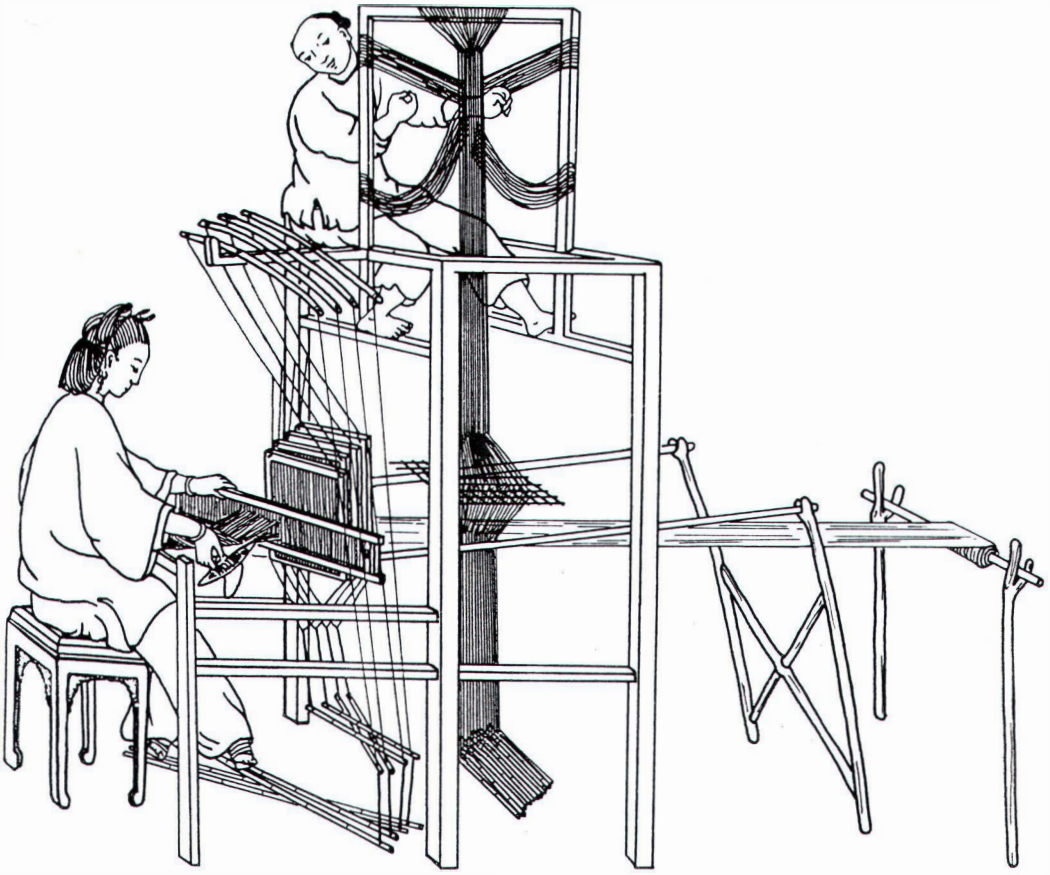
ARCHAEOLOGICAL TEXTILES NEWSLETTER



NUMBER 31 AUTUMN 2000

Editorial

This issue of *ATN* has more of the flavour of a true newsletter/working document than sometimes in the past (but rather fewer illustrations). The section entitled 'Source Materials' contains more pages than usual, thanks to the voluminous and valuable bibliographical data in Elizabeth Heckett's 'Reading List of Irish Cloth and Clothing' and in the informative replies which Cäcilia Fluck and Sabine Schrenk received to their questionnaire on research into Nile Valley textile topics. Once upon a time *ATN* used to print the personal bibliographies of individual textile researchers, which readers found extremely useful - though the then Editor had to do some arm-twisting to overcome the 'modesty barrier' ! Offers will be gratefully received.

On practical affairs: please note that the long-established Eurocheques drawn in £ sterling on a European Bank can **no longer** be accepted in payment of *ATN* subscriptions. British banks will no longer accept them, and, if sent to us in error, they will have to be returned.

This number comes to you through the good offices of a new printing firm.

Please note that, with immediate effect, the **address** of *ATN* has **changed** to:

30 Prince's Road,
Heaton Moor,
STOCKPORT SK4 3NQ UK

Please use this for all purposes and erase the former university address. The Editor's e-mail address remains <j.wild@man.ac.uk> until June 2001.

This number of *ATN* would simply not have appeared, were it not for the major support and editorial assistance of Felicity Wild. The watchful eye of the Editorial Board is also gratefully acknowledged.

John Peter Wild (Editor)
Felicity Wild (Editorial Assistant)
30 Prince's Road,
Heaton Moor,
Stockport SK4 3NQ
United Kingdom

Table of Contents

Cover: Simple Chinese drawloom (after Seiler-Baldinger 1994) (see p.21)

Features

Issues in Conserving Archaeological Textiles

The following paper was prepared by Dr M. L. Ryder for a Forum in April 2000 organised by the Textile Conservation Centre, now part of Southampton University, to discuss issues in conserving archaeological textiles. The aim was to bring together a range of specialists to discuss different approaches. His remit was to cover a researcher's perspective, but he limited this to his own biological speciality. Since the paper was not going to be published he decided that an abridged version might be of use to many readers of *ATN*. In the event the Forum did not take place through lack of support.

The Requirements of Biological Research

The research line I follow involves the microscopic examination and measurement of fibres from samples of yarns. I would stress that fibres are fundamental - people tend to forget that without fibres there would be no textiles, yet in textile studies the fibres are often ignored. While preparing this paper I came across two complaints directed at archaeologists by textile specialists. The first was specific and drew attention to the lack of any clothing specialist in the study of what the 'Iceman' found in the Alps was wearing. The second was a general one that archaeologists tend to seek aesthetic value in a textile and therefore discard small fragments that could be informative regarding the structure of the fabric and the nature of the fibre. To put my method in this context: the minimum length of yarn I can deal with is 5mm. The fibres are teased from the yarn on a microscope slide to make a whole mount. Before describing the method, and how material should be supplied, I will remind you of the different ways in which textile fibres have been preserved, because the method is not suitable for all forms of preservation.

1. Textile Preservation

a. Preservation by the exclusion of air

In northern Europe the most common form of textile preservation on archaeological sites is through waterlogging. There is complete exclusion of air and so the aerobic micro-organisms responsible for the decay of organic material are unable to survive. Which fibre is preserved is then thought to depend on the pH of the soil. Animal, i.e. protein, fibres are preserved in acid conditions and plant, i.e. cellulose, fibres in alkaline conditions. There are inexplicable exceptions; the Overton experimental earthwork in which wool as well as the plant fibres flax and cotton were preserved in alkaline conditions highlighted the variable and fortuitous nature of preservation (Ryder 1997). A Bronze Age metal hoard found in aerated, sandy soil in St Andrews, Scotland had with it haired animal skin, wool cloth and hemp fibre (Ryder 1993).

b Preservation by carbonisation and by minerals - metals and salt.

Carbonisation caused by charring can preserve some fibres (Walton and Eastwood 1983). An example is the carbonised linen cloth from the Neolithic site of Çatal Hüyük in Turkey (Ryder 1965). The textile may appear black and be brittle, but short lengths of fibre remain virtually intact. Association with metal is a common cause of preservation (Janaway 1983). This includes, firstly, simple contact, which preserves the fibres entire; in this the preservation is by metal ions, usually of copper derived from bronze objects. Secondly, there is casting of the fibres; in this the corrosion product, usually of iron, forms a negative cast which provides an image of the surface, cuticular scale pattern of wool. Thirdly, there is the complete replacement of the fibres by the corrosion product (commonly of copper alloys) in a process akin to fossilisation, producing a positive replica. My measuring method is not suitable for replaced fibres, but I have been able to measure the diameter of fibre casts (Ryder and Gabra-Sanders 1985).

Until recently unique has been the preservation by sodium chloride of skin and cloth from the Iron Age salt mines at Hallstatt in Austria (Ryder 1990a). The basis of preservation was the action of salt in inhibiting the growth of micro-organisms which was long exploited in the preservation of food. In October 1999 I discovered a 'Saltman' in the Archaeological Museum in Tehran, Iran. This salt-preserved body with fragmentary clothing was found by salt

miners during 1993 in the Zanjan area of Iran and has been dated by C-14 to about AD 300 (Ryder 2000).

c Preservation by freezing and by desiccation

It is now more common to preserve food in deep freeze than by salting, and freezing is another way in which ancient textiles have been preserved. An example is the frozen burials of Scythian people in Siberia dated about 500 BC (Ryder 1990b). Here the ground below a depth of one metre is permanently frozen and so the organic material has been deep-frozen for 2500 years. The frozen man found in the Alps in 1991 was 5000 years old and dressed in animal skins, being from the Neolithic period before sheep with a fleece had been bred, but he did have a cape of woven grasses (Ryder 1992).

Another method of food and textile preservation is by drying; perfect dryness prevents microbial decay. But the exclusion of all moisture is difficult and so the chance preservation of textiles by desiccation has taken place only in desert areas, notably in ancient Egypt where fine linen cloth has survived in tombs. The Kerma civilisation of about 2000 BC in Sudan had desiccated, haired cattle, goat and sheep skins lined with linen cloth which were associated with human burials and so were probably shrouds (Ryder 1984).

2. The nature of fibre decay

It is important archaeologically to distinguish the fibre damage that can result from the wear of a textile, from that occurring during burial. I will quote only my own incidental observations. I have never observed wear or decay in flax or cotton fibres, which are single cells. With wool, fibre damage due to wear takes two main forms: first there is 'flexing' damage in which a fibre appears bent and split to reveal the cortical cells, but is not actually broken. This is common in garment wear. Secondly there is 'abrasion' damage in which the ends of the fibres appear smooth and rounded and there is no fraying into the cortical cells. This is common in carpet wear.

I have seen three forms of burial degeneration of wool fibres: 1. step-wise and concentric breakage; 2. fraying or splitting into the cortical cells; 3. decay which appears exactly like the 'bite out' of a fibre resulting from being eaten by moth larvae. The experimental burial of cloth at Overton confirmed that this can occur during burial, and so such damage in archaeological material is not necessarily due to moth damage (Ryder 1997).

3. The sampling of material and the fibre measuring method

a How I like to receive material

Material should NOT be supplied in polythene bags since these generate static electricity which causes fibres to disperse and stick to the plastic, making the fibre impossible to remove. Cellophane envelopes are preferable to paper since the cellophane allows examination before removal of the material. Although I like to see the cloth and weave, I like to receive lengths of yarn rather than cloth because small fragments of cloth are frequently distorted and I cannot be sure that I have not sampled the same system twice. Yarns from each system should be put into separate envelopes. Where it is not possible to distinguish the warp from the weft, the two yarns are designated (a) and (b). Although the absolute minimum length of warp and weft is 0.5mm, where plenty of material is available it is better to have several lengths longer than this. On receipt, one or two 1 mm sub-samples are cut from each end of each length of yarn and these are dropped onto a glass microscope slide and the fibres teased from the yarn before being mounted in a medium with a contrasting Refractive Index and sealed with a glass coverslip. The aim is to get as many fibres as possible onto the slide.

During this sub-sampling I record details such as the colour and the thickness of the yarns. With prehistoric material the colour is usually brown discoloration (yellow under the microscope) or it may be natural pigment (granular under the microscope); rarely, there is a hint of dye, which becomes clearer under the microscope. I am interested in possible differences in thickness and spinning twist between the warp and weft as well as differences in fleece type, which is the main object. It is

helpful to receive details of the textiles since the kind of wool used might be related to the type of cloth.

Since the mounting medium used is not miscible with water, the material needs to be supplied perfectly dry. Some archaeologists store textiles from waterlogged sites in water, and even supply samples in this form. I then have the extra task of drying, and often cleaning, the samples. Some of the material I receive must have been consolidated by conservators with a plastic such as polyvinyl acetate in aqueous emulsion, but this has not affected the microscopic examination.

Whereas a fabric needs to be in moderately good condition to study the textile details, the diameter of short fragments of fibres can be measured, that is, provided the width of the fibre is intact. Fibres tend to break-up along the length before they split into thinner pieces. A completely disintegrated piece of cloth might be beyond redemption by the conservator, but still yield bits of fibre that can not only be identified, but measured, and here the measurements can help the identification.

b The method of measuring fibre diameter

Having made a whole mount, it takes at least a week for the mounting medium to dry. Fibre diameter measurements are then made of 100 fibres in each sample. The standard International Wool Textile Organisation's method is used with a projection microscope. The image is projected either onto a screen on a bench, or onto a ground glass screen from behind. The width of the fibres is measured with an accurate mm scale and at a set magnification of 500 times; if the measurement in mm is doubled, the diameter in microns is obtained (one micron is 0.001 of a mm). In order to reduce the chances of measuring the same fibre more than once, the slide is traversed systematically from left to right and then back again at a different level until 100 fibres have been measured.

Also recorded are the percentage of fibres with a medulla or hollow core and the percentage of fibres with natural pigment. The extent of medullation gives a measure of hairiness since a medulla is found mainly in coarser fibre. The proportion of pigmented fibres indicates the fleece colour. The results are expressed as a histogram giving the fibre diameter distribution. Fibre diameter measurements falling outside the main range are listed separately (Table 1). With wool, different fleece types have different distributions and these are defined using the skewness of the distribution and the maximum fibre diameter as criteria. Here the mode, which is the most frequent diameter, tends to be more important than the mean.

The method is also being applied to silk and to plant fibres. Both these have symmetrical fibre diameter distributions; silk has means around 12 microns and flax has means ranging from 10 to 15 microns with an overall mean also of 12 microns. Fibre measurement can distinguish flax from hemp, which is coarser, ranging from 17 to 25 microns with an overall mean of 22 microns (Ryder 1993).

c The definition of fleece types

In determining the fleece type the greatest fibre diameter in the distribution is the deciding factor. Thus, a symmetrical distribution with a mean and mode about 20 microns and an upper limit about 35 microns would be regarded as a Fine-wool. This is the most highly evolved fleece type, now found in only the Merino breed. The shortwool or Semi-fine type, too, has asymmetrical diameter distribution, but its mean and mode are about 25 microns and the upper limit about 40 microns. The third, modern, fleece type with asymmetrical distribution is the Medium wool, seen in longwools, with a mean and mode from 30 to 40 microns and an upper limit as high as 60 microns.

The more primitive fleece types have a skewed diameter distribution in which most of the fibres are fine. The Generalised-medium wool, has a skewed distribution with a mode about 20 microns and a maximum fibre diameter of about 55 microns. The more primitive Hairy-medium wool also has a mode about 20 microns, but it has a moderate number of not very coarse hairs over 60 microns in diameter. This structure is a relic from the coat of the wild sheep ancestor, which had a very coarse outer coat and very fine underwool. The true Hairy type, which is relatively modern,

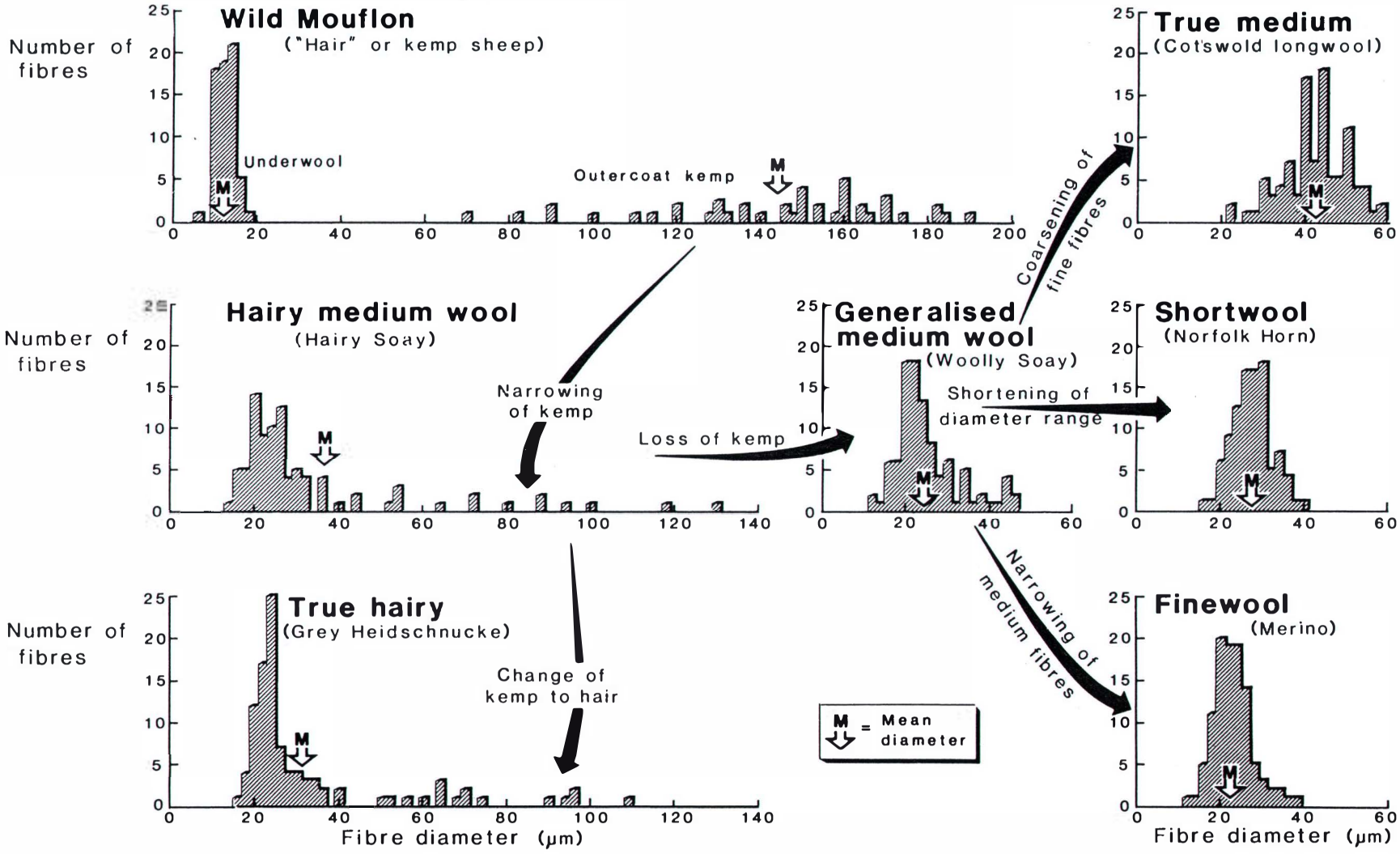


Fig.1 Changes in fibre diameter distribution during fleece evolution: evolutionary scheme for the breeding development of different fleece types, from Ryder 1983.

Table 1 - FIBRE DIAMETER MEASUREMENTS (microns)

Sample No.	Diameter range	Mean +/- s.d.	Mode	% Medullated	% Pigmented
T123 warp	12 - 38,42,44,48	23.8+/-6.7	22	0%	50% (grey)
T123 weft	12 - 28	19.1+/-4.2	16	0%	0%

The warp is a Semi-fine wool and the weft a Fine wool.

has a continuous distribution from fine fibres through medium fibres to a relatively high proportion of hairy fibres that are often over 100 microns in diameter.

d The evolution of different fleece types.

The measurement of prehistoric wools in this way has enabled a scheme for the evolution of different fleeces to be formulated (Fig. 1). The first change involved the narrowing of the outer-coat kemp-hairs of Neolithic sheep. In the coat structure of the wild Mouflon shown at the top, the fine underwool lies to the left of the distribution, and the bristly kemp-hairs of the outercoat lie to the right. The result of this narrowing was the first true fleece, the Hairy-medium type, in which most of the fibres are fine, with a few medium and hairy fibres.

As the outer coat became less coarse, the underwool became less fine, changing from the mean fibre diameter of 15 microns in wild sheep, to 20 microns, which has been the typical value for fine wool ever since. Further narrowing of the remaining hairy fibres changed them into wool fibres of medium diameter and produced the Generalised-medium type of fleece. Generalised-medium as well as Hairy-medium fleeces with natural brown pigment first appear in Bronze Age textiles. The same two fleece types predominate in Iron Age wools, but there is a range of colours - black, white and grey in addition to brown.

The Generalised-medium fleece lies in a central position linking the more primitive hairy fleeces to the left with the modern fleece types to the right, which have a symmetrical distribution of fibre diameter. If the narrowing trend had continued with a narrowing of the medium fibres of the Generalised-medium type to make them into fine fibres, then the diameter distribution of the Fine type would have been produced (bottom right). If instead the fine fibres had been bred coarser, changing them into medium fibres, then the diameter distribution of the Medium type would have been obtained (top right). Thirdly, if the range of fibre diameter had become shortened, the distribution produced would have been that of the Semi-fine fleece (centre right).

The Medium and Semi-fine types first appeared (in small numbers) in Asiatic and European Iron Age textiles at a time when the Fine wool was emerging in the Near East. The Hairy-medium and Generalised-medium types predominated in northern Europe until after the Middle Ages when Medium and Semi-fine fleeces became important. The Fine wool was important in southern Europe in classical times and later developed into the Merino of Spain.

I will end by showing how fleece data are tabulated, which is the form in which they are published (Table 1). I live in the hope that fibre descriptions will be published alongside textile descriptions and not be treated as something esoteric.

References

Janaway, R.C. 1983, 'Textile Fibre Characteristics preserved by Metal Corrosion: the Potential of SEM Studies', *The Conservator* 7, 48-52.

Ryder, M.L. 1965, 'Report on Textiles from Çatal Hüyük'. *Anatolian Studies* 15, 175-176.

Ryder, M.L. 1983, *Sheep and Man,* London.

Ryder, M.L. 1984, 'Skin, Hair and Cloth Remains from the Ancient Kerma Civilisation of Northern Sudan', *J. Archaeol. Sci.*. 11, 477-482.

Ryder, M.L. 1990a, 'Skin, and Wool-Textile Remains from Hallstatt, Austria', *Oxford J. Archaeol.* 9(1), 37-49.

Ryder, M.L. 1990b, 'Wool Remains from Scythian Burials in Siberia', *Oxford J. Archaeol.* 9(3), 313-321.

Ryder, M.L. 1992, 'What does the Frozen Man tell us about textiles?', *ATN* 15, 9-10.

Ryder, M.L. 1993a, 'Probable hemp fibre in Bronze Age Scotland', *ATN* 17, 10-13.

Ryder, M.L. 1997, 'An Archaeological Experiment with Buried Textiles', *ATN* 24, 8-11.

Ryder, M.L. 2000, 'More Textiles Preserved by Salt', *ATN* 30, 17.

Ryder, M.L., T. Gabra-Sanders 1985, 'The Application of Microscopy to Textile History', *Textile History* 16(2) 123-40.

Walton, P., G. Eastwood 1983, *A Brief Guide to the Cataloguing of Archaeological Textiles,* York.

Michael L. Ryder
4 Osprey Close
Lord's Wood
Southampton SO16 8EX GB

Key for the Identification of Fleece Types from Wool Staple Form.

Occasionally during excavations clumps of unprocessed wool are found in the raw state as they have come from a shorn fleece, and one can usually see the staples (locks) in which the wool hangs in the fleece. These wool staples have a characteristic shape and dimensions from which the type of fleece can often be identified before they are sampled and the fibres mounted for measurement. The following systematic key (Table 2) was prepared some time ago to help people identify the fleeces of primitive breeds, but it can also be used with excavated staples, and also incidentally on ancient illustrations and representations of fleeces. It was prepared from the fleeces of living adult sheep - not all fleece types have been excavated in the raw state - and not all of those found are in sufficiently good condition to allow identification. But variations should be noted as possibly indicating actual differences over time. It would not work for lambs' wool which is shorter and more curly.

Bibliography

Ryder, M.L. 1969, 'Changes in the fleeces of sheep following domestication' in: P.J. Ucko and G.W. Dimbleby (eds), *The Domestication and Exploitation of Plants and Animals,* London, 495-521

Ryder, M.L. 1983, *Sheep and Man,* London

Ryder, M.L., S.K. Stephenson 1968, *Wool Growth,* London and New York

Michael L. Ryder
4 Osprey Close
Lord's Wood
Southampton SO16 8EX GB

Table 2

KEY FOR THE IDENTIFICATION OF FLEECE TYPES FROM WOOL STAPLE FORM

1. Short coarse, bristly outer kemp fibres and shorter very fine underwool (cf deer or wild sheep)	...	'Hair' sheep (concentrated in tropics)
2. Wool staples (locks) with hairy pointed tip (V-shaped 'tippy' staples)	...	see 3
Wool staples lacking a pointed tip (staples 'blocky' with straight or irregular end)	...	see 4
Wool staples curly	...	see 5
3. Staples relatively less hairy and short (under 12cm long)	...	Hairy medium wool (cf hairy Soay and Shetland)
Staples relatively more hairy and long (over 12cm long). Can have short, chalky white and brittle kemps	...	(True) Hairy type (cf Scottish Blackface)
4. Mixture of shorter fine, and longer medium, fibres gives staple an irregular 'rough' end (no longer than 5/6cm)	...	Generalised medium wool (cf woolly Soay and Shetland)
Fibres uniformly of medium diameter, staple with straight end and up to 15cm long	...	(True) Medium wool (cf Romney)
Fibres uniformly of fine to medium diameter, staple with straight end and up to 10cm long	...	Shortwool (cf Suffolk Down)
Fibres uniformly fine and tightly crimped, staple with straight end and about 7cm long	...	Fine wool (cf Merino)
5. Relatively short and fine with small curls	...	Curly version of generalised medium wool (cf Finnish Landrace and Swedish Gotland)
Relatively coarse and long (15-30cm) with large curls and lustrous fibres	...	Lustre longwool (cf Leicester and Lincoln)

Notes

a. These typical appearances are best seen in the second (2-year) and subsequent fleeces. Variation in fleece type is basically brought about by differences in the proportions of long, coarse (usually hairy) fibres and short, fine (frequently crimped) wool.

b. The fleece (staple) length is measured with a 'sawn-off' ruler at the mid-side position (on the last rib and half-way down the body). The staple should be straightened but not stretched. If not a full fleece the time since shearing should be noted. At least 10 sheep should be measured to indicate the *range* as well as the mean.

c. The lengths are not critical for identification and can overlap, particularly in group 4 (above).

d. Any variation over the body should be noted in addition to major features such as a mane and/or throat fringe.

M.L.RYDER

Römische Spindelhaken vom Magdalensberg in Kärnten, Österreich

Summary: Excavations in the Late Republican - Early Imperial (c. 50 BC - 50 AD) town on the Magdalensberg in Carinthia, southern Austria, for more than 50 years, yielded the discovery of approximately 1250 implements for textile production (cf. a forthcoming overview in Gostenčnik 2000). This paper is a shorter version, based on an article (cf. Gostenčnik, in Druckvorbereitung) dealing with 120 small 'bronze' hooks with twisted shafts, which were excavated on the Magdalensberg. The main evidence for those hooks comes from Roman and Coptic Egypt, but also from North Africa of more recent date, where they were frequently mounted on wooden spindles (cf. Rutschowscaya 1986, passim). However, the lack of further archaeological records from early Roman or even pre-Roman Celtic sites allows us to suggest that use of those implements on the Magdalensberg at least for the time being has to be regarded as an exception.

Die Ausgrabungen in der spätrepublikanisch-frühkaiserzeitlichen (*c.* 50 v.Chr. bis 50 n.Chr.) Stadt auf dem Magdalensberg in Kärnten, Österreich (vgl. zusammenfassend Piccottini 1989), erbrachten eine groβe Menge von an die 1250 Geräte zur Textilerzeugung und Textilverarbeitung, die von der Verf. innerhalb der nächsten Jahre als Monographie bearbeitet werden (ein kurzer Überblick erscheint in Gostenčnik 2000). Die Katalogisierung und eine erste Analyse des Gesamtbestandes erbrachte bereits einige interessante Aspekte, welche in kurzen Aufsätzen vorgelegt werden sollen. Ein ausführlicher Bericht ist zudem für eine der nächsten Ausgaben des *ATN* geplant. Textilien sind bei den Grabungen in wenigen Resten gefunden worden, allerdings nur grobes Gewebe aus Flachs in Leinwandbindung (Wächter 1986).

An Spinngeräten konnten auf dem Magdalensberg bisher 485 Spinnwirtel aus Ton, gröβtenteils einfache Scherbenwirtel aus zerbrochener Grobkeramik, und 5 gedrehte Beinwirtel katalogisiert werden. Hölzerne Spindeln blieben mangels entsprechender Feuchtbodenlagerung nicht erhalten; es liegt auch nur ein Exemplar aus Bein vor. Der aus dem 1. Jh. n.Chr. stammende Schutthügel des Legionslagers von Vindonissa erbrachte ja etwa 60 Holzspindeln neben neun aus Bein (Wild 1970, 33). Unser Fundort ergab weiters elf Spinnrocken aus Bein sowie sechs Fingerrocken oder 'Fingerkunkeln', ebenfalls aus Bein (in Auswahl in Gostenčnik 1996, Taf. 4:1 und Taf.8:1,2); noch nicht aufgenommen sind mehrere gläserne Fingerrocken. Von den im griechischen Osten und einigen römisch-kaiserzeitlichen Fundorten in den Westprovinzen gut belegbaren Spindelhaken mit Tülle und stumpfem Haken (z.B. aus Augst bei Riha 1986, Taf.58, 644-647, dort als medizinische Instrumente aufgefaβt) sind auf dem Magdalensberg wenigsten zwei Exemplare vorhanden (Abb.3), wobei hier weitere Fragmente unter den noch nicht durchgesehenen Bronzeabfällen zum Vorschein kommen könnten. Ein Neufund ist zudem 1999 bei unseren Grabungen im kaiserzeitlichen Virunum in einem Kanal (3. bis frühes 4. Jh. n.Chr.?) getätigt worden. Obwohl zunächst nicht ausdrücklich als Spindelhaken angesprochen, so war vorerst an Dochthäkchen für Öllampen oder Laternen gedacht worden (Deimel 1987, 50 und Taf. 32: 6-18), bot sich diese Interpretation für die kleinen Bronzehaken mit tordiertem Schaft als wahrscheinlichste Lösung an, als uns die ägyptischen Beispiele bekannt geworden sind. An weiteren römischen oder vorrömischen Fundorten kamen bisher noch keine Parallelen zutage, sieht man ab von den seltenen Bronze- und Eisennadeln der Phase Latène C1-D1 mit tordiertem Schaft und kleinem Tierkopf (Križ 1999), welche allerdings um die 10cm lang sind. Die 60 Holzspindeln von Vindonissa haben offensichtlich keine Hinweise erbracht. Eine Verbreitung abseits des Magdalensberges durch die Kaiserzeit läβt sich daher nicht verfolgen. Interessanterweise kommt eine Parallele aber in frühmittelalterlichem Kontext vor. In einem reichen alamannischen Frauengrab vom Spielberg bei Erlbach im Ries wurde neben einem tönernen Spinnwirtel ein kleiner silberner Spindelhaken gefunden, der auch als solcher genannt ist und eine Ansprache als Statussymbol erfuhr (Katalog Stuttgart 1997, 88 und Abb.71). Ob eine Vermittlung aus Ägypten oder Nordafrika stattgefunden hat, oder eine eigenständige Tradition vorliegt, lieβ sich mangels einer breiteren Vergleichsbasis nicht entscheiden.

Der Großteil unserer Funde ist zwischen *c.*2.8cm und 3.6cm lang und 0.8mm bis 1.8mm dick (vgl. die Beispiele in der Abbildung), wobei Maße darüber und darunter weniger häufig sind und eine Länge über 4.2cm nur vereinzelt auftritt. Die Torsion ist sehr unterschiedlich gehandhabt; es kommen Stücke ohne oder mit nur einer Drehung vor, bis zu solchen, bei welchen der Schaft dicht tordiert ist. Zudem ist die Torsion in beide Richtungen zu beobachten, wobei hier keine Präferenz für Links- oder Rechtsdrehung herrscht. Während die Schäfte vierkantig sind, sind die Haken rundstabig gehämmert. Mehrfach lassen sich Belege aus den bronzeverarbeitenden Werkstätten auf dem Magdalensberg (einige Beispiele dafür kommen in den Werkstätten der sogenannten T-Bauten vor, vgl. demnächst Dolenz, in Vorbereitung) beibringen. Halbfabrikate deuten auf die Herstellung der Haken und im übrigen auch von bronzenen Nähnadeln direkt am Fundort hin (Abb.18-19), was angesichts der Verwendung am Ort selbst nicht ungewöhnlich ist. Die Schäfte tragen noch Feilmarken und sind nicht tordiert und die Haken sind noch nicht geformt. Eisen als Werkstoff für die Erzeugung der Haken konnte auf dem Magdalensberg nicht eindeutig festgestellt werden. Die zum Teil sicherlich relativ großen Haken (dies ein Hinweis von J.P. Wild) können wegen fehlender Spindelfunde vielleicht in Relation gesetzt werden zu den Durchmessern der Spinnwirtel; eine statistische Auswertung unseres Fundmaterials fehlt bezüglich dieser Frage noch, sodaß hier nur einzelne Angaben möglich sind. Bei kleinen, scheibenförmigen Scherbenwirteln ab 2.0cm Durchmesser betragen die Bohrungen für die Spindel zumindest 0.3cm; etwas größere, annähernd konische Wirtel mit 4.0cm Durchmesser weisen eine Perforation für die Spindel von 0.6cm bis 1.1cm auf, was Haken von mehr als 1.5mm Schaftdurchmesser zulassen würde. Hier wird zusätzlich auch noch das Gewicht besonders großer Wirtel zu überprüfen sein, denn möglicherweise lassen sich einige ungewöhnlich große Stücke auch anders erklären, eventuell als Webgewichte (ähnliche Fragestellungen behandelt Ryder 1997, 14-16). Bezüglich der für die Herstellung der Spindeln verwendeten Hölzer kann mangels entsprechender Funde keine Aussage getroffen werden. Bedenkt man jedoch, daß die aus dem römisch-koptischen Ägypten stammenden Exemplare bevorzugt harte Schilfgräser sind (vgl. Rutschowscaya 1986, passim), können eigentlich nur Hölzer mit weichem Kern verwendet worden sein, in welche sich die Haken leicht eindrehen lassen. Mit 120 Exemplaren sind die kleinen Haken gut belegte Objekte im Fundspektrum der spätrepublikanisch-frühkaiserzeitlichen Stadt auf dem Magdalensberg. Möglicherweise lassen sich mit dem hier vorgelegten Material Hinweise auf weitere Belege finden, denn es könnte durchaus sein, daß aufgrund ihrer geringen Attraktivität diese Stücke bisher nur nicht beachtet worden sind.

Bibliographie

Deimel, M. 1987, *Die Bronzekleinfunde vom Magdalensberg, Archäologische Forschungen zu den Grabungen auf dem Magdalensberg* 9, Klagenfurt

Dolenz, H. (in Vorbereitung), 'Die T-Bauten', in: G. Piccottini (Hrsg.), *Die Ausgrabungen auf dem Magdalensberg 1987-1990, Magdalensberg-Grabungsbericht* 17, Klagenfurt

Gostenčnik, K. 1996, 'Die Kleinfunde aus Bein vom Magdalensberg, ein Überblick', *Carinthia* I 186, 105-137

Gostenčnik, K. 2000, 'Die Geräte zur Textilerzeugung und Textilverarbeitung vom Magdalensberg in Kärnten', *Instrumentum Bulletin* 11 (im Druck)

Gostenčnik, K. (in Druckvorbereitung), 'Die Spindelhaken aus Kupferlegierungen vom Magdalensberg in Kärnten', vorgesehen für *Archäologisches Korrespondenzblatt*

Katalog Stuttgart 1997, *Die Alamannen*, Stuttgart

Križ, B. 1999, 'Epingle en fer à tête de cheval de Novo mesto (Slovénie)', *Instrumentum Bulletin* 9, 16.

Piccottini, G. 1989, *Bauen und Wohnen in der Stadt auf dem Magdalensberg*, Denkschriften der Österreichischen Akademie der Wissenschaften, phil.-hist. Kl. 208, Wien

Riha, E. 1986, *Römisches Toilettgerät und medizinische Instrumente aus Augst und*

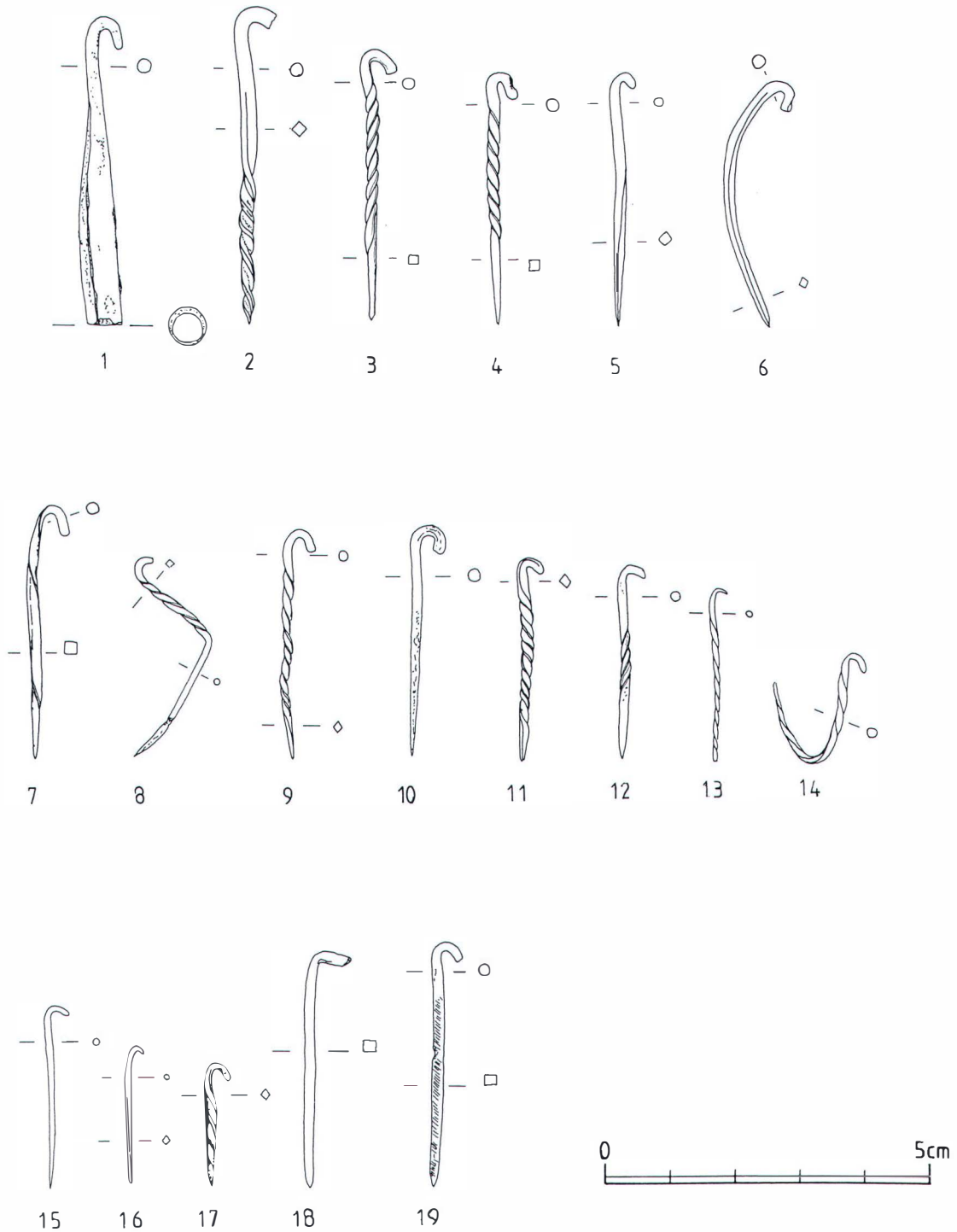


Fig.2 Magdalensberg. Spindelhaken aus Bronze. 1 mit Tülle, 2-17 mit tordiertem Schaft, 18-19 Halbfabrikate. Maßstab 1:1 (Zeichnung: K. Gostenčnik)

Kaiseraugst, Forschungen in Augst 6, Augst

Rutschowskaya, M.-H. 1986, *Catalogue des bois de l'Égypte copte au Musée du Louvre,* Paris

Ryder, M.L. 1997, 'Fleece Types and Iron Age Wool Textiles', *ATN* 25, 13-16

Wächter, A. 1986, 'Untersuchungen von Textilfragmenten vom Magdalensberg', in: H. Vetters, G. Piccottini (Hrsg.), *Die Ausgrabungen auf dem Magdalensberg 1975 bis 1979,* Magdalensberg-Grabungsbericht 15, Klagenfurt, 448-449

Wild, J.P. 1970, *Textile Manufacture in the Northern Roman Provinces*, Cambridge

Kordula Gostenčnik
Rabenstein 12
A - 9473 Lavamünd
Austria

The Stole Attributed to St. Kunibert (d.663)

A fragment of what is purported to be a stole, attributed to St. Kunibert but probably dating from the thirteenth century, was discovered in the high altar of St. Kunibert's church in Cologne, Germany. Although only 3.0cm wide and 6.0cm long, it is of great importance in the history of brocaded tabletwoven bands as it is the only example, other than the 'Hand of God' motif on the tenth-century St. Ulrich maniple, of humanoid figures known to have been done in this technique.

There are certainly humanoid figures known from a variety of medieval bands - mermaids, centaurs, saints - but these have been found to be bands woven in other techniques than tablet weaving, generally in very fine, very complicated warp-faced pick-up. It has become clear that one of the ways of distinguishing brocaded tabletwoven bands from these other woven bands is by the presence, or lack, of humanoid figures.

The fragment of this St. Kunibert stole was woven on approximately seventy tablets, with *c*.20 warp threads per cm. There is one border remaining which appears to have been patterned with small flowers. Each tablet was threaded in all four holes with a now dark, greyish-brown thread, probably silk. The tablets were oriented alternating S-and-Z across the band. The supplemental wefts, again probably silk, are now a light red, sandy yellow and light blue. They have been worked in both soumak wrapping and brocading, the soumak wrapping going over three threads and back under one thread across the pattern.

The figures are distinctly male and female, both facing straight forward and standing side-by-side. They seem to be holding something between them, perhaps a flower, but those threads are too worn to work out the pattern. The man is wearing knee-length clothing, while the woman's clothing is ankle-length. On both figures, the supplemental wefts are quite worn, so the patterns shown are a best-guess effort.

Reference

Ornamenta Ecclesiae: Kunst und Künstler der Romanik in Köln, vol.2, Cologne: Schnütgen Museum, 1985, 79-83.

Nancy Spies
1725 Trotting Court
Jarretsville, MD 21084 USA

snspies@aol.com

Reports

The Roman Textiles from Myos Hormos

Introduction

In most places in the world, textiles, along with other organic materials, are the first to disappear from the archaeological record. But in certain places, the combination of climatic and environmental conditions has allowed organic preservation, leaving an accumulation of the things used and discarded by previous inhabitants. The Eastern desert of Egypt is one of these areas, with the Roman port of Myos Hormos, now known as Quseir-al-Qadim, one of its largest archaeological sites. Here, low rainfall and high salinity has left an

Fig.3 Figures from the Stole of St. Kunibert, 13th century (St. Kunibert's, Cologne) [Copyright N. Spies 1999]

excellent range of textiles from two periods, 1st and 2nd century AD Roman, and 12th-14th century Islamic. The site was first excavated by an American team in the late 70s and early 80s, and the textiles from these seasons were partially published by Gillian Vogelsang-Eastwood in a 1982 interim report (Eastwood 1982), and in a catalogue of the resist dyed textiles (Vogelsang-Eastwood 1990). For the past two seasons, 1999 and 2000, the site has once again been subject to survey and excavation, directed by the University of Southampton, UK, for whom I examine the textiles and basketry. Because of the large quantities of finds at the site, this paper will deal solely with a résumé of the Roman textiles and a brief discussion of the social role of two of the fabric types, twills and textiles with *Clavi*, to which I hope to add another article covering the Islamic textiles at a later date.

The Textiles

The 1999 season produced only one entirely Roman context, though Roman textiles were mixed into many Islamic contexts as a result of Islamic building on top of Roman occupation levels. However, in 2000 a series of sealed Ptolemaic/Roman contexts were excavated. These included thick 1st century rubbish 'sebakh' deposits, as well as a 2nd century building with an associated sebakh, as well as less well sealed deposits in predominantly Islamic trenches. The latter were less well preserved due to both their lower physical context (the relative high water table compromised the preservation of organics in the deeper sections of the trenches), and their probable redeposition. Table 3 breaks down the Roman textile results. 846 pieces were recorded, 291 of which came from one large sebakh context. The overall total broke down into 55% sheep's wool, 9% goat hair, 30% basts and 6% cottons.

Vegetable Fibres

Linens

The rough linens and basts made up 9% of the total textiles found; 202 were 's' spun and 19 were 'z' spun, thus 9% of the basts recorded were 'z' spun. 15 examples of bast webbing were found over the two seasons, 4 with a pink warp stripe. They measure 3-4.5 cm wide, made of a non-felting, 's' spun fibre, and constructed in a variety of basket weaves or plain tabby frequently chevron or diamond patterned, with an overall warp faced appearance. Eastwood refers to these as 'pyjama cord' (Eastwood 1982, 286), and similar examples at Berenike Wild considers to be supportive webbing for sails (Wild 2000, pers. comm.). However, no examples at Myos Hormos suggest that they were sewn to anything else, although one example is sewn into a loop. It appears that these webbing straps were mostly of 2nd century date.

Cottons

The importance of 'z' spun cottons in a Roman assemblage has been outlined by Wild (Wild and Wild 1996; 1998 and 2000 pers. comm.), who suggest that the 'z' spun cottons present at Berenike are sail material from India. As a port with confirmed Indian connections, Indian textiles must have been present at Myos Hormos, and it is very probable that they have survived. Out of 36 pieces of cotton identified, 12 (33%) were 'z' spun. One example QAQ00T0042 has an overturned hem sewn in Sz4 bast. Whilst these are small quantities, it appears that a significant proportion (but not as high a proportion as at Berenike) of the cottons are 'z' spun and thus possibly Indian. QAQ00T0213 is the one example of a Roman blue check pattern in a z/z bast found in 2000. It is of poor quality and poorly preserved. At this stage it is not clear whether it is cotton or bast.

Animal Fibres

29% of the total textiles were ordinary wool tabbies, 's' spun and slightly weft faced in a wide range of qualities, with a few fragments dyed claret, green, red or yellow. The familiar dark brown to purplish black tabbies and basket weaves constructed from s or zs2 goat's hair made up 9% of the total. 14 examples of yellow, lumpy presumably sheep's wool felt were found. Two examples of shaded band tapestry were found, to join the two examples recorded by Eastwood (1982, 284). QAQ00T0149 has fine stripes in dark blue, brown and pink, on a paired 's' spun linen warp. QAQ00T0195 is a long piece of linen tabby with a pattern band in red, dark blue, pale grey/green and yellowy green. The one

exceptional find was QAQ00T0062-63, a double weave of very high quality in red and yellow wool (Fig.4). The piece depicts a four legged animal with wings, a mane and a curled tail, and the remains of what resembles a peacock's feather. The yellow is 's' spun and the red 'z' spun.

Fig.4 A double weave in red and yellow wool from Myos Hormos (QAQ00T0063)

Wool Twills

With 48 examples, twills made up 6% of the textiles found, 37 of which came from one 1st century sebakh deposit, where twills make up 13% of the textiles. Interestingly, both s/s and z/z fabrics had 23 examples each, and just two z/s combinations. There is a great variety of complex twills, including herringbones and repeat diamonds, which will be looked at in greater detail next year. One type, the 'striated' twill, was created from reversing a 2/1 twill after 3, 4 or 5 shots so that it produced a 1/2 twill. The repetition of this over several shots creates tensions within the fabric, giving it the appearance of being slightly ridged. Seven examples of this were found, 2 of which came from trench 5 3024. Another, less distinct type was created from either a 2/2 or a 2/1 twill woven in a thick wool, which is well beaten to create a very weft faced fabric with thick feel. 12 examples of a very even weave 2/2 twill in thick yarn were found; 10 were z/z.

Clavi

I examined the striped fabrics with *Clavi* in conjunction with the plain wool tabbies which I consider to be the background weave to the stripes. These were medium to high quality tabbies, slightly weft faced with a thread count of 13/18 to 20/30 per cm, sometimes veering towards crepe in texture, and mostly 's' spun. The stripes are typically a weft faced band 1 cm - 5 cm wide in claret, turquoise or dark green, but there are striking examples of strawberry pink on brown (QAQ99T0920) and lime green on chocolate brown (QAQ99T0957). 4 examples have decorative endings to the stripes, three with 'corners', and one a warp stripe finished with a 'corner'. The 44 striped fabrics with *clavi* constituted 5% of the textiles, when quantified with the 70 background tabbies. Fabrics with *clavi* totalled 14% of the recorded Roman textiles.

Despite differences in weave qualities caused by variations in local production, *clavi* were standardised to a design target recognised by Roman weavers and wearers. The stripe is weft faced in comparison to the background fabric, creating a denser colour by blocking out the warp. This is achieved either by using a fine wool which beats down closer, or through changing the 1-1 tabby of the background to a basket or twill which again would allow the wool to be beaten down further. Most typically, the basic variant of the tabby, the half basket weave is used (under 2 over 2, repeated, annotated to 2-2), but 2-2-1-1 (under 2, over 2, under 1, over 1, repeated) is also common. About half of the *clavi* also have a 'sub-stripe', that is, a band of about 4 shots on either side of the stripe which is in the background fibre but in the stripe's shed combination - in other words they are more densely woven than the background material but the same colour. Its function is not completely clear, though it adds a slight layer of protection to the denser, raised colour stripe, keeping the edges crisper, and it is also a self stripe which adds decorative value to the fabric.

Clavi and Twills: Cloth With Social Meaning

The combination of these production details creates a set of qualities that make textiles with *clavi* a distinctive type of Roman cloth, one of a range of what Bender Jørgensen describes as Roman 'branded goods' (Bender Jørgensen 1992, 130). The example of *clavi* demonstrates that local weavers worked to design targets set by the greater Roman markets, but within a variety of qualities that matched the diversity of people emulating the power associated with wearing distinctively Roman cloth. For instance there is one example, QAQ00T0245, which with a 1.5 cm brown stripe on a brown background appears to be a *clavus*, but is in fact wool on a bast background. This may or may not be a *clavus* copy; however, it is hard to imagine the weaver was working with no knowledge of what a woollen *clavus* looked like. But the social comprehension of fabric with *clavi* works in a different way to the branded twills discussed by Bender Jørgensen (ibid.), because *clavi* are constructed to be visually striking, whilst on the contrary, twills are only recognised as such by the wearer and others close enough to be able to see the weave construction. Twills require intimacy between people torecognised as high quality, or, put another way, the twill garment displays the wearer's power only to those close enough to share his or her social position. The distinctive design of clavate garments makes them easier to emulate in poorer qualities, allowing the wearer to be easily associated with the other qualities of *clavus* wearers– a situation which may eventually undermine the value of clavate cloth. However, as this analysis has pointed out, some *clavi* also have details such as sub stripes which are only visible under intimate contact, so these garments function as both display items identifying the owner as a *clavus* wearer, and as higher quality garments indicating an individual's purchasing power.

This is just a brief discussion of how textiles can raise insights into past social worlds that can make a great contribution to the archaeological understanding of a culture. The large quantities of textiles that the excavations at Myos Hormos have

	1999	2000	Total	%
Linens	10	233	243	29
Cottons	3	47	50	6
Goat Hair	6	70	76	9
Wools	49	420	469	55
Others	0	8	8	1
	68	**778**	**846**	
Plain Tabby	49	791	740	87
Basket Tabby	10	9	19	2
Tabbies Total	59	800	759	90
Decorated Tabbies				
Clavi	4	42	46	5
Self- Stripes	0	2	2	<1
Stripes	2	11	13	2
Checks	0	1	1	<1
Twills 2/1	1	24	25	3
Twills 2/2	0	24	24	3
Felt	8	14	22	3

Table 3 Summary of Roman Textiles from Myos Hormos

yielded in the past two years bodes well for future seasons. The site will provide opportunities to contribute to the issues raised by nearby excavations such as Mons Claudianus and Berenike concerning textile production, overseas and local trade, garments and interior decoration and the maintenance of a Roman identity in its hinterland.

References

Bender Jørgensen, L. 1992, *Northern European Textiles until AD 1000*, Aarhus.

Eastwood, G. 1982, 'The Textiles' in: D.S. Whitcomb, J.H. Johnson, *Quseir-al-Qadim 1980: Preliminary Report*,. Malibu, 285-326.

Vogelsang-Eastwood, G. 1990, *Resist Dyed Textiles from Quseir-al-Qadim, Egypt*, Paris.

Wild, J.P, F.C. Wild 1996, 'The Textiles' in: S.E. Sidebotham, W.Z. Wendrich (eds), *Berenike 1995, Preliminary Report on the Excavations at Berenike (Egyptian Red Sea Coast) and the Survey of the Eastern Desert*, Leiden, 245-256.

Fiona J.L. Handley
10 Rocliffe Street
Islington
London N1 8DT GB
(e-mail: fjlh@hotmail.com)

Khashm al-Minayh (Didymoi), Saison 2000

Les textiles

Près de 200 fragments de textiles différents ont été mis en fiche et systématiquement photographiés. Parmi les textiles provenant du fort, signalons une oreille de chapeau en feutre non teint, montrant la soudure avec la calotte de ce chapeau dont subsiste également la rondelle qui marquant le sommet et ornée d'inclusions de feutre vert et violet. À noter également des fragments de tuniques ornées de clavi en tapisserie de couleur contrastante, dont l'un, ayant conservé ses deux bandes, fournit une mesure précieuse pour cette catégorie de vêtement. Pour ce qui est des textiles plus fragmentaires, dont importe surtout la technique de fabrication, cette année a livré:

- encore de nombreux fragments de toutes sortes de tissus à nœuds et boucles de techniques et couleurs diverses, qui enrichissent le corpus de Maximianon et Krokodilô (publication prévue dans *Hali*). Plus que le dépotoir, les sondages effectués dans le fort ont livré des tissus d'ameublement épais et présentant des qualités d'isolation grâce aux rangées de boucles et de nœuds les garnissant sur une ou deux faces.

- plusieurs nouveaux fragments de damassés de laine (complétant la publication de 1999 dans le *Bulletin du CIETA* 76) et de taquetés; rappelons qu'il s'agit des deux types de tissages les plus avancés techniquement dans le monde romain de l'époque.

- un nouveau fragment, assez grand, de toile de laine à décor teint après réserve (les précédents ont été publiés dans le *Bulletin du CIETA* 75). Celui-ci se distingue par de très fins contours bleus délimitant un décor à motifs végétaux jaunes et rouge orangé.

Les fouilles à l'intérieur du fort ont continué à livrer des textiles dont la date plus tardive livre des informations sur l'évolution des modes et des techniques. C'est le cas avec plusieurs fragments de toile de laine très fine s'ornant d'un décor de bandes de tapisserie non plus rectangulaires, mais terminées par des pointes triangulaires d'un très beau pourpre, semblable à plusieurs exemples trouvés à Palmyre et Doura-Europos. Le lin semble s'être mieux conservé dans les dépotoirs intérieurs du fort, ce qui a permis de compléter nos connaissances sur les types de textiles fabriqués en lin.

Au total, encore une année riche en découvertes, mais surtout consacrée à l'organisation rationnelle d'une dernière année d'étude de ces textiles en vue de leur publication.

Dominique Cardon,
Le Vert
F-30460 Lasalle

Hero Granger-Taylor,
22 Park Village East
London NW1 7PZ GB

Berenike 2000

The textiles studied during February and March 2000 were recovered almost exclusively from a group of related midden-deposits to the west of the main site tell, rich in organic and artifactual material including ostraca. The associated pottery indicates that deposition had ceased by about AD 70. Some 900 textile fragments were registered, analysed and recorded. (For earlier seasons see *ATN* 18/19, 1994, 15; 20, 1995, 8; 22, 1996, 20-21; 28, 1999, 22.)

While standardisation was the hallmark of these early Roman assemblages, some differences in locus content were observed and will ultimately be explored further. Some were characterised by textile fragments with a probable utilitarian function, in linen, cotton and goat hair, but very little wool. Others presented a more balanced spectrum of cloth types with much more wool. In at least one locus, however, low down in the depositional sequence (so far as it has been explored to date) the rags were almost entirely of Z/Z-spun – presumed Indian – cotton.

Fibres

All yarns which could not be immediately assigned to a fibre type under low-power magnification were examined at higher-power, and usually identified successfully. A dull beige-yellow yarn incorporated in coarse textiles woven from very dark brown and some orange-yellow goat-hair yarns were, after initial hesitation, identified as of goat hair, too. Inefficiently hackled flax was commonly encountered, particularly in the coarser basket weaves (some S/S, some Z/Z spun); it was not obviously shives (the by-product of hackling), but was nonetheless probably what the Romans called *stuppa*. Yarn and fibre degradation was uniform throughout the corpus. Only the brown cotton in the selvedge of 2338 had disintegrated more speedily.

Fabrics

1. Wool fabrics

The largest surviving textile artefact (2048) was an item – not necessarily a garment – composed of three pieces of at least two different tunics with red *clavi*, sewn edge to edge and backed by a disintegrating fine open tabby with dark 'purple' weft and undyed warp, apparently serving as its lining. Measuring 650mm by 410mm, it had evidently reached the end of its recyclable life.

There were six scraps of fine 2/1 twill in strong colours (red, purple, chocolate brown and green), 4 of them S/S, 2 Z/Z-spun. There were a number of Z/Z fine tabbies, too, again dyed, and four in Z/Z half-basket weave; but most tabbies were S/S, except for a few with Z-spun weft.

This season more tabbies were discovered with multicoloured stripes, but the colours, particularly the narrow registers of green and yellow, were hard to define; none amounted to a shaded band. Narrow tapestry-woven bands – mostly of 'purple' or blue yarn – inserted into fine wool fabrics abounded, but were rarely satisfactorily preserved. Warp was regularly grouped in the bands, and shadows of the grouping were visible at the interface with the ground weft. Warp elimination was more commonly practised than warp crossing to achieve the grouping: in one case a few eliminated warp threads still floated on the back of the textile. Other decorative techniques included fine check patterns (two fragments) and pile: a half-basket weave fabric carried tufted pile, and rows of blue weft loops covered a dark blue tabby.

Selvedges on wool cloth were almost invariably reinforced, the weft passing and re-passing between three outer bundles of 4-6 warp threads. Corded transverse borders were noted on seven wool textiles, and there was one simple twisted fringe.

2. Linen

Where a hint of original purpose could be glimpsed among the linen fragments more of them seemed to have belonged to items of utilitarian function than to clothing. Several lengths of webbing in half-basket weave (paired warp) or basket weave measuring 30-35mm wide were recorded; this was the standard width used for sail reinforcing strips, as noted in 1998. Much coarser basket weaves in a yarn described above as tow may have been from strapping or sacking.

Pieces of basket weave with overall decorative ribbing in the weft direction were more eye-catching than the modest pairs of self-bands which were a regular feature of Berenike's linen cloth. One example was highlighted by extra shots of red weft in the sheds opened for the self-bands. Blue check (4 fragments this season) was the only other form of decoration.

Selvedges were plain, with the exception of an example incorporating two reinforcing warp bundles. The one starting border was a simple twined-cord variety, badly preserved. There was also a transverse corded edge, a feature more familiar on wools, and a plain looped fringe.

Fragment BE00 2161 appeared at first glance to be a piece of 'Coptic knitting', a technique so far not found at Berenike. But on closer inspection its structure was seen to be a simpler type of looping.

3. Cotton

Z/Z cottons

Warp-faced cotton fabrics woven from Z-spun yarns and arguably of Indian origin dominated the find assemblage recorded this season. Most were tiny scraps of medium-weight tabby with no distinguishing features; but the expected repertoire of cloth types was extended by some remarkable new finds.

Five pieces from five different heavy cotton fabrics were immediately recognised as remains of carpets - though their role on shipboard and at Berenike was not necessarily as floor-coverings. No 1527 had symmetrical (Ghiordes) knots (At-Tar type A1) on both sides (but not overall); its warp was plied and its weft shots of 6 yarns, and it had a wrapped reinforced selvedge. No 1514 (plied warp, 4 weft yarns in each shed) had pile tufts laid round single warp-threads (At-Tar type C). No 2134 (pairs in both systems) had the asymmetrical (Persian) knot (At-Tar type B1). No 1537 (plied warp, 6-fold weft) had no surviving knots. No 2338 was just a stout wrapped reinforced selvedge including brown cotton yarns in an advanced state of disintegration.

A second surprise was two fragments of 2/1 cotton twill with plied warp and paired weft. The same combination of plied warp and paired weft was recorded in a length of webbing. Other examples of webbing, however, had plied warp, but single weft-threads - in one case with blue cotton pin-stripes close to each selvedge. There was no direct indication this season that the webbing had been sail reinforcement; but one strip of plain tabby with edges folded under had the width (35mm) characteristic of the 1998 finds of unequivocal sail attachments. A couple of detached patches might once have repaired sails, too.

Decorative styles found in previous years recurred in this collection. There were blue checks, both grid checks and more complex tartans, and three pieces of fine cloth bearing rows of tufts, in one case blue on an undyed ground. Self-bands appeared in cotton, too, and a thick ribbed fabric reminiscent of the ribbed linen already mentioned.

Structural features included a transverse border of short loops, preceeded by three shots of weft in bundles. Fringes were composed of longer loops formed from adjacent warp-threads, only one showing any sign of having been locked at its base.

The finest cloth at Berenike normally proved under the microscope to be of cotton. Some fragments were balanced tabby (35-30/30 per cm), others warp-faced (40/20, 60/22 per cm). It was obvious how Indian cottons had earned their reputation in the Roman world.

S/S cottons

While there were only 6-8 fragments of cotton tabby in the early midden layers, it was noticeable that their yarns were consistently, evenly, spun like the linen yarns of Roman Egypt. By contrast the yarns in the Z/Z (Indian) cottons, even in the finest fabrics, varied considerably in diameter.

The source of the S/S cottons is probably local to the Nile Valley; already by the Flavian period the Elder Pliny comments on its cultivation in Egypt, although most of the documentary evidence is later in date.

4. Hair

Straps and containers were woven from dark plied goat-hair yarn, occasionally enlivened with extra stitching in orange-yellow goat-hair thread.

In sum

The focus of interest this season lay undoubtedly with the Indian cottons, particularly the newcomers to the attested repertoire. While fabrics of carpet character occur in the material recovered by Aurel Stein from later Han sites around the Tarim basin, they are not closely dated. Those from Berenike have a fair claim to be the earliest so far known. The wide spectrum of cotton fabric types at Berenike represents not just trade goods in transit to the Mediterranean, but seafaring textiles, sails and sacking, and the everyday garments and furnishings of the port's resident Indian community.

J.P. and F.C. Wild,
30 Princes Road,
Heaton Moor,
Stockport SK4 3NQ GB

Source Materials

Recent Publications

Böhme-Schönberger, A., *Kleidung und Schmuck in Rom und den Provinzen,* Limesmuseum Aalen, 1997

Chenciner, R., *Madder Red: A History of Luxury and Trade*, Curzon Press, London, 2000

Cooke, W.D., C. Christiansen, 'Hva gjør ullduk til seilduk?', *Spor* 15, 2000, 24-26

Cooke, W.D., O. Shamir, 'A Textile from Deir Abu Mghar', in: U. Dahari. *Monastic Settlements in South Sinai in the Byzantine Period. The Archaeological Remains,* IAA Reports 9, Jerusalem, 2000

Croom, A.T., *Roman Clothing and Fashion*, Tempus, Stroud, 2000

Demant, I., 'Die Textilfragmente von Skovgårde' in: P. Ethelberg, *Skovgärde: ein Bestattungsplatz mit reichen Frauengräbern des 3. Jahrhundert n. Chr. auf Seeland,* Nordiske Fortidsminder 19, 2000

Fatah, Ahmed Galal Abdel, 'Une nécropole et un monastère aux portes du Fayoum', *Archéologie (France)* 366, Avril 2000, 62-66

Körber-Grohne, U., A. Feldtkeller, 'Pflanzliche Rohmaterialien und Herstellungstechniken der Gewebe, Netze, Geflechte sowie anderer Produkte aus den neolithischen Siedlungen Hornstaad, Wangen Allensbach und Sipplingen am Bodensee' in: *Siedlungsarchäologie im Alpenvorland* 5, Forsch. Ber. Vor- und Frühgeschichte Baden-Württemberg 68, Stuttgart, 1998, 131-242

Mallory, J.P., V.H. Mair, *The Tarim Mummies*, Thames and Hudson, London, 2000

Maspero, A., 'Reperti tessili e lignei dalle necropoli di Mariano Comese' in: G. Frigerio (ed.), *Storia di Mariano Comense. Dalla preistoria all'alto mediaevo* 1, Soc. Archaeol. Comense, Mariano Comense 1999, 117-121

Postgate, J.N., 'Assyrian Felt', in: P. Negri Scafa, P. Gentile (edd.), *Donum Natalicium: Studi in onore di Claudio Saporetti in occasione del suo 60° compleanno*, Borgia Editore, Rome, 2000, 213-217

Ryder, M.L., 'Probable Fibres from Hemp (*Cannabis sativa* L.) in Bronze Age Scotland', *Environmental Archaeology* 4, 1999, 93-95

Sheffer, A., 'Textiles' in: L.H. Schiffman, J.C. Vanderkam (edd.), *Encyclopedia of the Dead Sea Scrolls* II, Oxford University Press, Oxford, 2000, 938-943

Swift, E., *Regionality in Dress Accessories in the Late Roman West,* Libraire Archéologique, Montagnac, 2000

Windler, R., A. Rast-Eicher, 'Spätmittelalterliche Weberwerkstätten in der Winterthurer Altstadt', *Zeitschrift für Archäologie des Mittelalters* 27/28, 1999/2000, 1-82

Zarina, A., *Apgērbs Latvijā 7.- 17. GS*, Zinātne, 1999

The Classification of Textiles

Karen Finch recommends:

Seiler-Baldinger, A., *A Classification of Textile Techniques,* Crawford House Press, Bathurst, 1994. Distributed in the UK by Pegasus Distribution Ltd, Unit 5B Causeway Park, Wilderspool Causeway, Warrington, Cheshire WA4 6QE.
Introduction by Karen Finch, OBE, D.Litt, FIIC.

A copy of this book with its excellent, informative illustrations was given to me soon after its first publication in Switzerland in 1991. I looked forward to its publication in English, to take its place as an essential companion to John Becker's *Pattern and Loom*, Dorothy Burnham's *Warp and Weft* and Irene Emery's *Primary Structures of Fabrics*. Together these four books provide the means to analyse, understand and describe the construction of any textile, including those with surface decorations.

The translation into English includes a thorough revision and updating, a useful reference section, a very comprehensive bibliography (up to 1990) and an index that really does facilitate search.

Towards a Reading List of Irish Cloth and Clothing

Bender Jørgensen, L., 1992, *Northern European Textiles until AD 1000*, Aarhus University Press, Aarhus

Breathnach, B., 1967, 'The Huguenots and the silk weaving industry in Ireland', *Eire-Ireland*, Winter, 11-18

Buckley, J.J., 1913, 'Irish Lace', *Museum Bulletin* 3, National Museum of Science and Art, Dublin

Campion, M., 1963, 'An old Dublin industry - poplin', *Dublin Historical Record* 19, 2-14

Coffey, G., 1906, 'Two Finds of Late Bronze Age Objects', *Proceedings of the Royal Irish Academy* 26, 119-125, plates 11 and 12 (Cromaghs, Armoy, Co. Antrim textile finds)

Danaher, K., 1977 (1962), *In Ireland Long Ago*, Mercier Press, Cork. ('What did they wear' pp. 72-81)

1984, *That's How it Was*, Mercier Press, Cork. ('The wee blue flower pp. 45-50, 'All the colours of the rainbow' pp. 50-55)

Delaney, Maire, Ragnall O Floinn and Elizabeth Heckett, 1999, 'Bog body from Clongownagh, Baronstown West, County Kildare, Ireland', in Bryony Coles, John Coles, Mogens Schou Jørgensen (edd.), *Bog Bodies, Sacred Sites and Wetland Archaeology*, Exeter, Wetland Archaeology Research Project, 67-68

Dunlevy, M., 1989, *Dress in Ireland*, Batsford, London (republished paperback 1999, Collins Press, Cork)

Earnshaw, P., 1990, *Youghal Lace - the Craft and the Cream*, Gorse Publications, Guildford

Fitzgerald, M., 1997, 'Insular dress in Early Medieval Ireland', *Bulletin of the John Rylands University Library* 79, 3, Autumn, 251-261

Henry, F., 1952, 'A Wooden Hut on Inishkea North, Co. Mayo', *Journal of the Royal Society of Antiquaries of Ireland* 82, 165-176. (site for extraction of dyestuff from *purpura lapillus*)

Hencken, H., 1942, 'Ballinderry Crannog no. 2', *Proceedings of the Royal Irish Academy* 47C, 1-76

Henshall, A., 1950, 'Textiles and Weaving Appliances in Prehistoric Britain', *Proceedings of the Prehistoric Society* 16, 130-163

Henshall, A., W. Seaby, 1961-62, 'The Dungiven Costume', *Ulster Journal of Archaeology* 24 and 25, 119-142

Hodkinson, B., 1987, 'A reappraisal of the archaeological evidence for weaving in Ireland in the Early Christian period', *Ulster Journal of Archaeology* 50, 47-51

Joyce, P.W., 1903, *A Social History of Ancient Ireland*, Longman Green & Co., London (Chapter 22 'Dress and personal adornment', 176-263)

Longfield, Ada, 1929, *Anglo-Irish Trade in the Sixteenth Century*, Routledge, London (chapters on Wool and Linen, Drapery and Haberdashery and Dyes, Drugs and Spices, etc)

Lucas, A.T., 1951, 'The Hooded Cloak in Ireland in the Nineteenth Century', *Journal of the Cork Historical and Archaeological Society,* 56, 1, no 183, Jan.-June, 104-119

1956, 'Footwear and Stockings in Ireland', *Journal of the County Louth Archaeological Society* 13, 4, 367-393

1968, 'Cloth Finishing in Ireland', *Folk Life Journal* 6, 18-67

McClintock, H.F., 1936, '"The Mantle of Brigid" at Bruges', *Journal of the Royal Society of Antiquaries of Ireland* 66, 1, June, 32-40

1950, *Old Irish and Highland Dress*, Dundalgan Press (W. Tempest) Ltd, Dundalk

1958 *Handbook on the Traditional Old Irish Dress*, Dundalgan Press (W. Tempest) Ltd., Dundalk

Mahon, Brid., 1975, *Irish Dress*, Folens, Dublin

1982, 'Traditional Dyestuffs in Ireland' in: A. Gailey, D. O Logain (edd.), *Gold Under the Furze*, Glendale Press, Dublin, 115-28

2000, *Rich & Rare - the Story of Irish Dress*, Mercier Press, Cork

Mitchell, H. Lillias, 1978, *Irish Spinning, Dyeing and Weaving - an anthology from original documents*, Dundalgan Press (W. Tempest) Ltd., Dundalk

1986, *Irish Weaving - Discoveries and Personal Experiences*, Dundalgan Press (W. Tempest) Ltd., Dundalk

Murphy, R., 1972, 'National Museum Acquisitions - Medieval Textiles', *Journal of the Royal Society of the Antiquaries of Ireland* 102, 2, 215-222 (17th century clothing)

Neill, Marie, 1991, 'A Lost Last', *Archaeology Ireland* 5, 2, Summer, 4-15 (Early medieval Irish shoes)

O'Brien, R., 1993, *A Study of Irish Perforated/Unperforated Stone Discs*, MA thesis (unpublished) University College Cork, National University of Ireland (Early medieval spindle whorls)

O'Connor, E.C., 1973, *Irish Lace Making*, Dryad Press, Leicester

O Danachair, C., 1967, 'The Dress of the Irish', *Eire-Ireland* 2-3, 9-10

O'Dowd, A., 1990, *Common Clothes and Clothing 1860-1930*, National Museum of Ireland, Dublin

O Floinn, Ragnall, 1987-1991, 'A prehistoric bog burial at Baronstown West', *Journal of the County Kildare Archaeological Society and Surrounding Districts* 17, 148-50

1995, 'Recent research into Irish bog bodies' in: R.C. Turner, R.G. Scaife (edd.), *Bog Bodies - new Discoveries and new Perspectives*, British Museum Press, London, 137-45 (p. 143 list of cloth and clothing found)

O'Kelly, M.J., 1958, 'Church Island near Valencia, Co. Kerry', *Proceedings of the Royal Irish Academy* 59C, 2, 57-136 (Early medieval textile)

Pritchard, F., 1988, 'Silk braids and textiles of the Viking Age from Dublin' in: L. Bender Jørgensen, B. Magnus, E. Munksgaard (edd.) *Archaeological Textiles,* NESAT II, Arkaeologisk Institut, Københavns Universitet, Copenhagen, 149-161

1992, 'Aspects of the wool textiles from Viking Age Dublin' in: L. Bender Jørgensen, E. Munksgaard (edd.), *Archaeological Textiles in Northern Europe,* NESAT IV, Tidens Tand 5, Konservatorskolen, det Kongelige Danske Kunstakademi, Copenhagen, 93-104

Raftery, B., 1981, 'Iron Age Burials in Ireland' in: D. O Corrain (ed.), *Irish Antiquity*, Tower Books of Cork, Cork, 173-204 (reference to cloth remains)

Reynolds, M., (no date given), *Some Irish Fashions and Fabrics c.1775-1928*, National Museum of Ireland, Dublin

Ryder, M.L., 1969, 'The sheep and wool of Ireland', *Journal of Bradford Textile Society* 1968-9, 89-98

Shee, E., M.J. O'Kelly, 1966 , 'A Clothed Burial from Emlagh, near Dingle, Co. Kerry', *Journal of the Cork Historical and Archaeological Society* 81, 81-91

Start, L., 1950, 'The Textiles' in: H. Hencken, *Lagore Crannog: An Irish Royal Residence of the 7th to 10th Centuries A.D,* Proceedings of the Royal Irish Academy 53C, 203-224

Shaw Smith, D., 1986, *Ireland's Traditional Crafts*, Thames & Hudson, London. (chapter on textiles 14-46, leather 148-67, 'pampooties and shoes' 156-9)

Sweetman, P.D., 1979, 'Archaeological excavations at Ferns Castle, Co. Wexford' *Proceedings of the Royal Irish Academy* 79C, 217-241 (p. 239 2 pieces 13th century silk)

Walker, J.C., 1788, *An Historical Essay of the Dress of the Irish*, Dublin

Wilde, W.R., 1861, *A Descriptive Catalogue of the Antiquities of Animal Material and Bronze in the Museum of the Royal Irish Academy*, Hodges, Smith & Co., Dublin (clothes and textiles pp.275-331)

Wincott Heckett, E., 1985 'The Textiles' in: M. Hurley 'Excavations of part of the medieval city wall at Grand Parade, Cork', *Journal of the Cork Historical and Archaeological Society* 90, 83-7

1986, *A Group of Hiberno-Norse Silk and Wool Headcoverings from Fishamble Street/St. John's Lane, Dublin*, MA thesis, National University of Ireland (unpublished)

1987, 'Some Hiberno-Norse Headcoverings from Fishamble Street and St. John's Lane, Dublin', *Textile History* 18(2), 159-74

1990, 'The Textiles' in: M. Hurley, 'Excavations at Grand Parade Cork II', *Journal of the Cork Historical and Archaeological Society* 95, 254, 81-6

1990, 'Some Silk and Wool Headcoverings from Viking Dublin; uses and origins - an enquiry' in: P.Walton, J.P. Wild (edd.), *Textiles in Northern Archaeology*, NESAT III, York, 1987, London, 85-96

1991, 'Textiles in Archaeology', *Archaeology Ireland* 5, 2, 11-13

1992, 'An Irish 'Shaggy Pile' Fabric of the 16th Century - an Insular Survival?' in L. Bender Jørgensen, E. Munksgaard (edd.), *Archaeological Textiles in Northern Europe*, NESAT IV, Copenhagen, 1990, Tidens Tand 5, Konservatorskolen, det Kongelige Danske Kunstakademi, Copenhagen, 158-168

1994, 'Medieval Textiles from Waterford City' in: G. Jaacks, K. Tidow (edd.), *Archaologische Textilfunde - Textilsymposium Neumunster*, NESAT V, Neumunster, 1993, Neumunster, 148-156

1995, 'Clothing the Dry Bones:what people wore in the past', *Archaeology Ireland* 9, 2, 27-28

1997, 'Textiles, Cordage, Basketry and Raw Fibre' in: M. Hurley, O. Scully with S. McCutcheon (edd.), *Late Viking Age and Medieval Waterford Excavations 1986-1992*, Waterford Corporation: Waterford, 743-760

1997, 'Textiles' in: C. Walsh, *Archaeological Excavations at Patrick, Nicholas and Winetavern Streets, Dublin*, Brandon Book Publishers Ltd., Dingle, 179-181

1998, 'Archaeological Textiles from 13th-14th century Irish towns' in M. Dewilde, A. Ervynck, A. Wielemans (edd.), *Ypres and the Medieval Cloth Industry in Flanders*, Instituut voor het Archeologisch Patrimonium, Asse-Zellik, 197-206. (proceedings of *A Good Yarn! Archaeological and historical research into the medieval cloth industry in Flanders* conference, Ypres, 1996)

1998, 'A Horsehair Woven Band from County Antrim, Ireland: Clues to the Past from a Later Bronze Age Masterwork' in: *Creating Textiles: Makers, Methods, Markets*, Proceedings of the Sixth Biennial Symposium of the Textile Society of America, Inc., Textile Society of America, Inc., New York, 150-157

1998, 'A Late Bronze Age Hoard from Cromaghs, Co. Antrim', in: L. Bender Jørgensen, C. Rinaldo (edd.), *Textiles in European Archaeology*, NESAT VI, Boras, Sweden, 1996, Göteborg University, Department of Archaeology, Göteborg, 29-37

Post-excavation reports for directors of excavations (unpublished)

'Textiles from James Street, Drogheda, Co Louth' for K. Campbell , Drogheda, 1986

'The Textiles', Excavations at Deer Park Farms, Co. Antrim, for C. Lynn, Belfast, 1989

'The Textiles', Excavations at Dublin Castle for A. Lynch and C. Manning, Dublin, 1990

'Two Metal Thread Bands from Clogh Oughter Castle, Co Cavan' for C. Manning, Office of Public Works, Dublin 1990

'Perforated Stone Disc, Lisleagh 1, Co Cork' for M. Monk, Dept of Archaeology, University College Cork, 1991

'Textile from Killelton Church, Co Kerry' for C. Manning, Office of Public Works, Dublin, 1991

'Textile from 23/27 Stephen St, Dublin' for R. Meenan, Dublin, 1993

'The Textiles from Back Lane, Dublin' for C. Walsh, Dublin, 1995

'The Textiles from Arran Quay, Dublin' for A. Hayden, Dublin, 1995

'Two Textiles from St Audoen's Church, Dublin' for M. McMahon, Dublin, 1997

'The Textiles from Bridge Street Upper, Dublin' for C. Walsh, Dublin, 1998

'Late Sixteenth/Early Seventeenth Century clothes and cloth from Kilcoe Castle, Co. Cork' for Jeremy Irons, Kilcoe Castle, 1999

'Textiles from Christchurch Place, Dublin' for C. Walsh, Dublin, 1999

'Gold metal threads from Temple Bar West, Dublin 1996-8' for L. Simpson, Dublin, 2000

Wincott Heckett E., R. Janaway, 1997, 'The Textiles, Animal Hair and Yarn' in: R. Cleary, M. Hurley, E. Shee Twohig (edd.), *Excavations by D.C. Twohig At Skiddy's Castle and Christ Church, Cork 1974-77*, Department of Archaeology, UCC and Cork Corporation, Cork, 340-348

Wincott Heckett E., C.V. Teehan, 1991, *The Honan collection, University College Cork- an inventory* (report and inventory of altar plate, fixtures and fittings, manuscripts, books, vestments and altar linen prepared voluntarily for Trustees of the Honan Chapel (founded 1916 with complete collection of Irish Arts and Crafts Movement artefacts))

1995, *Treasures from the Honan Chapel*, Cork Public Museum, Cork. (exhibition catalogue)

Elizabeth Wincott Heckett
Department of Archaeology
University College Cork

Nile Valley and Related Textiles: a Questionnaire

In spring 2000 the authors circulated a questionnaire on textiles from the Nile Valley, related textiles and related disciplines to about 50 people. The aim was to find out about projects concerning textiles, excavations and exhibitions and to compile a bibliography on these topics.

The following lists are compiled from the replies received and are not intended to be complete.

1. Projects concerning textiles from the Nile Valley and related textiles

a. current

Alisa Baginski (Jerusalem):
- Publication of the research on ancient textiles discovered in Israel

Dominique Bénazeth (Paris):
- Exposition at Nantes in 2001
- Restoration of textiles in the Louvre

Antoine De Moor (Scheldewindeke):
- 14C dating of different Coptic textiles e.g. woollen tunics

Cäcilia Fluck (Süderlügum):
- Catalogue of the textiles in the Museum für Byzantinische Kunst Berlin, volume 2-3 (together with P. Linscheid & K.Mälck)
- Rag-dolls from Egypt
- Textiles with Coptic inscriptions
- Publication of textiles from a private collection

Nobuko Kajitani (New York):
- Organization of the Late Antique textile collection of the Metropolitan Museum of Art, New York (1400 pieces)

Lucia Langener (Gronau):
- Publication of the textiles from Höxter/Brenkhausen

Petra Linscheid (Kusadasi):
- Late Antique to Early Islamic headcoverings in the Near East (PhD)
- Catalogue of the textiles in the Museum für Byzantinische Kunst Berlin, Volume 2-3 (together with C. Fluck & K. Mälck)
- Early Byzantine textiles from the excavations at Amorium (Turkey)

Kathrin Mälck (Berlin):
- Technical analysis for the catalogue of the textiles in the Museum für Byzantinische Kunst Berlin

Ulla Mannering (Kopenhagen):
- Garments from Mons Claudianus (as part of the Mons Claudianus textile project)

Susanne Merz (München):
- Researches on the iconography of Coptic textiles

Maria Mossakowska-Gaubert (Kairo):
- Dictionary concerning textiles mentioned in the "Periplus Maris Erythraei"

Claudia Nauerth (Greifswald):
- Koptische Stoffe, Katalog der Staatlichen Sammlung Ägyptischer Kunst (manuscript completed)
- Koptische Stoffe, Katalog des Württembergischen Landesmuseums Stuttgart
- Kairo, Koptisches Museum, Catalogue général, Textiles

Karel Otavsky (Riggisberg):
- Bestandskatalog der mittelalterlichen Textilien der Abegg-Stiftung, Band 2

Marguerite Rassart-Debergh (Brüssel):
- Publications of textiles from private collections

Dorothee Renner-Volbach (Mainz):
- Die sogenannten koptischen Textilien im Museum Andreasstift der Stadt Worms (manuscript completed)

Marie Schoefer (Lyon):
- Restauration des textiles de la collection du Musée des Tissus de Lyon (Moyen-Age - Europe)

Regula Schorta (Riggisberg):
- Apart from the schedule/plans of the Abegg-Stiftung concentration on European and Central Asian Medieval woven fabrics

Sabine Schrenk (Köln):
- Bestandskatalog der spätantik-frühislamischen Textilien der Abegg-Stiftung, Riggisberg

Thelma K. Thomas (Ann Arbor)
- "The fabric of everyday life: Textiles from Karanis, Egypt" (exhibition in the Kelsey museum of Archaeology, from fall 2000)

Katarzyna Urbaniak-Walszak (Warschau):
- The Christian art in Egypt. Studies and conservation of objects of Coptic Art in the National Museum of Warszawa

Gillian Vogelsang-Eastwood (Leiden):
- Textiles from Tutankhamun
- Textiles from Quseir al Qadim (Roman and Mamluk)
- Iranian urban and regional dress

John Peter Wild (Manchester):
- Vindolanda Textile Project
- Berenike Textile Project

b. planned

Dominique Bénazeth (Paris):
- Restoration of textiles in the Louvre (continuation)

Antoine De Moor (Scheldewindeke):
- Relation between dating and technical aspects of tunics

Cäcilia Fluck (Süderlügum):
- Noppendecken aus Baumwolle und ihre Symbolik (zusammen mit K. Mälck)

Nobuko Kajitani (New York):
- Research concerning the excavated textiles of the Kharga Oasis, Egypt, ca. 3-4th c.

Kathrin Mälck (Berlin):
- (siehe unter C. Fluck)

Ulla Mannering (Kopenhagen):
- New light on Scandinavian dress based on iconographic material from the late Iron age

Maria Mossakowska-Gaubert (Kairo):
- Origins of monastic habit in Egypt

Marguerite Rassart-Debergh (Brüssel):
- Publications of textiles from private collections (continuation)
- New publication of the mummy in Brussels
- Publication of certain textiles from Colmar recently restored

Dorothee Renner-Volbach (Mainz):
- Ein Rosenstrauch für Glück und Leben, in Festschrift H. Harrauer (forthcoming)

Marie Schoefer (Lyon):
- Restauration des textiles de la collection du Musée des tissus de Lyon (Moyen-Age - Europe)

Regula Schorta (Riggisberg):
- Apart from the schedule/plans of the Abegg-Stiftung concentration on European and Central Asian Medieval woven fabrics

Sabine Schrenk (Köln):
- Die Registerbehänge. Eine Gruppe spätantiker Wandbehänge aus Ägypten
- Architekturdarstellung auf spätantiken Textilien

Thelma K. Thomas (Ann Arbor):
- A series of exhibitions at the Kelsey Museum (see under 3. exhibitions)

Katarzyna Urbaniak-Walszak (Warschau):
- The Christian art in Egypt (continuation)

John Peter Wild (Manchester):
- Publication of Vindolanda and Berenike projects

2. Excavations with textile-finds (last 10 years and forthcoming)

Abu-Sha'ar, Egypt
Akoris, Egypt
Amarna, Egypt
Antinoopolis, Egypt
Berenike, Egypt
Douch, Egypt
Fag-el-Gamous, Egypt
Forts on Koptos-Quseir Road, Egypt
Mons Claudianus, Egypt
Mons Porphyrites, Egypt
Naqlun, Deir el Malak, Egypt
Quseir al-Qadim, Egypt
Fouilles en Haute Egypte faites avec le CNRS et Dominique Cardon, 1999-2000
Haithabu, Germany
Vindolanda, Great Britain
Avdat, Israel
Cave of Letters, Israel
Jazirat Fara'un, Israel
Masada, Israel
Nahal Omer, Israel
Qarantal, Israel
Timna Nahal Amram, Israel
Qasr Ibrim, Sudan
Palmyra, Syria
Amorium, Turkey

3. Exhibitions with textiles from the Nile Valley

a. current

Belgium, Tongeren: Kaisers van de Nijl, 1999
Czech, Prag, Prag Castle and Museum of Decorative Arts: Treasures of Egypt. Textiles from the Czech and Moravian Collections (supposed to run until August 27, 2000, ca. 300 objects)
France, Paris / Agde: L'art copte en Egypte, 2000-2001
Netherlands, Leiden: Tutankhamun's Wardrobe, summer 2000

b. planned

Austria, Vienna, Museum für Angewandte Kunst (2001)
France, Nantes, Musée Th. Dobrée (2001)
Poland, Warsaw, National Museum (2003 or 2004)
USA, New York, MMA: Early Christian period textiles (from November 2000)
USA, Ann Arbor, Kelsey Museum of Archaeology: A series of exhibitions are forthcoming such as: "The Fabric of Everyday Life: Textiles from Karanis, Egypt" (fall 2000), three of these exhibitions are archived online (under construction, see: http://www.umich.edu/~kelseydb/Exhibits/Big_Textile/EXPERIMENT.html")

4. Bibliography "Textiles from the Nile Valley and Related Textiles" since 1996

Baginski, A., O. Shamir, 'The Earliest Ikat', *Hali* 95, 1997, 86-87
- , O. Shamir, 'Textiles, Basketry and Cordage from Jazirat Fara'un (Coral Island)', *Atiqot* 36, 1998, 39-92
- , O. Shamir, 'Research of Ancient Textiles Discovered in Israel', *Qadmoniot* 31.1 (115), 1998, 53-62 (Hebrew)

- , Cottier-Angeli, 'The Textiles from Nahal Amram', in: B. Rotenberg and C.T. Shaw (edd.), *Research in the 'Arabah* Vol.III. *The Ancient Mines and Smelters of the Western Arabah* Part II, London, 1998 (in press)

Bénazeth, D., *Guide du visiteur, Louvre, les Antiquités égyptiennes* II, Paris, 1997

- 'Les textiles retrouvés à Antinoé. Aspects techniques', in: *Antinoe cent'anni dopo. Catalogo della mostra Firenze Palazzo Medici Riccardi (10.07.-01.11.1998)*, Florence, 1998, 161-162
- several articles and catalogue entries in: *L'art copte en Egypte. 2000 ans de christianisme, Exposition présentée à l' Institut du monde arabe, Paris (15.05.-03.09.2000) et au Musée de l'Ephèbe au Cap d'Agde (30.09.2000-07.01.2001)*, Institut du Monde Arabe, Paris, 2000
- *Etudes coptes V. Cahiers de la Bibliothèque copte* 10, Paris-Louvain, 1999, 107-112
- in: *Actes du colloque du Musée de l'Ermitage (30.09.1999)*, St. Petersburg, 1999, 8-10

Calament, F., 'Le "suaire" de Colluthus ressuscité', *Bulletin des Musées Royaux d'Art et d'Histoire de Bruxelles* 67, 1996, 37-56

- 'Autour du mobilier de Myrithis au Musée de l'Homme', *Etudes coptes* 6, 2000. 29-36 (communication à la 8e Journée d'Etudes coptes de l'AFC, Colmar 29.05.1997)
- 'Antinoé revisitée, portrait d'un archéologue de circonstances', *Les Dossiers d'Archéologie* 226, Septembre 1997, 60-67
- 'Antinoé dans les collections', *Guide du Visiteur du Louvre, les Antiquités égyptiennes* II (Egypte romaine, art funéraire, Antiquités coptes), Paris 1997, 17-23
- 'Croyances phytoreligieuses de l'Egypte ancienne', *Orientalia Monspeliensia* 10, 1998, 81-291
- rédaction de notices de catalogue in: Antinoé. *Cent'anni dopo, Palazzo Medici Riccardi de Florence (10.07.-01.11.1998)*
- rédaction de notices de catalogue in: *Egyptes ... l'Egyptien et le copte, Musée archéologique Henri-Prades de Lattes (29.06.-30.10.1999)*
- rédaction de notices de catalogue in: *L'art copte en Egypte, 2000 ans de christianisme*, Institut du Monde arabe à Paris, (15.05.-03.09.2000)
- Le monastère et la nécropole de Baouit, *MIFAO* 111, 1999 (collaboration à l'index copte)
- 'Jonchées funéraires et offrandes végétales dans l'Egypte tardive', *Encyclopédie religieuse de l'Univers végétal* (ERUV T.I)
- *Les stèles funéraires coptes*, feuillet pédagogique pour les salles du musée du Louvre

De Moor, A., 'La datation des textiles coptes', in: M. Bruwier (ed.), *Egyptiennes. Etoffes coptes du Nil.* Musée Royal de Mariemont, 25.04.-28.09.1997, Morlanwelz, Mariemont, 1997, 107-109 (and several catalogue entries)

- , S. Daemen, D. De Jonghe, B. Overlaet, M. Rassart-Debergh, *Ancient tapestries of the R. Pfister collection in the Vatican Library*. Biblioteca Apostolica Vaticana, Città del Vaticano, 1999

Fluck, C., 'Koptische Textilien mit Inschriften in Berlin, Teil 1', *Bullétin de la Société d'Archéologie Copte* 35, 1996, 161-172

- , E. Haustein-Bartsch, M. von Falck, *Ikonen-Museum Recklinghausen. Die Koptische Sammlung, Führer durch die Ausstellung,* München, 1996
- Die Textilsammlung des Museums für Spätantike und Byzantinische Kunst in Berlin', *Textilforum* 3/96, 48-49
- Rezension: A. Stauffer, Spätantike und koptische Textilien, *Bonner Jahrbücher* 196, 1996, 880-885
- 'Koptische Textilien. Forschungsprojekt in Berlin', *Restauro*, 103. Jahrgang Januar/Februar 1997, 8
- 'Koptische Textilien mit Inschriften in Berlin - Teil II', *Bullétin de la Société d'Archéologie Copte* 36, 1997, 59-70
- 'Eine koptische Puppentunika', in: S. Emmel, M. Krause, G. Richter, S. Schaten (edd.), *Ägypten und Nubien in spätantiker und christlicher Zeit. Akten des 6. Internationalen Koptologenkongresses Münster, 20.-26. Juli 1996,* Band 1, Wiesbaden, 1999, 135-146
- , P. Linscheid, S. Merz, *Textilien aus Ägypten - Textilien aus dem Vorbesitz von Theodor Graf, Carl Schmidt und dem Ägyptischen Museum Berlin. Staatliche Museen zu Berlin - Preußischer Kulturbesitz, Skulpturensammlung und Museum für Byzantinische Kunst Bestandskataloge,* Band 1, Wiesbaden,

2000
- in: *L'Art Copte en Egypte. 2000 ans de christianisme. Exposition présentée à l'Institut du monde arabe*, .Paris, 2000, 161
- in: *Pietro et Paolo. La storia, il culto, la memoria nei primi secoli*, Roma, Palazzo della Cancelleria, 30 giugno - 10 dicembre 2000, Mailand, 215-216 Nr. 68
- 'Knüpfen', in: *HOOPS, Reallexikon der germanischen Altertumskunde,* Band 17, 2000
- 'Spätantike, koptische und frühislamzeitliche Textilien', in: M. von Falck, C. Fluck, E. Schwinzer, *Griechisch-römisches und spätantik-koptisches Ägypten. Ein Auswahlkatalog des Gustav-Lübcke-Museums Hamm*, forthcoming 2000

Hoskins, N. A., 'Sumptuous Samitum', *Weavers Issue* 30, 1995, 38-41
- 'Technology and Tapestry in the Coptic Period', *International Tapestry Journal* 1996, 8-9
- 'The Influence of Pattern Weaving on Coptic Tapestries', *International Tapestry Journal* 1997, 17-19
- 'Oregon Flax and Linen', *Handwoven* 1997, (March/April) 63-65, 79-81
- 'Tissu Collé. Collage with Coptic Cloth', *International Tapestry Journal* 1.3, 1998, 5-7
- 'Linen Bands from Tutankhamun's Tunic', *Weaver's Fall* 1998, 30-33
- in: *Antinoé. Cent anni dopo. Catalogo della mostra Firenze*, 167-171, 231-232
- 'Coptic Curiosities', *Archaeology*, (march/april) 2000, 80
- *The Coptic Tapestry Albums and the Archeologist of Antinoé, Albert Gayet* (unpublished manuscript)

Linscheid, P., 'Kapuzen im spätantiken und koptischen Ägypten', in: S. Emmel, M. Krause, G. Richter, S. Schaten (edd.), *Ägypten und Nubien in spätantiker und christlicher Zeit. Akten des 6. Internationalen Koptologenkongresses Münster, 20.-26. Juli 1996*, Band 1, Wiesbaden, 1999, 238-248
- , S. Merz, C. Fluck, *Textilien aus Ägypten* (see under Fluck, C.)

Mannering, U., 'The Textiles from Nørre Sandgård Vest', in: L. Jørgensen, A. Nørgård Jørgensen, *Nørre Sandegård Vest. A Cemetery from the 6th-8th Centuries on Bornholm. Nordiske Fortidsminder, Serie B*, 14, København, 1997, 118-140
- 'The textiles from Nørre Sandgård Vest', in: L. Bender Jørgensen, C. Rinaldo (edd.), *Textiles in European Archaeology. Report from the 6th NESAT Symposium. GOTARC Serie A*, 1, Göteborg, 1998, 107-114
- , E. Peacock, 'A Note on Mineral-preserved Textiles from the Cemetery at Nørre Sandegård Vest, Bornholm, Denmark', *ATN* 26, 1998, 8-13
- 'Sidste skrig', *Skalk* 1999/4, Højbjerg, 1999, 20-27
- 'Garments from Mons Claudianus', in: D. Cardon, M. Feugere (edd.), *Archéologie des textiles des origines au Ve. s. de notre ère*, (report from a symposium held in Lattes, October 1999) (in press, *Instrumentum* monograph forthcoming)
- 'The Roman Tradition of Weaving and Sewing: A Guide to Function?', *ATN* 30, 2000, 10-16

Merz, S., C. Fluck, P. Linscheid, *Textilien aus Ägypten* (see under Fluck, C.)

Mossakowska-Gaubert, M., 'Maphorion dans l'habit monastique en Egypte', in: *Table ronde, Lyon (31.05.1996), Aspects de l'artisanat du textile dans le Monde Méditerranéen*,vol. 2, Lyon, 1996, 27-37
- 'Tissus', in: *Les empereurs du Nil, Catalogue d'exposition*, Louvain, 1999

Nauerth, C., 'Fortuna Christiana. Spätantike Glücksbringer aus Ägyypten', *DBAT* 29, 1998, 235-241
- 'Dionysos in Coptic Art', in: *Catalogue "Dionysos and His Retinue in the Art of Eretz-Israel"*, Haifa, 1998, 40-46

Otavsky, K., 'Remarques techniques des tissus égyptiens, perses et ibériques de la Fondation Abegg', *Riggisberger Berichte* 5, 1997, 147-156
- (ed.) *Entlang der Seidenstraβe. Frühmittelalterliche Kunst zwischen Persien und China in der Abegg-Stiftung, Riggisberger Berichte* 6, 1998
- 'Stoffe von der Seidenstraβe: Eine neue Sammlungsgruppe in der Abegg-Stiftung', *ibid.* 13-41
- 'Zur kunsthistorischen Einordnung der Stoffe', *ibid.* 119-214
- 'Mittelalterliche Textilkunst von Europa bis China', in: *Seidene Kostbarkeiten. Sonderausstellung der Abegg-Stiftung*, Riggisberg, 1999

Overlaet, B., S. Daemen, D. De Jonghe, A. De Moor, M. Rassart-Debergh, *Ancient Tapestries of the R. Pfister Collection in the Vatican Library. Biblioteca Apostolica Vaticana,* Città del Vaticano, 1999

Rassart-Debergh, M. *et al.*, *Textiles d'Egypte en Haute-Alsace. Donation E. Guimet* (avec une préface de Jean Leclant, Colmar), Muséum d'Histoire Naturelle, Colmar 1997
- 'Découverte des arts tardif et copte', 'L'art textile copte: iconographie', in: M. Bruwier (ed.), *Egyptiennes. Etoffes coptes du Nil, Musée Royal de Mariemont, 25.04.-28.09.1997*, Morlanwelz, Mariemont, 1997, 39-48, 65-80 and several catalogue entries
- , S. Daemen, D. de Jonghe, A. de Moor, B. Overlaet, *Ancient Tapestries of the R. Pfister Collection. The Vatican Library*, Cité du Vatican, 1999
- *Palette égyptienne. De la peinture romaine au décor des monastères coptes. Autour de l'exposition du CIAM à l'Abbaye de Saint-Savin du 29.05.-01.11.1998, avec la collaboration de Cl. Coupry et N. Thierry*, Ath, 1998. *Solidarité-Orient Bulletin* 206, 207
- 'Tejido copto', 'Epoca copta', 'El arte tardio cristiano', in: M. L. Mangado Alonso (ed.), *La tierra del toro Apis: Dioses, Reyes y hombres del Egitto* (Pamplona, 04.07.-21.09.1997, Palacio Almudi de Murcia, 10/11.1997, Barcelona 11.1997), 53-55, 68-92
- in: M. L. Mangado Alonso (ed.), *De Egipto a Etiopia, Magia y Poder, La Caja de Canarias, 29.02.-04.2000*, Les Canaries, 2000
- *El alba del Monaquismo, Ayuntamiento de Pamplona, 11.04.-03.05.2000*, Pamplona 2000

Schorta, R., 'Technische Aspekte gewebter Inschriften', *Riggisberger Berichte* 5, 1997, 139-143
- 'Zur Entwicklung der Lampastechnik', *ibid.*, 173-180
- 'Beobachtungen zu frühmittelalterlichen Webtechniken anhand von zehn Seidenstoffen der Abegg-Stiftung', *Riggisberger Berichte* 6, 1998, 43-94
- Catalogue entries in: R. Baumstark (ed.), *Rom & Byzanz. Schatzkammerstücke aus bayerischen Sammlungen*, München, 1998

Schrenk, S., 'Spätrömisch-frühislamische Textilien aus Ägypten', in: M. Krause (ed.), *Ägypten in spätantik-christlicher Zeit*, Wiesbaden, 1998, 339-379
- , *et al.*, 'Spätantik-frühislamische Textilien der Studiensammlung des F. J. Dölger-Instituts', *JbAC* 42, 1999, 72-115
- 'Textilien - Malerei. Sind Parallelen zwischen verschiedenen Gattungen auswertbar?', *Kolloquium zur Byzantinischen Malerei in Marburg 1997* (in press)
- 'Silks from Antinoopolis', *Textile Art between Persia and China in the Early Middle Ages, Riggisberger Berichte* 8, (in press)
- 'Die spätantike Seide in der Schatzkammer des Kölner Doms', *Kölner Domblatt*, 2000 (in press)

Thomas, Th. K., 'Costume, Fashion and Taste in Late Antique Egypt', *"Decorative Devices" from the Textile Collection in the Kelsey Museum, Bulletin of the University of Michigan Museums of Art and Archaeology* 12, 1997-2000, 88-101
- 'The Medium Matters', in: *Reading the Remains of a Late Antique Textile. Reading Medieval Images - The Art Historian and the Object. Essays in Honor of Ilene H.Forsyth,* (forthcoming, 2000)

Urbaniak-Walszak, K., 'Eine kleine Gruppe von koptischen Textilien in der Sammlung des Nationalmuseums in Warszawa', *Bulletin du Musée de Varsovie* 38, 1997, 43-45
- *The Christian Art in Egypt. Studies and Conservation of Objects of Coptic Art in the National Museum in Warszawa*, Warszawa, 1998 (folder)
- 'Koptische Stoffe aus der Sammlung des Nationalmuseums in Warszawa, Geschichte der Sammlung', in: S. Emmel, M. Krause, G. Richter, S. Schaten (edd.), *Ägypten und Nubien in spätantiker und christlicher Zeit* ... Band 1, Wiesbaden, 1999, 401-410

Wild, J.P., F.C. Wild, 'The Textiles', in: S.E. Sidebotham, W.Z. Wendrich (edd.), *Berenike 1996: Report of the Excavations at Berenike (Egyptian Red Sea Coast) and the Survey of the Eastern Desert*, CNWS Leiden, 1998, 221-236
- , F.C.Wild, 'The Textiles', in: S.E.Sidebotham, W.Z. Wendrich (edd.), *Berenike 1998: Report of the Excavations at Berenike (Egyptian Red Sea Coast) and the Survey of the Eastern Desert,* CNWS Leiden, (forthcoming 2000)

Cäcilia Fluck
Süderweg 13
25923 Süderlügum, Germany.

Sabine Schrenk
Wabernstr. 92
3007 Bern, Switzerland

Review

DHA 19 in Edinburgh

The 19th meeting on Dyes in History and Archaeology (DHA) was held in the National Museums of Scotland, Edinburgh, on 19-20 October 2000. The meeting was ably hosted by Dr Anita Quye, Ester Ferreira and Su Grierson.

The meeting was opened with tributes to Dr Helmut Schweppe, one of the pioneers of modern research on natural dyes, who died recently. The proceedings of the meeting will be dedicated to his memory.

An enthusiastic audience heard papers from people from upwards of a dozen countries. There was the usual balanced mix of history, ethnography and chemistry. Jenny Balfour-Paul's update on indigo was followed by Gundula Voss's chemistry of soluble indigotins and Alan Dronsfield describing pre-Perkin synthetic routes to purple. The use of natural dyes in old textiles was illustrated by Anita Quye and co-workers' look at dyes in the Scottish tartan trade of 200 years ago, dyes on Romanian religious embroideries (Jan Wouters and Irina Petroviscou), colourants on a 17th century Russian portrait (Olga Lantrova), on Royal Inca garments (Elena Phipps), on Palmyra textiles (Harald Böhmer) and on Khirbat Qazone textiles at the British Museum (John Fields). The history of natural dyes attracted some attention: historical aspects of madder (Dominique Cardon and Claude Andary), the disappearance of real purple in the early middle ages (Hero Granger-Taylor), old apothecary price lists as a source of information (Christoph Krekel) and the history of 'pinke' (actually yellow!) (Jo Kirby). New technology was illustrated by Yasuda Noda and co-workers on reflectance spectroscopy and Peggy Fredrickx on transmission electron microscopy (TEM) in analysing inorganic colourants in medieval stained glass and parchment. And more, but space is limited. An excellent meeting. DHA 20 will be held in Amsterdam.

G.W. Taylor,
46 Harlow Moor Drive,
Harrogate,
N. Yorks HA2 0LE GB

News in Brief

Ancient Peruvian Textiles

A two-week session in ancient weave techniques, cultural iconography, documentation and museum conservation of textiles is offered at two sites in Peru. At Universidad National de San Agustin museo in Arequipa, June 2-15 and 16-29, and at museo Regional de Ica, July 6-20. Special sessions for textile conservators will be available in these time periods. Contact Nanette Skov, P.O. Box 13465, Tucson, AZ, 85732, USA; Tel.520-648-6114; Fax 520-393-7331; nanetteskov@hotmail.com.

Colours in the Ancient Mediterranean World: 10-13.9.01

The Department of Classics, University of Edinburgh announces an international conference exploring aspects of hue and colour in the ancient Mediterranean world to be held 10-13 September 2001. The conference aims to draw together specialists working in a wide range of disciplines in an attempt to discuss the newest discoveries and methodologies in a number of research areas. We intend to focus on archaeological and art historical perspectives together with cultural and historical contexts. We intend to publish the proceedings in a comprehensive volume. Post-graduates are particularly invited to offer papers. Details can be obtained from the conference organisers, Liza Cleland, Glenys Davies, Karen Stears: Colours Conference, Dept. of Classics, University of Edinburgh, David Hume Tower, George Sq, Edinburgh EH8 9JX (e-mail: colours@ed.ac.uk).

NESAT on the Web

Johanna Banck-Burgess reports that a Website for the NESAT-Bibliothek in Freiburg i.B. is currently being prepared and will hopefully be in operation by mid January 2001. Look for: www.nesat.de and www.nesat.org

Subscription

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

Subscription payment should be sent to:

Felicity Wild
30 Prince's Road
Heaton Moor
Stockport SK4 3NQ
United Kingdom

Payment is accepted in **pounds sterling** (£) only. Payment must be made in the form of a bank/cashier's cheque or draft and should be made payable 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 and from all parts of the world are covered in the *ATN*s range of interests.

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

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

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

4. Please send submissions in hard-copy, typed, form (lines not justified). (An accompanying disk in Word6 or WordPerfect6 would be welcomed.) References should be in the Harvard system (eg Smith 1990), with bibliography at the end.

5. Line drawings and photographs are accepted, but must be originals of high reproduction quality. Artwork should not be mounted or incorporated into text. Captions, please !

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

7. The deadline for contributions for the Spring issue is March 31st, for the Autumn issue September 30th.

Submissions should be addressed to:

John Peter Wild
30 Prince's Road
Heaton Moor
Stockport SK4 3NQ
United Kingdom

(tel: (+44) (0)161 432 2460)

Disclaimer

The views expressed 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* is published at the Ancient Textile Unit in the University of Manchester.

Publication dates: twice yearly, Spring and Autumn.

ISSN 0169-7331