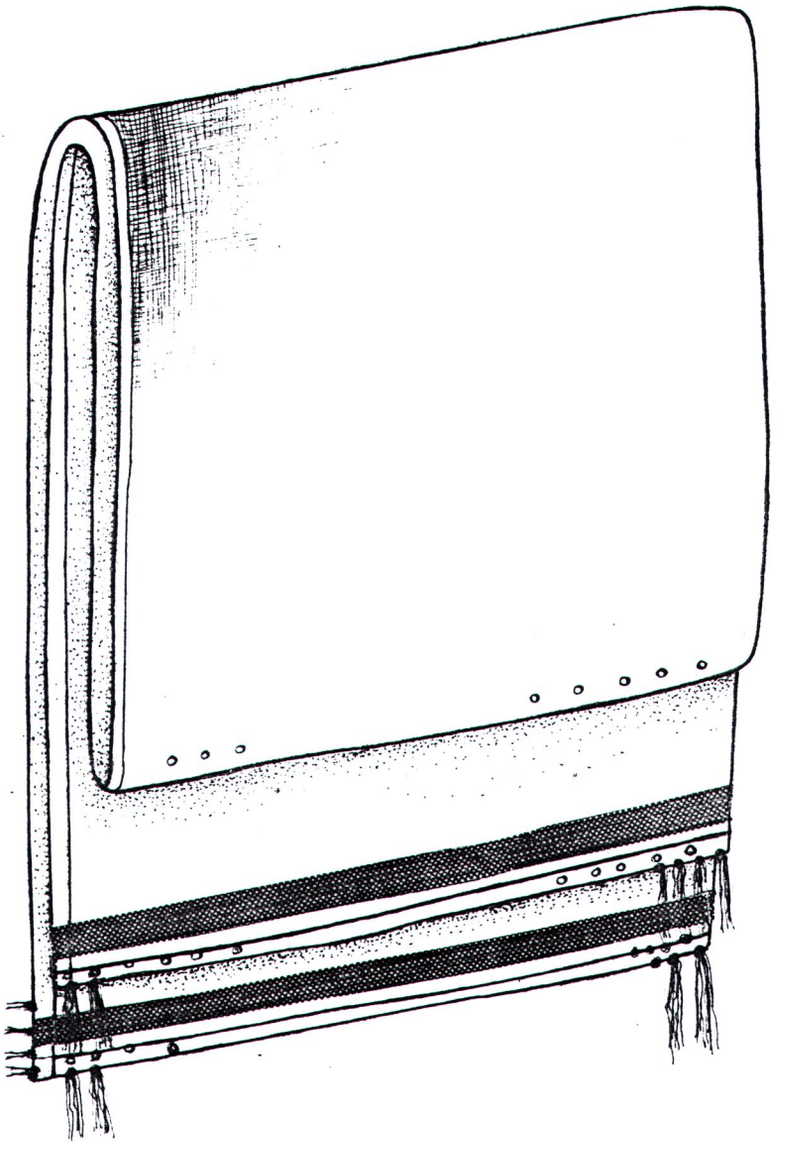
ARCHAEOLOGICAL TEXTILES NEWSLETTER



NUMBER 29 AUTUMN 1999

Editorial

It cannot be long before a Newsletter, to the computer-literate generation, will mean something that the reader finds on the Internet. *ATN* will not be succumbing yet to the power of the www; but its power is there to harness constructively nonetheless. As surfers know, there is good, bad and indifferent to be found on the Internet, and the good can be very useful indeed. So the Editor is urging readers to *ATN* to reveal - with a critique if appropriate - their favourite textile-related websites, for the benefit of the rest of us. *ATN* will list the www addresses which you can suggest as a regular feature under Source Materials.

The *Newsletter* tries to remain catholic in its tastes and content, reaching out across the whole spectrum of matters related to archaeological textiles. Michael Ryder has been an indefatigable contributor on matters biological and wool-orientated. Yet both author and Editorial Board recognised that the information and concepts presented in his article in this number might make difficult reading for non-scientists (like the Editor). It was felt, however, that the article's potential implications for the analysis of archaeological textiles greatly outweighed any such objection. *ATN* plans to stay at the cutting-edge of research !

Readers may note that this number of *ATN* is somewhat slimmer than the last. The stock of material awaiting publication under all the headings in the Table of Contents opposite is beginning to diminish, to the Editor's disquiet. Please do not be hesistant in submitting your contributions - in French, German or English. If you do not have anything at present suitable to be a Feature or a Report, Source Materials and News in Brief are important aspects of *ATN*'s cover which constantly needs your support and practical input !

The Editor acknowledges with gratitude the help of Felicity Wild and Jane Batcheller in the preparation of this number.

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Cover: Reconstruction of the folded 'wrapping sheet' from the Cave of the Warrior near Jericho (early 4th millennium BCE).

FEATURES

6000 Year Old Textiles from the Cave of the Warrior, Judean Desert

The Cave of the Warrior was discovered in Lower Wadi Makkukh, 3.5 km NW of modern Jericho. It was excavated in 1993 in the framework of an extensive operation carried out by the Israel Antiquities Authority in search of more Dead Sea scrolls.

Three archaeological levels were distinguished in the cave. The finds under discussion are from the middle level, C14-dated to the early 4th millennium BCE (the Late Chalcolithic Period). The finds comprise the skeleton and grave goods of the so-called Warrior.

The skeleton was wrapped in a large bundle of cloth (Fig. 1) and placed on a plaited reed mat. With the wrappings were a pair of leather sandals, a long flint knife, a wooden bow, ritually broken, two arrows, a wooden bowl, a coiled basket, and a stick. All items were heavily stained with red ochre, a substance much used in mortuary rituals since prehistoric times.

The bundle of cloth was found to consist of three archaeologically complete (from end to end and from selvedge to selvedge) well made linen textiles. The outer gigantic 'wrapping sheet' (Textile A), had been folded over twice to form an 'envelope' inside which the body of the deceased was put (Fig. 2). Two smaller textiles, a medium sizedrectangle (Textile B), and a long and narrow sash-like cloth (Textile C) were found within the wrapping sheet.

The stiff and brittle textiles underwent a long and challenging conservation process by an IAA conservation specialist (Fig. 3). Following the process of spreading and cleaning, for permanent storage and in anticipation of eventual display, the textiles were reinforced between layers of silk crepeline and stabiltex. A plexiglass cylinder and special mounting devices were constructed to hold the textiles (Fig.4). A number of tests and analyses were performed by various scientists to identify raw materials and colorants. A full report on the material has been published (Schick et al. 1998). The textiles and other grave goods were recently on display at the American Museum of Natural History in New York.

Textile A - the 'wrapping sheet'

Textile A (Fig.5) is a large rectangular linen sheet with warp fringes at both ends and with a weft fringe at one side. It is approximately 7m long and 2m wide. The textile has not been dyed, but due to old age, ochre staining and body liquids from the deceased, its colour ranges from off-white through beige and yellowish brown to dark reddish brown. The pattern of the stains as well as of the missing areas is a mirror image, as in an ink blot. These details suggested to the researchers that the cloth had been folded over twice for the burial, forming a four layered 'envelope' that contained the corpse. The four layers had been sewn together, as is evident from a line of small holes in each of the layers.

The textile was designed and manufactured as a complete sheet. The background structure is a plain weave tabby. The threads are plied in a final S-twist, 15-20 threads per cm in the warp, 11-13 in the weft (*c.*3500 warp ends in the complete sheet). The weft is not continuous and comprises *c.*8400 picks (4200 cut threads, each the length of two picks).The four edges are marked by characteristic features in dark coloured threads. The woven parts at the extreme ends are basically in 'extended tabby' (*2/2* basket weave), and are decorated with blackish bands in single, paired and triple thread combinations. These decorative parts are further enhanced by long fringes (Fig. 6). Beyond the decorative area, in the inward direction there is a warp crossing followed by a weave change to the plain weave tabby (1/1) of the background (Fig. 7). One selvedge is 'corded'- triple black warp ends are worked together at this edge. The opposite side has a more complex design: a dark stripe runs parallel to the edge. Pairs of weft threads loop around the outermost warp threads in quasi-buttonhole stitch and extend to form a weft fringe along this edge.

The dark colorant in the threads of the decorative bands, the stripe and the selvedge cord is a sticky organic material to which soluble iron salt may have been added. The material has not been identified. It could

Fig.1 The burial bundle from the Cave of the Warrior.

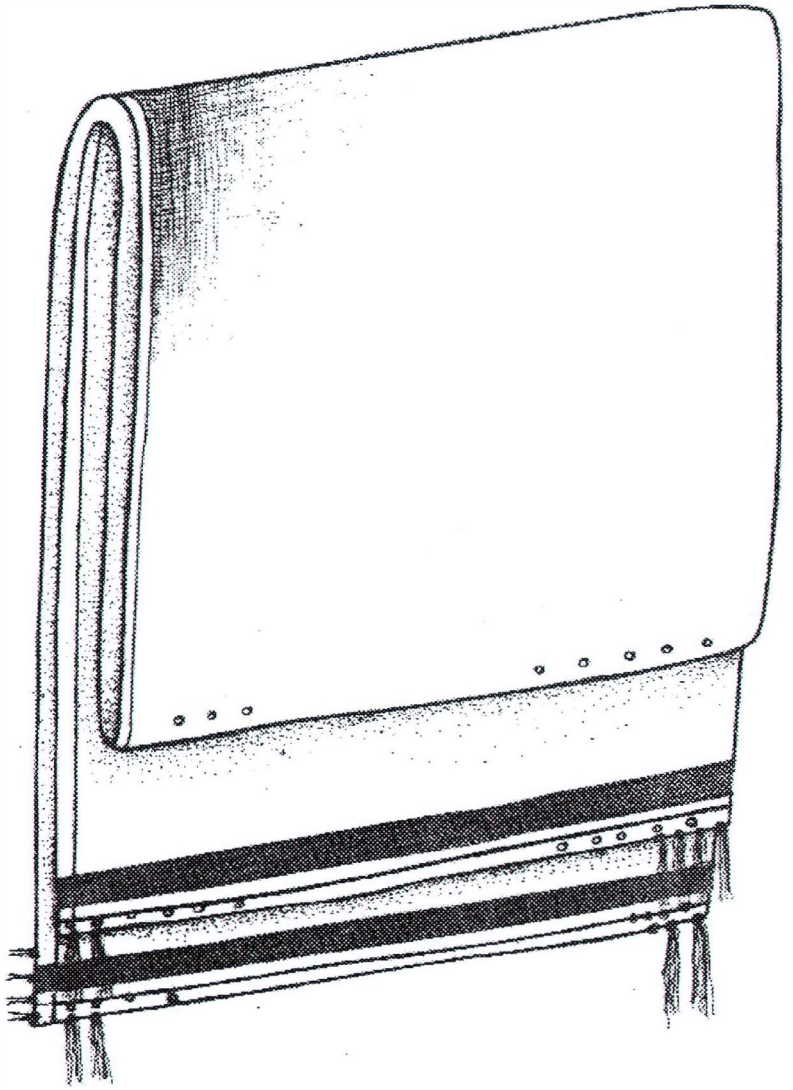

Fig.2 Reconstruction of the folded 'wrapping sheet'.

Fig.3 *Cleaned 'wrapping sheet' placed between layers of silk crepeline and stabiltex.*

Fig.4 *'Wrapping sheet' rolled in plexiglass cylinder set in special container.*

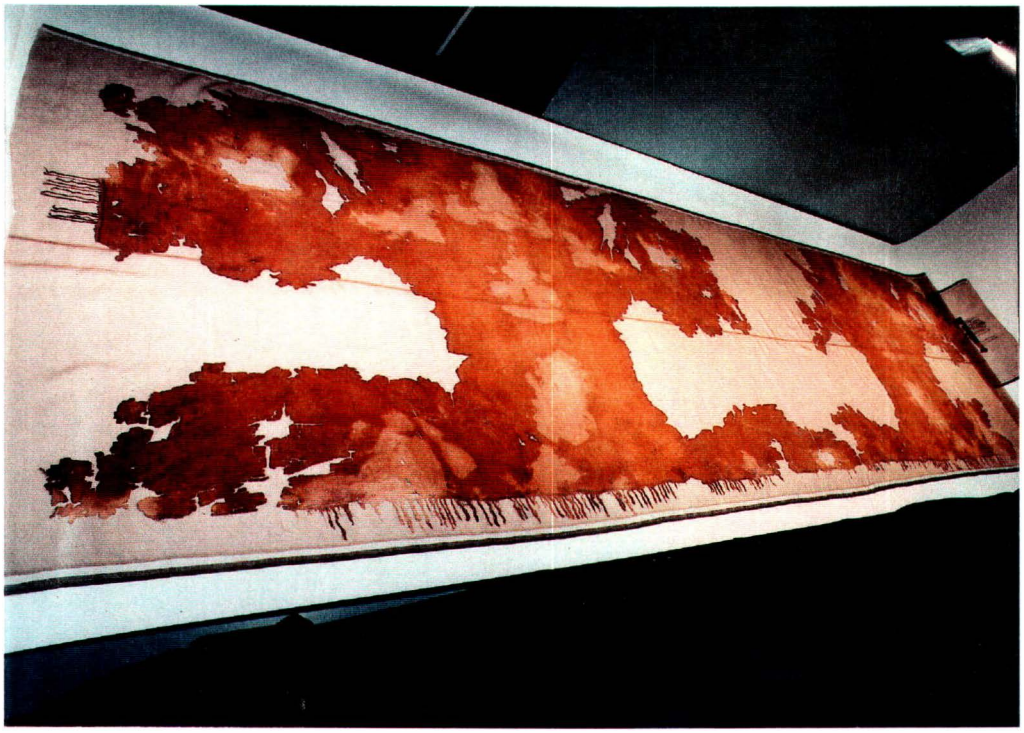

Fig.5 'Wrapping sheet' spread out after conservation.

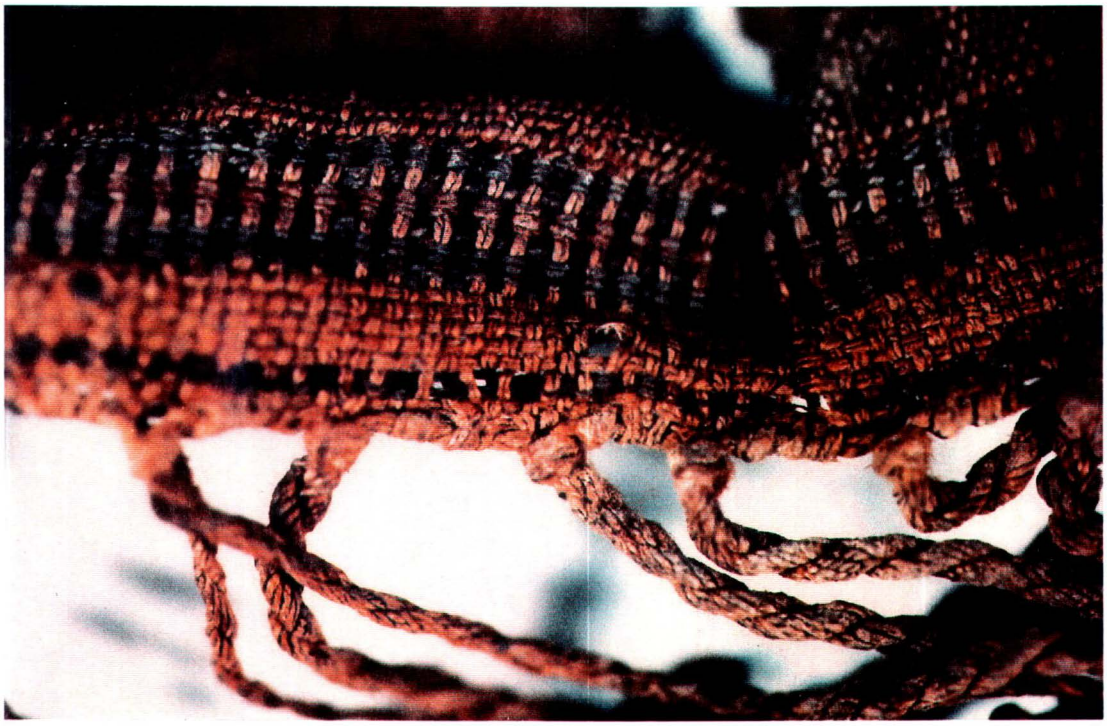

Fig.6 'Wrapping sheet': decorative bands and fringe.

have been a vegetal resin or gum, bitumen, liquid asphalt or proteinic material such as collagen. This issue needs further examination.

Textile B

A smaller (*c*.1.40 x 0.90m), generally darker, independent textile (Fig.8) was found inside the 'wrapping sheet'. It is also archaeologically complete. One end is looped and the opposite end terminates in a long fringe of some 54 evenly spaced tassels. The dark band decoration at both ends echoes that of Textile A, but the structure is more simple. The blackish dye of the threads of the bands are probably the same as in Textile A. The fringed selvedge had been formed in much the same way as in Textile A. S-twisted linen threads form the web in plain-weave tabby structure, 12-20 tpc in the warp, 10-12 in the weft. The cloth is very dark in appearance, with many stains and smears of red ochre. The function of this cloth in the context of the burial is not clear. It might have been a part of the covering shroud that had wrapped the deceased, or a dress item, a kilt of some kind, placed on or next to him.

Textile C - the 'sash'

The so-called sash (Fig.9) is yet another archaeologically complete textile which was found inside the wrapping sheet. It was recovered in three fragments during conservation. Originally the fragments formed a long, narrow (*c*.2.00 x 0.20m) woven cloth with a long fringe at each end, and with simple selvedges. The threads are plied in S-twist. The density of the plain-weave structure varies. At each end of the sash there is a decorative feature consisting of two successive structural bands in countered weft twining followed by a looped and knotted finishing border and a long and delicate fringe (Fig. 10). The threads of the bands extend as tassels beyond the edges of the cloth. They are tied together with a few of the end tassels and form an elaborate knot. The cloth was neither dyed nor pigmented and has retained the light beige colour often associated with linen. It has, however, large brownish, twisted, deteriorated areas that have probably resulted from tying the cloth around the body of the deceased.

Discussion

The textile assemblage from the Cave of the Warrior is unique, both from the technological point of view as well as from its cultural and social aspects. The origin of the textiles is as yet undetermined: the possibility that the raw material or the finished specimens were brought from some distance cannot be ruled out. Although a relatively large number of fourth-millennium textile fragments have been retrieved from Judean Desert sites, they do not seem relevant to the understanding of the Warrior's textile assemblage. Significant parallels are at present non-existent. There are certain similarities with Egyptian textiles, but there is no absolute conformity in measurements or detail.

The extremely well preserved textiles from the Cave of the Warrior are of outstanding importance as they provide us with clear details regarding shape, size, design, structure, decoration, colour/dye, stitching and the finishing touches to cloth, many of which were hitherto unfamiliar.

The size and quality of the textiles indicate that a skilled spinning and weaving establishment was engaged in the production of the cloth. In order to weave a shroud of such dimensions (Textile A), an enormous loom, with beams longer than 2m must have been used - certainly an unusual implement for that period. The weaving calls for special attention regarding the tension of the long warp. Moreover, the weaving could not have been accomplished by one weaver. It is suggested that 3-4 weavers needed to be engaged in the production of a textile of such width. The weavers were obviously experienced and careful so that any indication of change-over was avoided.

Were the textiles dress items worn in life or were they designed and used for other purposes? Were they specially woven for funerary use or were they adapted for this purpose? These are not easy questions to answer. The similarity in the decorative details of the three specimens suggests that they were designed and produced in one and the same workshop. We assume that they were specially woven for a special person or for a particular place or event. The investment of time and labour in the

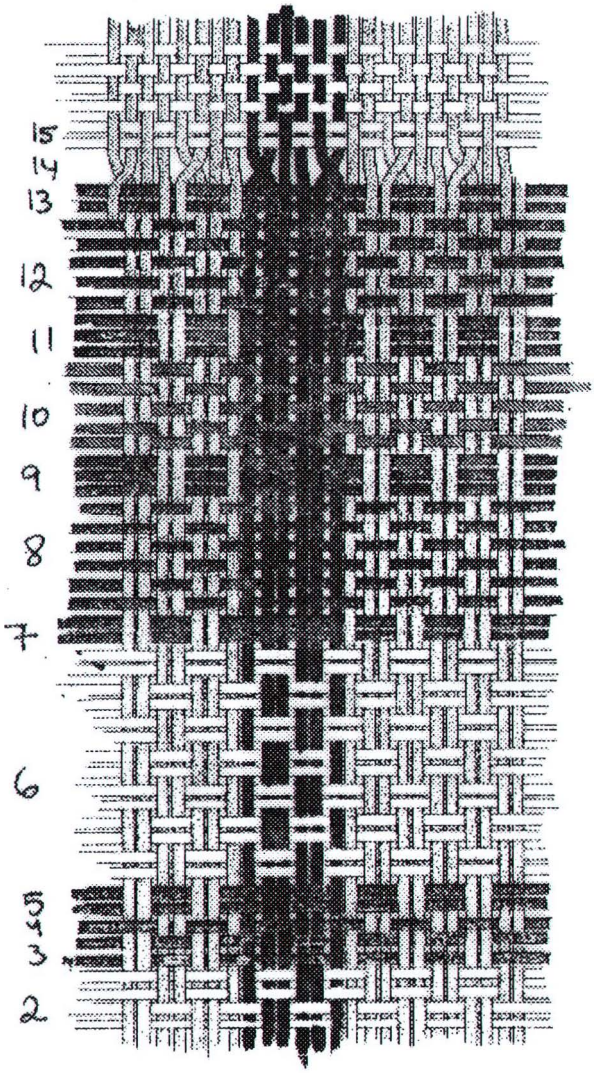

Fig. 7 *'Wrapping sheet': details of decorative part and warp crossing.*

Fig. 8 *Textile B.*

production must have been substantial. In addition the particularities of decoration – bands and elaborate fringes – are suggestive of a cloth designated for a person of high social standing.

This unique assemblage provides stunning evidence of the sophisticated accomplishments and high level of fibrecraft achieved 6000 years ago. In addition to its technological importance, the assemblage sheds light on customs and rituals where textiles played a part.

Acknowledgement

Many colleagues have contributed in one way or another to the research and conservation effort summarised here. I would like to mention especially Olga Negnevitsky (textile conservation), Zvi C.Koren (colour analysis) and Dror Barshad and Idan Shaked who excavated in the cave and brought to light these unique finds.

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Fibre Analyses for the 21st Century I: The Possibilities and Limitations of Chemical Analysis of Wool Remains

During the 1950s I worked alongside wool chemists who kept analysing the chemical composition of wool with the idea that if they analysed a sufficient number of samples, the average would be the 'formula' for wool. We biologists pointed out that much of the variation was real and resulted from breed and other genetic differences with possibly some nutritional variation.

Since that time I have been intrigued by the possibility of studying sheep breed origins through biochemical polymorphisms, eg. blood groups (Ryder 1959) and I reviewed progress in Ryder 1983, 769. The following account is a development of the section on wool variants in a further review (Ryder 1992).

Compared with internal organs, wool is easily observed on the living sheep and readily accessible for analysis. It also survives better than most animal tissues in archaeological contexts. Like hair and horn, wool is composed of closely-bonded, dead cells filled with a complex mixture of sulphur-rich keratin proteins. The X-ray diffraction studies of Astbury in the 1930s revealed the 'crystalline' nature of biological structures and indicated that the 'crystallites' of wool were long-chain protein molecules lying parallel to the long axis of the fibre. A clarification of these observations during the 1940s showed that the long chains were not just helices, but coiled coils comprising probably three alpha-helices twisted together. Similar work during the 1950s revealed the helical structure of DNA. As early as the 1960s I suggested that wool was an ideal tissue with which to approach molecular genetics, but it was left to the Australians to take up the challenge and it is fitting that the first 'production genes' isolated were those for some of the wool keratins (Ward *et al.* 1982) (see below).

The approach of Astbury distinguished between alpha-keratins found in unstretched wool, and beta-keratins found in stretched wool. The chemical analysis of wool has concentrated on the alpha-keratins and has depended on the breakage of the disulphide bonds that link together the long chain molecules of keratin. Alpha-keratins can be separated into high- and low-sulphur protein fractions. The low-sulphur keratins are grouped in microfibrils while the high-sulphur proteins form an inter-filamentous matrix which provides the disulphide bonds that cross-link the microfibrils. Gillespie (1965) demonstrated that the high-sulphur proteins from the hair of different species exhibited markedly different patterns of electrophoretic mobility. He also noted that the high-sulphur proteins from the wool of different breeds of sheep had similar, but less marked differences. The most striking finding was that breeds known to be related on other grounds had comparable electrophoretic mobilities. The pattern in the primitive Soay sheep differed from that in modern breeds, while the related Romney, Border Leicester, and Lincoln (longwool

breeds), for example, had similar patterns.

Preliminary results from another group of breeds (but including the Soay) obtained by Marshall (1980) suggested a division into four classes. Unlike the first investigation, however, these had little relationship to the known affinities of the breeds in question. The only finding that was in keeping with the first observations was that the simple longwool, the Cotswold breed, was in a class of its own. Apparently variations in the electrophoretic mobility of the high-sulphur proteins can occur within breeds, having been observed in the fine-woolled Merino and Lincoln Longwool. Therefore it will not be possible to study inter-breed differences until the extent of intra-breed variation has been determined. Differences in the chemical composition of wool between sheep within a breed have also been observed, eg. from 8% to 15% of cystine (Marshall and Gillespie 1989).

In addition to the possibility of defining modern fleece types and identifying speciality fibres such as cashmere and mohair (Marshall 1984), the possibility of following fleece development from archaeological material was considered. Gillespie (1970) had shown that the hair of a mammoth 32,000 years old retained the ordered structure characteristic of the alpha-keratins, but that the proteins differed from, and were smaller than, similar proteins isolated from modern elephant hair. Whereas the high-sulphur proteins of modern elephant hair gave several bands in starch-gel electrophoresis, the mammoth hair gave an unresolved, diffuse smear. He suggested that these changes had been caused by limited proteolysis.

The archaeological remains of wool available are no more than 4000 years old, and this suggested two possibilities: a. that less degradation would have occurred in these than in the mammoth hair so that there might be some resolution of the electrophoretic mobilities; b. that if the amount of degradation precluded characterisation, it might nevertheless provide a method of dating hair and wool remains. I was able to supply R.C. Marshall with 12 samples of archaeological material ranging in age from over 3000 years to 600 years. Two-dimensional electrophoresis of the solubilized proteins was used. The separation in the first dimension was according to charge at pH 8.9, and the separation in the second dimension was according to apparent molecular weight. The results were recorded by labelling the proteins radioactively and placing the electrophoretic gel in contact with X-ray film for periods up to three weeks before development.

The electrophoretic patterns of the ancient wools were very different from those of modern wools. Except for a small amount of low-sulphur protein in the oldest sample, there were no typical low-sulphur or high-sulphur proteins. All the samples had material of low molecular weight, and in some Roman samples there was also high molecular weight material. The molecular weight patterns were similar to those obtained from the hair of the mammoth (Marshall 1985).

The patterns almost certainly reflect changes with time either due to ageing or degeneration as a result of contact with soil. Electrophoresis therefore appears to be unsuitable for the genetic characterisation of old wool samples. But the amount and type of degradation can be described and it is just possible that this might provide the basis for a method of dating.

Keratin genes

Turning to the question of keratin genes, the low- and high-sulphur keratins each have considerable protein heterogeneity. There are numerous polypeptides of closely-related amino-acid sequence and this similarity has made it difficult to isolate and purify them and to determine their amino-acid sequence. Ward *et al.* (1982) used complementary (cDNA) probes which together could recognise at least one of each of the main gene families for wool keratin. They were able to isolate six cDNA clones which represented five of the main wool protein families. The cDNA clone pSK10, which represents a wool matrix protein, was used to isolate the genomic DNA sequence for three members of its gene family. The identity and organisation of these genes were established by base-sequence determination.

It has since been recognised that there are four families of wool proteins, two forming

the fibrils and two forming the matrix, and genes coding for proteins in each of the four families have now been sequenced. Rogers (1990) described the ways in which this knowledge is being applied by gene transfer in order to give wool desirable characteristics and increase its production.

Although it has been possible to extract and amplify DNA from hair and wool, less success has been obtained in the application of DNA hybridisation to identify hairs from different species. The technique uses a labelled, single-strand DNA probe prepared from the total genomic DNA isolated from the liver of the species in question. A positive result is obtained when the probe binds (hybridises) with its complementary partner in the sample being tested. The recovery of DNA from human and animal tissues up to several thousand years old raised my hopes that this technique could be applied to my large collection of archaeological remains of wool that has been used to formulate a scheme for fleece evolution (Ryder 1983). It was initially only possible to distinguish cattle hair from sheep/goat using this technique, but it has more recently been possible to distinguish sheep's wool from goat hair (Hamlyn *et al.* 1990, Berndt *et al.* 1990). Progress towards the identification of breeds will depend on the perfection of the technique and in particular on the preparation of much more specific probes.

Since bone remains are much more common than wool remains, and it is possibly easier to extract DNA from their collagen than from wool remains, one approach that could be followed is to seek variations in the DNA of sheep bone remains. Probes prepared from surviving primitive breeds of sheep could be used. If variations are found, the next stage would be to see whether the wool of primitive breeds has further variations that are associated with the different fleece types that exist in these breeds. How the archaeological material is tackled will depend on the extent to which DNA variation can be linked to different fleece types and the specificity of the probes that can be prepared from the DNA.

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Report

Didymoi (Khashm al-Minayh), Égypte: Saison 1999: Les Textiles

Les fouilles ont porté sur l'intérieur du fort romain et sur le dépotoir situé devant la porte.

Si près de 500 fragments ont été étudiés cette année, ils représentent moins du tiers des trouvailles textiles de la saison. Peu avant l'arrivé des spécialistes, un 'nid' de textiles avait en effet été exhumé du dépotoir extérieur. Cette masse comportait plusieurs coussins bourrés de chiffons: l'examen de ces bourrages a occupé une grande partie du temps de la mission et a livré des trésors inattendus, tel de chapeau usé et troué, mais dont la forme reste reconnaissable et permet de l'identifier comme un sous-casque. Du point de vue technique, ce document est unique: le tissu est une toile de laine crème, garnie *sur les deux faces* de rangées de touffes de laine rouge vif, comme sur un tapis; il est possible que ces touffes aient été à l'origine des boucles, comme on en observe sur de nombreux tissus coptes et sur plusieurs textiles de Maximianon et de Krokodilô. Au niveau des tempes, ces rangées de touffes de laine sont interrompues par une bande tapisserie bleu vif et pourpre dont l'extrémité forme une petite corne, car le plus extraordinaire est que ce chapeau a été tissé en forme. Les fragments d'un autre chapeau, également réalisé dans un tissu à touffes ou boucles de laine sur les deux faces, ont éte retrouvés, mais il n'a pas encore été possible d'en restituer la forme. À cette série chapelière s'ajoute une calotte formée de triangles de couleur en tissus divers, réunis à leur sommet par un rond de tissu. Cette découverte a permis d'identifier rétrospectivement un fragment beaucoup plus petit d'une calotte semblable, brodée de jaune et de pourpre, trouvé à Krokodilô.

Cette année a également été celle des découvertes de sous-vêtements, en l'occurrence plusieurs bandes assez longues, plus ou moins complètes, encore très plissées et, pour certaines, souillées, dont il semble qu'elles étaient portées autour de la taille, passées entre les jambes et raccrochées de nouveau autour de la taille. Une recherche iconographique dans les scènes de cirque, de supplices et autres occasions où l'on montre des personnages en sous-vêtements s'impose pour confirmer nos hypothèses. Inutile de préciser que les découvertes de ce type n'abondent pas dans les publications de textiles de l'époque romaine.

En ce qui concerne les petits fragments, dont importe surtout la technique de fabrication, cette campagne a livré: un corpus varié de tissus à nœuds et boucles, complétant celui de Maximianon et de Krokodilô (publication prévue dans *Hali*); nombreux damassés et taquetés (il s'agit des deux types de tissages les plus avancés sous le Haut Empire; les damassés seront publiés dans le *Bulletin du CIETA*); un nouveau fragment de toile de laine à décor teint après réserve (publication des précédents dans le *Bulletin du CIETA* 75, 1998, 14-20): celui-ci se distingue des précédents (à motifs blancs sur fond bleu) par son décor jaune sur fonde orangé.

Les dépotoirs intérieurs, recelant un matériel plus tardif, ont livré, comme on pouvait s'y attendre, des documents trahissant une évolution des modes et des techniques: ainsi, ces 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 pourpres, semblables à plusieurs exemples trouvés à Palmyre et à Dura-Europos.

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Reviews

Notes on the 18th Meeting on Dyes in History and Archaeology

The eighteenth meeting on Dyes in History and Archaeology was held at the Royal Institute for Cultural Heritage (KIK/IRPA) in Brussels on October 21st and 22nd 1999 under the able management of Jan Wouters and colleagues. Approximately 18 countries were represented among the people taking part and 12 among the speakers.

Traditional Maori dyes were described by Rangi Te Kanawa from New Zealand and Claude Andary from France, with mud playing a prominent role, followed by more mud colorants from Western China (and West Surrey !) from Deryn O'Connor and Ann Richards. The Eastern theme continued with Japanese workers analysing dyes on ancient Japanese artefacts (involving elegant non-destructive techniques), while back home Jan Wouters described microdrilling methods for studying paint layers, and in a later paper, dyes and colorants on old alum-tawed book bindings.

There followed the now-traditional session on woad and indigo with papers on both historical and scientific aspects from Jenny Balfour-Paul and Chris Cooksey among others. Ester Ferreira (Scotland) demonstrated that progress is being made in the study of photodegradation products of flavanols (the basis of yellow mordant dyes). T.Koussoulou (Greece) was concerned with the stabilisation of dyes on silk by means of additives, and I.Petrovisciu (Romania) showed the wide range of natural dyes on Romanian ethnographical textiles. V.Golikov (Russia) classified the various dyes and pigments and applied his system to the colorants on icons. George Taylor reviewed the extensive use of botanical accumulators of aluminium as mordants instead of alum. The archaeological theme was illustrated by J.Bastiaens's results from excavations at Gent relating to the medieval cloth industry.

DHA 19 will be held next year in Edinburgh, again in October.

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18th CIETA Meeting in Bern, 1999

The 18th CIETA Meeting took place in Bern, the capital city of Switzerland, from 20th to 24th September 1999. About 170 delegates from many countries attended 35 lectures which were divided into 8 sections: Late Antique and Byzantine, Medieval Europe, Conservation, Techniques and Structures, Various Influences, Tapestries, Non-European Medieval Textiles, Late and Post-Medieval Textiles. Twenty papers were devoted to Medieval textiles in memory of Donald King, which were among the most interesting.

In the summer I had visited the exhibition *La Verdure Éclatée,* Oudenaarde Tapestries from the 16th to the 18th century. The papers on tapestries were therefore most welcome. To cap this, on the evening of 21st September we enjoyed the warm-hearted hospitality of the Bern Historical Museum, where the Director, Peter Jezler, invited us to see the Museum's collection, which included some superb tapestries. During the evening we were also offered a delightful buffet-dinner. On view at the time was a very fine Celtic jewellery exhibition.

So far as papers were concerned, September 22nd was a half day ! The afternoon was devoted to visiting the Abegg Foundation in Bern. For me this was the realisation of a dream and it lived up fully to my expectations. Apart from books, of which I bought several kilos, I feasted my eyes on the exhibition *Precious Silks*, the textile art of the Middle Ages from Europe to China. This visit culminated in a most enjoyable boat dinner-party on Lake Thun, hosted by the Abegg Foundation.

As usual on the final day CIETA offered three alternative excursions: to Beromünster, to St Maurice and Sion, and to St Gallen. I chose the middle one. Apart from the legend of the martyrdom of the Coptic soldiers, l'Abbaye de Saint Maurice, founded in 515, and La Basilique had fine collections of Medieval textiles which were specially laid out for us and its Treasury contained artefacts dating to the ninth century AD.

Our last visit was to Sion. This delightful town overlooked by two pinnacles, upon one of which rests the remains of the castle

ruins of Tourbillon; the other is occupied by the Cathedral of Valère. This Cathedral was of course our goal, since it, too, has a very interesting collection of Medieval textiles and also some beautiful frescoes. An additional attraction was the organ which is the oldest organ in the world, dating back to AD 1390. The day concluded with drinks in the Town Hall, a fine Renaissance building.

Thanks to the extraordinary efforts of the President, Pierre Arizzoli-Clémentel, and the CIETA Committee, Dr Karel Otavsky and his colleagues of the Abegg-Stiftung, the Director of the Bern Historical Museum, the Canons of the Abbey of St Maurice and Monsieur Maurice Wenger, Musée d'Histoire, Château de Valère, Sion, the Conference was a great success.

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Source Materials

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News in Brief

Ancient Peruvian Textiles

A two-week session on ancient weaving techniques, documentation, cultural iconography and museum conservation will be offered this summer at two sites in Peru. At the Universadad National de San Augstin Museo in Arequipa the first session will be from 3-16th June, the second (an advanced hands-on session) from 17-30th June. At the Museo Regional de Ica in Ica this session runs 7-21st July. Contact Nanette Skov, P.O.Box 13465, Tucson AZ 85732 (tel.520-648-6114, fax 520-393-7331, e-mail <nanetteskov@hotmail.com>)

Egyptian Linen from Salt-Affected Sites

Glennda Marsh-Letts has been investigating Ancient Egyptian linen since 1997, and is

now completing a PhD at the University of Western Sydney, Nepean (Sydney, Australia) on new methods for the examination and treatment of archaeological textiles. She has worked closely with the Nicholson Museum of Antiquities at the University of Sydney and the Museum of Ancient Cultures at Macquarie University, Sydney, on her research project, as well as gaining valuable field experience in Egypt with Macquarie University's excavations at Helwan, Cairo, directed by Dr Christiana Kohler. She is concentrating on Egyptian linen from salt-affected archaeological sites, and so would welcome any feedback from conservators or archaeologists who have salt-affected objects which need examination and/or treatment. She can be contacted at her e-mail address: <g.marshletts@scholar.nepean.uws.edu.au>

The Clothworkers' Centre for World Textiles
British Museum Study Centre

The second *Newsletter* describing the work of the soon-to-be-opened CCWT, a new and exciting facility of the British Museum, which will bring together its scattered textile collections and liaise with sister institutions such as the Petrie Museum, was published in October 1999. Its remit is a very wide one, and no short note can do it justice.

For further information contact the Textile Centre Working Party, British Museum, c/o Dept of Ethnology, Burlington Gardens, London W1X 2EX (e-mail: <hwolfe@british-museum.ac.uk>).

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Guidelines for Authors

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

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

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

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

4. Please send submissions in hard-copy, typed, form (lines not justified). (An accompanying disk in 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 April 30th, for the Autumn issue October 31st.

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