckernförde. Besitzer Schultz, gefunden im Torf 1948, eingeliefert vom Mitarbeiter Hofmann... am 13.08.1948."

Karl Schlabow hat sich mit diesem Fund nur kurz befaßt und ihn nicht in seinem oben genannten Buch veröffentlicht. Er war sich wohl damals nicht sicher, wie dieser Fund zeitlich einzuordnen ist. Im Rahmen der Überprüfung von älteren Funden aus der Sammlung des Textilmuseums Neumünster hinsichtlich einer möglichen Ausstellung in der

Abteilung *Frühgeschichte des Webens - Textilfunde, Webstühle, Kleidung* wurde auch dieser Fund noch einmal untersucht. Es handelt sich um zwei Fragmente (Inventar-Nr. TM 1993/2 a & b). Das eine ist ein etwa 14x10 cm großes (fast halbrundes) Lederstück, unter dem sich Gewebe- und Filzreste befinden (siehe Abb. 1). Das zweite Stück mißt ca. 18x8 cm und besteht ebenfalls aus drei Lagen: Filz, Gewebe, und Leder (siehe Abb. 2).

Das Fragment TM 1993/2 a ist ein heute schwarz-braunes Lederstück, an dem sich an der halbrunden Seite (z.T. auch in dem darunter liegenden Gewebe) noch die Einstichlöcher einer Naht erhalten haben. Die andere Seite (siehe Zeichnung) ist fast über die ganze Länge umgelegt. An diesem Rand befinden sich ebenfalls noch Einstichlöcher im Abstand von etwa 8 mm, vermutlich war es eine Überwendlich-naht. Direkt unter diesem Lederstück haftet ein mittelfeines Köpergewebe (K 2/2/z-z/11 bzw. 12 Fäden auf jeweils 1 cm) aus Schafwolle. Es ist so groß wie das Lederstück und überragt dieses an einigen Stellen. Unter dem Gewebe befindet sich ein Filz aus Tierhaaren (die noch genauer analysiert werden müßten) von etwa 3-4 mm Dicke. Gewebe und Filz sind einfarbig und heute von mittelbrauner Farbe.

Das zweite Fragment (TM 1993/2 b) ist genauso aufgebaut: Es sind Lederreste (ca. 7 x 6 cm - allerdings von mittelbrauner Farbe), die auf einem 12 x 8.5 cm großen Köpergewebe liegen. Darunter befindet sich der Filz. Sie entsprechen den zuvor beschriebenen Stoffen. Zu erwähnen ist noch, daß Filz und Gewebe an fast allen Rändern Schnittkanten haben.

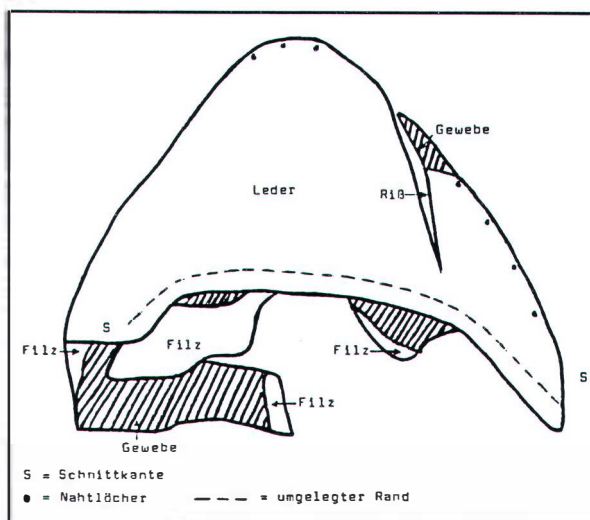


Abbildung 1.

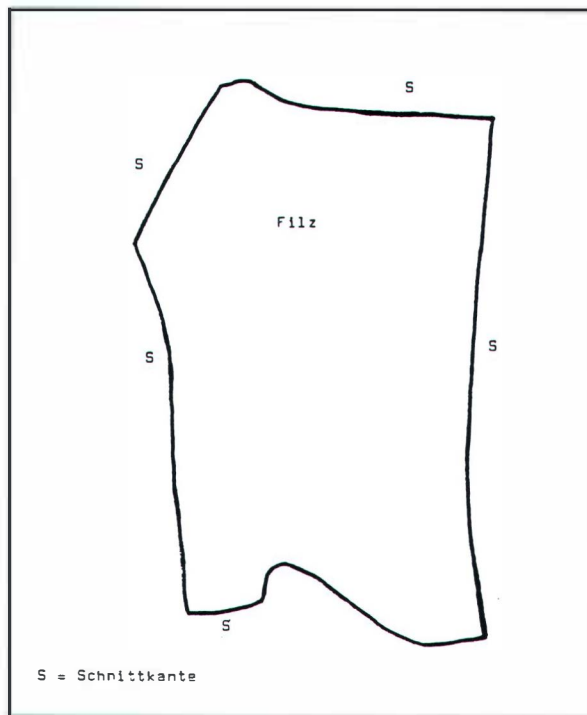


Abbildung 2.

Da die Gewebe- und Filzreste (TM 1993/2 a & b) im Aufbau identisch sind, dürften sie früher zusammengehört haben. Der Form nach war es wohl ein gefütterter Schuh. Für Hinweise auf seine zeitliche Einordnung wäre der Verfasser dankbar.

Klaus Tidow
Zur Ziegelei 18
D-24598 Boostedt
Germany

Experimental Archaeology

Dunkles (Mittel)blau mit Färber-Waid (*Isatis tinctoria*)

Es hat sich in den letzten Jahren gezeigt, daß es für viele mit Pflanzen Färbende Schwierigkeiten gegeben hat, dunklere Blautöne mit Färber-Waid, *Isatis tinctoria*, zu erreichen.

Man hat daher zu diskutieren begonnen, ob es überhaupt möglich ist, dunklere Farben als Pastellblau zu erreichen. Die Frage, wie dunkle Farben man mit *Isatis tinctoria* erreichen kann, ist jedoch geschichtlich sehr interessant. Wie bekannt gibt es eine andere Pflanze, *echten indigo*, *Indigofera tinctoria*, deren Farbstoff (Indigotin) sich chemisch nicht unterscheiden läßt, jedoch dank höherer Konzentration viel dunklere Farben erlaubt. Man hat daher diskutiert, wann der Import dieses echten Indigos nach Europa eigentlich begonnen hat (Bender Jørgensen, 1992).

In diesem Zusammenhang möchte ich jedoch mitteilen, daß es mir bei meiner letzten Färbung mit Färber-Waid gelungen ist, ein relativ dunkles (Mittel)blau zu erreichen. Sicherlich wäre es noch dunkler geworden, hätte ich nicht noch weiteres Garn gefärbt.

Zum Färbeprozess

Moderne Natriumhydrosulfit - Ammoniakküpe mit frische Färber-Waid.

Für 400 Gram Schafwollgarn

- habe ich ca 1,5 kg Färber-Waid (da es die letzte Ernte war, habe ich so ziemlich alles außer den Wurzeln genommen) verwendet und
- zerkleinert mit dem Fleischwolf
- einige Stunden bei Zimmertemperatur stehen gelassen, dann die Blatteile abgeseiht,
- im Wasserbad auf ca 30°C erwärmt,
- ca. 2 EL Ammoniak (25%) zugesetzt
- bei 55°C ca 1 TL Natriumhydrosulfit zugesetzt
- die Wolle bei dieser Temperatur 1 Mal ca 5 min und einige Male ca 2 min gefärbt

(Überfärbungen waren notwendig, da es zu viel Garn war.)

Resultat

100 g dunkles (Mittel)blau (auf weißer Wolle),
100 g mittelblau (weiße Wolle), 200 g hellgrau-
blau (hellgraue Wolle)

Der (mittel)dunkelblaue Farbton liegt ziemlich nahe dem schwedischen Farbenstandard S 6020-R90B (Natural Color System, NCS, SCI, Sweden), allerdings mit einem Gelbstich.

Nähere information über Waidfärbung gibt es auch auf dem Internet auf: <http://www.his.se/ida/~a43astra/vejde.html> und <http://www.his.se/ida/~a43astra/blau.html>.

Astrid L. Raidl
Ådalsvägen 12
S-544 33 Hjo
Schweden

E-mail: a43astra@ida.his.se

Literature

Bender Jørgensen, L. (1992). *I Knud den Stores Klæ'r*. Nationalmuseets Arbejdsmark (36).

Reproduction of Horsehair Tablet Braids from Scandinavia's Migration Period

In connection with the reproduction of Migration Period costumes by the University of Oslo (p 11, this volume) I was asked to produce a reproduction of a horsehair tablet braid. The museum chose the *worshipper* motif from the Högom grave in Sweden (Nockert 1991:97). The splendid Högom textiles have been investigated and published by Margaretha Nockert in her dissertation from 1991. In 1993, I chose to do a reproduction of one of the horsehair braids from Högom as part of my course at the University of Borås, the Weaving School. Nockert's description served as my starting point. Further, Margaretha Nockert kindly gave me the opportunity to study some fragments of the Högom horsehair braids in Stockholm. Producing the Oslo reproduction offered me a unique chance to get to grips with this fascinating Migration Period technique, and to acquire much additional first-hand information, i.e. craftsman's knowledge.

The task was to produce a 60 cm-long braid complete with two horsehair worshipper motifs (Figs 1 and 2). This was intended for the lower lining of a man's tunic. Further, a 70 cm plain tablet braid for the back of the tunic, and two 25 cm-long similar plain braids for the wrists. The whole job took 350 hours. The horsehair patterns are extremely time consuming to make. In general it takes about one hour to weave one millimeter (mm)! This puts the cost and value of these braids into perspective. Each worshipper motif is 11 cm long; as some parts were more complicated, the total amount of hours spent on each motif was 130 hours. The original

Högom bands had not two but probably seven motifs on each side of the tunic. Further, the tunic had cuffs, each 6 cm wide and 16 cm long. A rough calculation indicates that some 1740 hours work would be needed to produce a complete set. That translates into 43 1/2 man weeks or 11 months.

Preparation

The first step in this work was to understand the technique and to try it out. Basically, the technique is not very complicated. Still, this did not make it easy. A main problem was getting used to the unusual material: the long, stiff but brittle horsehairs.

Finding a suitable warp was another problem. Modern, machine-spun yarn did not look right. The solution was to take two single yarns and ply them together by hand to get the right twist. The same plied yarn was used for the bottom weft. The next problem was to get horsehair for the pattern weft. I bought some from a wholesale dealer who catered for upholsterers. He probably got them from China. The hairs were around 20-25 cm long. I tried to find longer hairs, but it proved next to impossible. Long, white horsehair is in high demand for violinists' bows! When I eventually did find some, I found that the shorter ones were easier to handle. The hairs were a natural white, with a few grey or black hairs among them. They were impregnated with something; this meant that I had to boil them before I could use them. Some I left white; others I

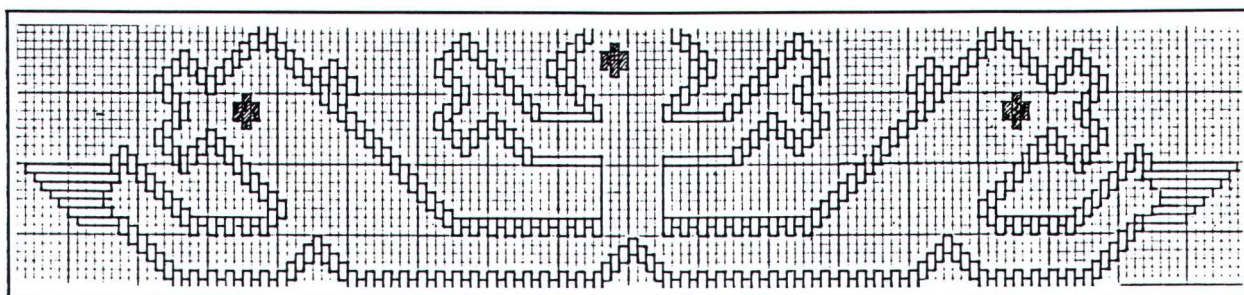


Figure 1 Pattern of the Worshipper motif. (Redrawn after Nockert 1991.)

dyed red, yellow or blue. The dyes I used were madder, weld and indigo.

Weaving

The weaving was done following a pattern, based on Margaretha Nockert's analysis (Figs 1 and 3). Each motif section starts and ends with 1 cm of soumak. The contours of the motif are made in what is best termed weft-warping. The background, and the inner parts of the motif are done in a technique that Nockert terms tapestry-like; it appears as a broken 2/2 twill (*kreuzköper*) (see Nockert 1991, fig 102). The hairs had to be laid in individually by hand. I did not use any tools such as the needle suggested by Nockert (Nockert 1991:71). I had never thought of this possibility as it felt very natural to do it with the fingers. I tried it later and found that the brittle horsehairs break easily if threaded on a needle.

The white horsehair needed for the contours of the motif tended to turn out too transparent. I found that I had to pick the thickest possible hairs to get a proper white line. When it came to the red and yellow horsehairs needed for the inner part of the motif and for the background, I had to pick the thinnest hairs. Only these hairs were sufficiently pliable to permit packing them hard enough to get a good surface. Each pattern unit took several hairs to fill (Fig 3). For the white hairs of the contours, I had to use about four hairs for each unit. As many as six of the thinner red and yellow hairs were needed for the same space. For these reasons, keeping an even weft-line of varying colours proved to be the most difficult part of the work. At some places, up to 12 changes of colour were necessary. Here, one hour's work amounted to only about 0.5 mm.

In the beginning, the horsehair pattern came out somewhat uneven due to the problems described above. This is particularly visible on the first half of the first motif. The second half has the most beautiful surface. Still, the figure did not come out quite clear: it is somewhat squashed. With the second motif, I had learnt how to do it, and this

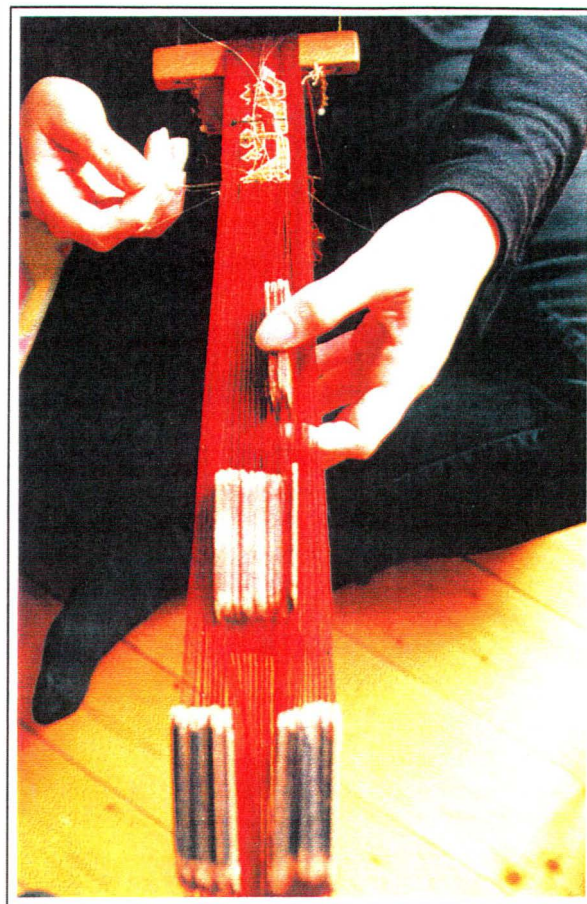


Figure 2 The weaving process. (Photo: M. Sundström.)

figure has the right dimensions. Body tension is an integral part of tablet-braid weaving. It took time before I found the right rhythm. I found that I worked best sitting on the floor, with the other end of the warp fastened to a table. This way, the band was held at a relatively steep angle, close to my eyes.

Getting into my stride did not mean that I could work any quicker. When I got to the second motif, I had learnt how to pack the fine hairs to get the right surface. This unfortunately meant even more hairs to wrap and more time to be spent on the work.



Figure 3 The finished product. (Photo: M. Sundström.)

Finishing

When I had finished weaving, I stretched and straightened the braid. This was done on a wooden ironing board. First, I drew the right dimensions of the band on the board. Then, I stretched the band until it fitted the measurements, and pinned it onto the board, topside down using a lot of pins. The next step was spraying the band with water. When it had dried, it was ready (Fig 2). The finished braids came out smooth, flexible, and yielding. The raw bands, in comparison, were stiff and bubbly, and the structure did not feel right.

Silk Substitutes?

Margaretha Nockert has suggested that the horsehair may have been used as a kind of substitute for silk (1991:88f). After having produced the bands, my feeling is that they were intended exactly as what they are. Weaving with horsehair takes a lot of skill and is extremely time-consuming. No craftsman would do that amount of work with a substitute material. Horsehair is not only glossy like silk, but it makes the braids very stable, hard-wearing and strong. This makes them very well suited for what they were used for: as cuffs, carrying heavy wrist-clasps, or as the lower border of a tunic. They are also very beautiful.

Technical Details

Technique: tablet weaving, 60 tablets with four holes each.

Bottom weave: tablets pairwise opposed.

Pattern weave: soumak, weft-wrapping and tapestry-like.

Total number of threads: 240.

Width: 4 cm.

Length of weave: 56 cm.

Warp and bottom weft: 20/2 wool, S2z, hardspun.

Warp density: 60 threads/cm.

Bottom weft density: 11-12 threads/cm.

Pattern weft: horsehair.

Pattern weft density: 10-16 hairs between each bottom weft.

Bottom weave tablets are turned normally.

Pattern tablets remain unturned throughout the work.

Literature

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Amica Sundström
University of Gothenburg
Department of Archaeology
S-412 98 Göteborg
Sweden

Worth Noting

Information Wanted

Where is This?

Nancy Spies has submitted the following figure, and would like to know where the original can be found. Also she is looking for information on the burial vestments of Kaiser Heinrich VI of Germany. The vestments are reputed to be a grave crown, cingulum, chasuble, stole, and shoes. She would like to know where these vestments are to be found now and if there is any existing literature on them.

Nancy Spies
7041 Yellow Bluff Road
Panama City, Florida 32404
USA



Fig. 166. Sakristia med kläderna upplagda för påklädning. Miniatur 1300-talet. Efter Roh. de Fleury, *La messe*, d. VII, pl. DXXIII.

Impressions of Twined Textiles Found at Pavlov Hills, Czech Republic, Dated to 27,000BP

Dr James Adovasio (Mercyhurst College, Erie, Pennsylvania, USA) and Dr. Olga Soffer (University of Illinois, Urbana, Illinois, USA) gave the following report at the meeting of the Society for American Archaeology in Minneapolis in early May 1995. The information in this article is taken from a report by Brenda Fowler in *The New York Times*, Tuesday 9 May 1995.

About 27,000BP a hunter-gatherer culture flourished in the Pavlov Hills near Dolní Věstonice in the south-east of the present day Czech Republic. These people set up their base camp for the summer season near a river in the hills. The site was excavated in 1954 by Dr. Bohuslav Klima from Moravia, and the original reports were published in Czech and German. The reports established that although the Pavlov group was living on the site between 24870 and 26980 BP (radiocarbon date from charcoal and ash in habitation area) the techniques of firing clay and polishing and grinding stones for ornaments were known and practiced. In 1990 Dr. Soffer had undertaken a research project in connection with the ceramic finds. These consist of human and animal figurines made from fine soil and water and subsequently fired, and are at present the earliest known ceramics. The body of the material examined by Dr Soffer consisted of circa 3,000 shards. Four pieces perhaps 2 cm in diameter showed markings on their concave sides. In 1991 magnified high-resolution photographs of these shards were shown to Dr. James Adovasio. Dr. Adovasio's analysis showed that two fragments carried the imprints of two different weaves, and the other two bore indistinct parallel impressions that might be from warp threads. These were negative impressions of finely twined threads. He was able to distinguish plant fibrils in the photographs thus establishing the fibres as plant material or bast rather than sinew. Suggested plant material was yew and alder trees, or the milkweed and nettle plants.

There are no selvages or defined edges on the ceramic shards. Since they are small Dr. Adovasio could not make any statement as to the exact original purpose of the textiles while suggesting they may have come from bags, mats, clothing or baskets. The comparison he made was with the mesh of a modern potato sack. Dr. Adovasio commented that while it would have been possible to

make the pieces without a loom, it would have been far easier with an elementary backstrap loom. One of the clay impressions showed open diagonal twining, S-twist weft and flexible warp threads.

To put the discovery into context comments were sought from textile scholars and archaeologists. Dr. Anthony Marks (Southern Methodist University, Dallas, Texas, USA) stated "It is not unexpected but it is very important" in that no other evidence of textiles has survived from so early in the Upper Paleolithic. The importance of textile structures in human technology was emphasized by Dr. John Peter Wild (University of Manchester, UK). "You're way ahead of metals. The only technologies you have to compare it with in sheer brilliance of execution are stone implements. This is the organic technology that matches it." Dr. Elizabeth Barber (Occidental College, Los Angeles, California, USA) noted that the twining technique produced a very stable weave because the weft threads twisted around each other and prevented sliding whereas plain or true weaving is much faster but is less stable.

Dr. Adovasio addressed the problems that lack of evidence cause in the distortion of the interpretation of archaeological sites. He drew attention to the likelihood that the easy survival of stone tools has caused archaeologists to overemphasize the importance of hunting large mammals in paleolithic society. The non-survival of organic materials like nets, snares and ropes has made invisible the probability that a large proportion of the food supply would have been procured by their use. He noted that at both Pavlov and Dolni Vestonice Dr. Klima excavated far more bones of small mammals than of mammoths. It is likely that hunting with snares, nets and ropes would be far more successful than with lithic tools.

The dating of these finds is believed to be secure. Dr. Soffer states that the Pavlov site shows no evidence of any human occupation after 24,870BP so there is no possibility of disturbed layers. She also makes the point that deterioration in the climate after 22,000BP meant that ice sheets then covered the area. Perhaps the Pavlov people travelled east and south-east. On present evidence the early finds of ground stone worked for decorative objects and of fired clay figurines also demonstrate an interesting principle. Since the culture was not based on farming the stone and clay technology was not used for working tools like hoes or axes, nor the ceramics for storage or cooking vessels. These uses had to wait for later cultures who had the need for

them. It is quite usual for human beings to have more knowledge than they actually use; indeed until it is useful it will likely lie fallow. The final comment in the article is that "Textiles and basketry too, anchor themselves firmly into the technological landscape (after another 10,000 years)".

Elizabeth Wincott Heckett
Department of Archaeology
University College Cork
Ireland

Conferences

New Approaches to Archaeological Textiles
Early Textiles Study Group Conference
6-8 September 1996
Manchester, UK

The Early Textile Study Group will be holding another in its series of biennial weekend conferences in Manchester starting on Friday 6. September and ending on Sunday 8. September 1996. The theme for the Conference will be *New Approaches to Archaeological Textiles*.

Recent analytical work on archaeological textiles using the tools and techniques at the sharp end of modern textile technology has opened up fruitful new perspectives on surviving fabrics. A number of scholars at the forefront of this field will be presenting their work on fibres, dyestuffs, weave structure, conservation problems and allied topics.

It is hoped that there will also be time during the weekend to hear papers on current research unrelated or loosely related to the main theme. The organisers would be pleased to hear from those who would like to make a contribution under this heading. Poster displays on or around the theme of the conference will be particularly welcome.

For further information please contact one of the Directors of the Manchester Ancient Textile Unit:

Dr. J.P. Wild
Dept. of Archaeology
The University
Manchester M13 9PL
UK

Dr.W.D. Cooke
Dept. of Textiles
UMIST
Manchester M60 1QD
UK

SYMPOSIUM '97, Fabric of an Exhibition: An Interdisciplinary Approach
22-25 September 1997
Ottawa, Canada

Textile conservators in the United States and Canada will sponsor biennial conferences on topics related to textile conservation. These conferences will take the broadest possible approach to a topic to encourage the participation of scientists, museum professionals, conservators, art historians, archaeologists and other interested specialists.

Meetings will be held within North America at one of the various host institutions such as the Metropolitan Museum of Art, the Smithsonian Institution, the Los Angeles County Museum of Art, the US Department of the Interior Park Service, and others. A regional group of conservators will be responsible for local organisation, program development, and most important, publishing the proceedings so that the information at the meeting be made available to the widest possible audience.

The Canadian Conservation Institute, Department of Canadian Heritage, will host the first such biennial textile conservation symposium 22-25 September 1997 in Ottawa, Canada. Entitled *Fabric of an Exhibition: An Interdisciplinary Approach*, the aim of this four-day symposium is to bring together people from the diverse specialities that are required for the successful exhibition of textiles. Examples of some of the topics to be considered include travelling exhibitions, case histories of exhibition solutions, mannequin construction, exhibition materials, and the balance between preservation and accessibility/interpretation of a textile collection.

In addition to the formal presentations and poster sessions, demonstrations of techniques and materials will be offered. Participants will also be able to visit museum and conservation facilities in the Ottawa area.

The official languages of the symposium will be English and French. An international call for papers will appear in the spring of 1996; however, preliminary submissions are welcomed. To receive further details, please contact:

Reviews

Exhibitions

1000 Years of Textiles and Jewellery from Latvia

Many more textiles from the past are preserved in Latvia than for example in Denmark. The better state of preservation is the unexpected byproduct of a special tradition in which copper-alloy rings were woven into the cloth as a form of decoration. The rings form many different patterns, but the swastika pattern is very common.

In the wealthy graves copper-alloy jewellery is also found. Copper salts have a preservative effect against biodeterioration. They are frequently used in pressure-impregnated wood to extend the lifetime of wood used in conditions exposed to weathering. During burial the copper used in both the jewellery and clothing decoration undergoes deterioration in the form of corrosion. The resulting copper salts have in many cases slowed down the rate of deterioration of much of the clothing present in ancient graves.

Furthermore the population in Latvia was Christianised later than that in other parts of Scandinavia. In the outlying regions it was as late as the 15th century. As a result it is possible to find fully equipped pre-Christian graves with people buried in their finest clothes with all their jewellery which span a much longer period than elsewhere in Scandinavia.

Latvia has nearly always been under the rule of other countries. Perhaps this led Latvians to stick to their traditions and be nationalistic minded. In the middle of the 19th century there was a large nationalistic movement at which time a National Museum was founded. This museum is the predecessor of Latvijas Vestures Muzejz, the museum to which most of the artifacts in this exhibition belong. The museum's large and old collection of ethnographic clothes and costumes date from 1869 when the museum was established.

Thus, the use of bronze beads in Iron Age and Viking Period textiles, the late Christianising of the population and longer period of heathen burial

customs, the nationalistic and conservative nature of the typical Latvian citizen, and the early systematic collecting of artifacts from the past together provide a unique continuous tradition in costume and jewellery from the Iron Age until almost today.

The exhibition consists of:

- A few archaeological textiles. (This material is too weak to enable much of it to travel out on loan.)
- Many watercolour reconstruction drawings.
- Reproductions of legwrappings and a mantle with tabletwoven borders and large patterns of bronze rings.
- Much beautiful jewellery from the 7-18th centuries. For example frontlets of textiles with bronze or glass beads.
- Many different textiles from the 18-19th centuries. For instance mantles with tabletwoven borders woven onto clothes.
- Seven mannequins fully clothed with costumes from the 19th century.

The exhibition is a cooperative venture between Latvijas Vestures Muzejz, Latvijas Vestures Instituts and Silkeborg Museum (Denmark).

The exhibition is scheduled for several museums in Denmark. Its first venue was Silkeborg Museum in October 1995. Other venues include:

08.11.1995 - 14.01.1996, The Museum in Koldinghus (Tel: (45)-75501511).

27.01. - 17.03.1996, Haderslev Museum (Tel: (45)-74527566).

01.04. - 01.09.1996, Bornholms Museum (Tel: (45)-56950735).

*Lise Ræder Knudsen
Silkeborg Museum
Hovedgården
DK-8600 Silkeborg
Denmark*

Source Materials

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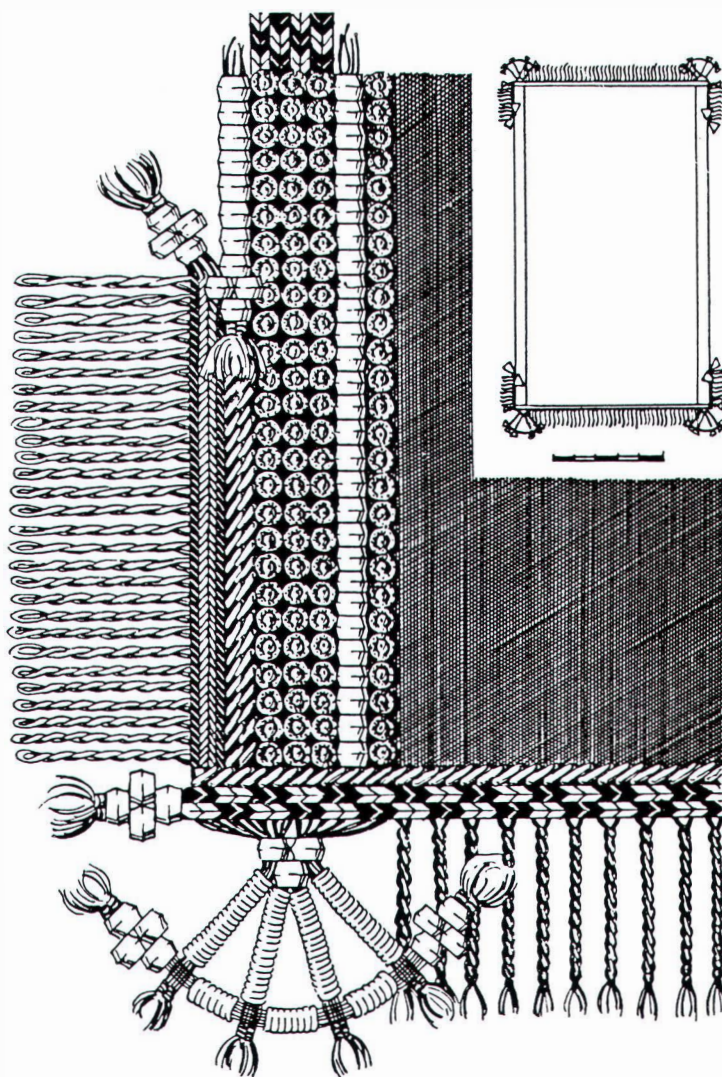
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Reproduction of a woman's shawl from the 11th century from Salaspils Laukskola, Latvia. The closeup shows a corner with fringe, tablet-woven edges, bronze spirals and tin rosettes. (Drawings: A Zariņa.)

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Elizabeth E. Peacock
Vitenskapsmuseet
N-7004 Trondheim
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Fax: (47)-73-592238
E-mail: elizabeth.peacock@vm.unit.no

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