

ARCHAEOLOGICAL TEXTILES NEWSLETTER

ATN, No. 2, 1986

EDITORIAL

The response of scholars throughout the world to the *Archaeological Textiles Newsletter* has been amazing. During the past few months, over forty private and institutional members have been added to the list of subscribers, giving us a total membership, so far, of over seventy. This response is a good indication that the subject of archaeological textiles is now regarded as a serious research subject and no longer merely considered to be a 'fringe' or minority area of interest in the field of archaeological studies. It can also be taken to show that the time was ripe for such an undertaking as the *Newsletter*, and hopefully it will continue to prosper.

Needless to say, the continued existence of the *Newsletter* is dependent upon the individual members contributing to the various issues, and in this respect we would like to thank all the people who have sent in copy for this issue. Several points have been raised as a result of this, which should be discussed. Firstly, the length of the items. We have been very careful not to use the word 'article' in connection with the notes etc. published in the *Newsletter*. The editors felt very strongly that it should contain items concerning current research, i.e. information about recent excavations, an indication of the state of experimental research and recent publication. For this reason we stated in the 'Guide to Contributors' (*ATN*, 1, 1985, 2) that we would take items of a maximum length of three hundred words. It is noticeable in this issue that we have published a much longer contribution by M.L. Ryder, on the

subject of "Speeding-up Fibre Diameter Measurement by Computerisation". This article has caused several debates concerning the role of the *ATN* amongst the editors, and it is felt that unless subscribers indicate strong feelings to the contrary, in future issues the word limit given above will be adhered to. Secondly, the question has been raised as to whether we can, or should, expand the range of entries to include non-archaeological textiles. Is it right to exclude other, related areas, for example leather work? Should more items be included on the subject of conservation? Comments concerning these questions would be appreciated.

In this issue we have followed the format of the first edition and included information about sites from Denmark, Norway and Israel. This information has been given in both table and summary forms. There are also four longer items concerning the textile finds from Danskøya in Norway; the textiles found in the Danish royal tombs in the Roskilde Cathedral; the range of Islamic clothing from Quseir al-Qadim, Egypt, and finally the early silks found in association with the tomb of Heinrich II, Bamberg Cathedral, W. Germany.

The last item mentioned above is in German and reflects the editors' wish that the *ATN* should be regarded as an international publication. Please note therefore, that items in English, French and German will be accepted, and published in these languages; any items in Russian will be translated into English.

Subscriptions are due again! Our thanks to everybody for paying their initial subscriptions so promptly. Several people have commented that the *ATN* is very cheap, perhaps even too cheap. We wish to keep it a non-profit (and non-loss!) making enterprise, therefore produced and distributed at a low cost. Nevertheless, we are running

against one major problem, namely cheques sent to us in American dollars or W.German marks. It is costing us \$3 to cash a \$4 cheque! So please, either send the money in English pounds or Dutch guilders (see the colophon). If this is not feasible please join with a fellow subscriber and send several subscriptions together (see list of subscribers on the back pages of this issue) or send two years' worth of subscriptions. If not, we may have to increase the cost of the *Newsletter*.

A final plea: please keep sending copy! Without it the *Archaeological Textiles Newsletter* will not survive!

colophon

The Archaeological Textiles Newsletter.
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J.P.Wild.

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the contact address given above.

NOTES TO CONTRIBUTORS

The *Archaeological Textiles News-
letter* aims to provide a source of
information for those who are studying
textiles primarily as archaeological
objects. contributions to the *Newsletter*
are welcome, and should be in accordance
with this concept.

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

2. Contributions may include short (!)
references to recently published books,
journals, articles, and to forthcoming
exhibitions, seminars, conferences,
special courses, lectures etc., infor-
mation concerning work in progress (see
note 3), and any queries concerning the
study of archaeological textiles.

3. **Work in Progress:** this is a general
category which includes, for example,
work on archaeological textiles from
recent excavations or in museums. Items
in this section should contain
information (if available) about the
following: where the textiles were
found; the relevant dates; who excavated
the site and when; the range of textiles
found; who is responsible for the
cataloguing of the textiles and where
they are to be published. These notes
should not exceed a maximum of three
hundred words per item. Maps showing
the position of the relevant sites would
be greatly appreciated.

4. Line drawings will be considered,
but photographs cannot be accepted at
present.

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

6. The deadline for contributions is
the 1st April and the 1st October, for
the May and November editions respec-
tively.

LOGO

The logo is taken from the famous
depiction on a Hallstatt urn, found at
Odenburg/Soporn, Hungary. The original
illustration shows three women who are
spinning and weaving.

TABLE SHOWING CURRENT, RELEVANT EXCAVATIONS

(Supplement to the sites given in *ATN*, 1 (1985), 3-4)

<u>Site</u>	<u>Dates</u>	<u>Excavators</u>	<u>Textile Specialist</u>
DENMARK			
(Map 1)			
Bakkendrup, Zealand cemetery [Map 1, site no. 4]	Viking Age (9-10th c. A.D.)	S. E. Albrethsen Rigsantikvarens Arkæologiske Sekretariat Denmark	LBJ
Grødby, Bornholm cemetery [Map 1, site no. 5]	Late Roman/ Iron Age 3-4th c. A.D.	Margrethe Watt Bornholms Museum Denmark	LBJ
Kågården, Langeland cemetery [Map 1, site no. 2]	Viking Age (9-10th c. A.D.)	Anne-Marie Kruise Langelands Museum Denmark	LBJ
Kjølvejen, Randers cemetery [Map 1, site no. 1]	Viking Age (9-10th c. A.D.)	Bjarne H. Nielsen Kulturhistorisk Museum Randers Denmark	LBJ
Levka, Bornholm cemetery [Map 1, site no. 7]	Late Roman/ Early Germanic Iron Age	Margrethe Watt Bornholms Museum Denmark	LBJ
Roskilde Cathedral royal tombs	17th c. A.D.	National Museum Copenhagen Denmark	Else Østergård
Træhede, South Jutland [Map 1, site no. 3]	Viking Age (9-10th c. A.D.)	Steen Andersen Haderslev Museum Denmark	LBJ
Verdens Ende, Fur cemetery [Map 1, site no. 6]	Late Roman/ Early Germanic Iron Age, 4-6th c. A.D.	J. Berthelsen Fur Museum Denmark	LBJ
Viborg Sønderlø urban [Map 1, site no. 8]	Viking Age/ Early Medieval 9-13th c. A.D.	Viborg Stiftsmuseum Denmark	Mytte Fentz
NORWAY			
Danskøya, Svalbard 1984 -) cemetery	17th c. A.D.	S. E. Albrethsen Danish National Museum, Copenhagen Denmark	Ingrid Lütken

<u>Site</u>	<u>Dates</u>	<u>Excavators</u>	<u>Textile Specialist</u>
ISRAEL			
(Map 2)			
Arad (1962-) urban	Chalcolithic to Early Bronze II (3500-2650 B.C.)	Ruth Amiran The Israel Museum Jerusalem, Israel	Tamar Schick
'En-Boqeq (1967-1972) Castellum	4th c. A.D. destroyed A.D. 614	M. Gichon Tel-Aviv University Israel.	Avigail Sheffer and Amalia Tidha
'En-Gedi (1985-) graves	2nd c. B.C. - 2nd c. A.D.	Gideon Hadan The Israel Dept. of Antiquities and Museums.	Avigail Sheffer and Amalia Tidha
Horvat Teiman (Kuntillet 'Ajrud) (1975-1976) religious enclosure	2nd half of 9th c. B.C.	Z. Meshel Tel-Aviv University Israel	Avigail Sheffer and Amalia Tidha
Masada (1963-1965) fortress	73 B.C. destroyed A.D.73.	Y. Yadin Hebrew University Jerusalem, Israel.	Avigail Sheffer and Amalia Tidha
Nahal Hemar Cave (1983) cave	Pre-Pottery Neolithic B (8-7th mill.B.C.)	O. Bar Josef Institute of Archaeology, Hebrew University, Israel	Tamar Schick
Nahal Lahat Cave (1985-) cave	Chalcolithic (4th mill.B.C.)	I. Gilead Ben Gurion University of the Negev, Israel.	Tamar Schick
Tell el-Hammah (Hamat) (1985-) urban	10th-8th c.B.C.	G. Lipton, D.Tarler ? J. Cahill Institute of Archaeology Hebrew University, Jerusalem, Israel.	

summary of sites

Denmark

Grimstrup: Viking Age grave chamber with rich furnishings, e.g. painted skin or wood cover, excavated in 1983 by I. Stoumann, Esbjerg Museum. During conservation at Ølgod Conservation Laboratories (Frances Roberts) several textile fragments appeared: z/z wool tabby; z/z 2/2 twill; z/s and z/z 2/1 twills, the latter probably piled; tabby with every second thread in one system paired, the pairs with different spin: z,sz, z/z; tabby with floating pattern threads; and a fine tabby z/z. probably

flax. Finally corroded silver threads from a brocaded band were recovered. Textile specialist: Lise Bender Jørgensen. Preliminary reference: I. Stoumann, entry 60 in "Recent Excavations and Discoveries", *Journal of Danish Archaeology*, 3, (1984), 236.

Late Mesolithic/Early Neolithic Textiles from Denmark

ATN, 1 (1985),8, contained a note on textile finds from a late Mesolithic site (the Ertebølle Culture) namely

Tybrind vig on the west coast of Funen. Since then, more finds from the period 4500-3400 B.C. have appeared, and by now seven sites can be listed in Denmark: apart from Tybrind vig two other submerged settlements from the late Ertebølle culture, Møllegabet/Dejrø and Skjoldnæs, both off the island of Årø (J. Skaarup 1982: entries 7 and 8 in "Recent Excavations and Discoveries", *Journal of Danish Archaeology*, 1 (1982), 166-167; from the Early Neolithic Period four bog finds: Tulstrup Mose on North Zealand and Kongsted Lyng on South Zealand (C. J. Becker [1947], "Mosefundne lerkar fra yngre stenalder", *Aarbøger for Nordisk Olddyndighed og Historie*, cat. nos. 2 and 89, pp. 10ff; 42); Sigersdal Mose from North Zealand (P. Bennike, K. Ebbesen and L. Bender Jørgensen forthcoming, in *Journal of Danish Archaeology*, 5; and Bolkilde on the island of Als (Bender Jørgensen, Bennike and Ebbesen in prep.)

Four sites contain only strings, three sites had remains of fabric; the latter are all in *nålebinding* or twined weave, none in ordinary weave; the yarns are all vegetable fibres, z-spun and sometimes S-plied. Textile specialist: Lise Bender Jørgensen.

L.B.J.

ISRAEL

Arad: The finds associated with the textile industry were recovered from the Early Bronze Age strata and include impressions of very fine plain woven (tabby) textiles on pottery, s-spun linen threads wound on metal (copper) tools and a variety of stone, pottery and bone spindle whorls. The excavation was carried out by a team of archaeologists from Israel Museum headed by Prof. Ruth Amiran. A report on the textiles will be included in R. Amiran *Early Arad*, vol. II. For a bibliography on the archaeology of the site, see: R. Amiran, *Early Arad*, vol. 1, (1978), Israel Exploration Society, Jerusalem.

T. Schick

'En-Boqeq: An oasis near the shore of the Dead Sea, maintained by two perennial springs. The Castellum, a square building 20 x 20 metres with four towers, 6 x 6 metres each. Built during the second half of the fourth century A.D., became a *limitaneum* establishment (of the Byzantine agricultural frontier militia). Destroyed in A.D. 614 by the Persian conquest. More than one hundred

pieces of textiles were found, most of them are of wool, with some flax examples and a very limited number of cotton pieces. For a bibliography on the site, see: M. Gichon, *Bonner Jahrb.* 171 (1971), 386-406; "'En-Boqeq, Preliminary Report on the first campaign", *Proceedings of the 8th Congress of Roman Frontier Studies* (1973), Durham.

A. Sheffer

'En-Gedi (near the Dead Sea) Several graves were found in the hilly sands. The corpses were wrapped in linen sheets and buried in wooden coffins. The graves date from the 2nd century B.C. to the 2nd century A.D.

A. Sheffer

Jericho: A grave with about 50 skeletons, probably of lepers, was discovered (6th century A.D.) They were buried with their cotton dresses. The first time that such a quantity of ancient cotton has been found in Israel.

A. Sheffer

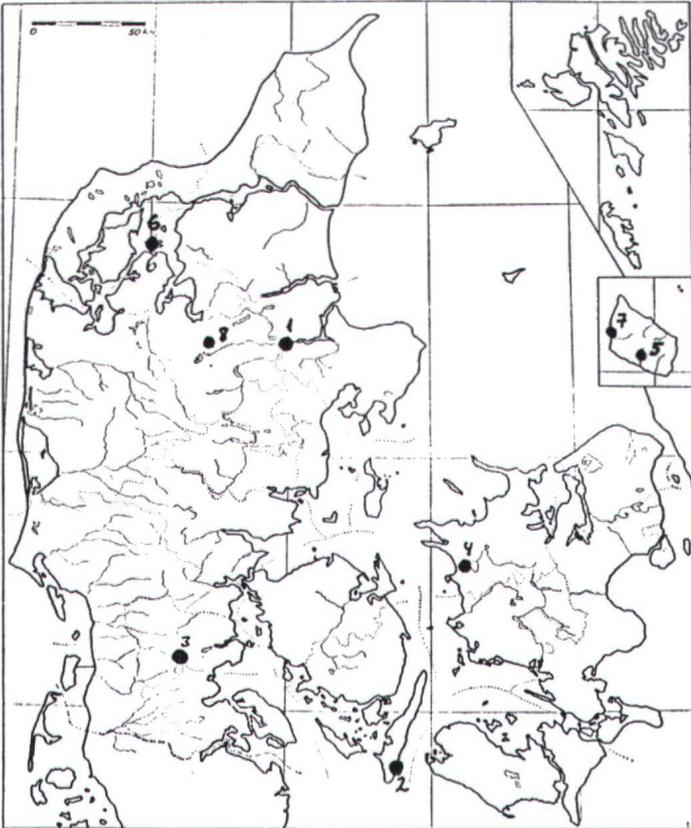
Kuntillet 'Ajrud (Horvat Teiman): An Israelite religious enclosure from the Monarchical period, built on a solitary hill in Northern Sinai (Plan 1). About 100 pieces of textiles, mostly linen, with some wool examples were found. Also identified were a number of loom weights. Bibliography: Cat. no. 175, *The Israel Museum*, Jerusalem; S. Meshel "Did Yehweh have a consort?", *Biblical Archaeological Review*, 5,2, 24-35.

A. Sheffer

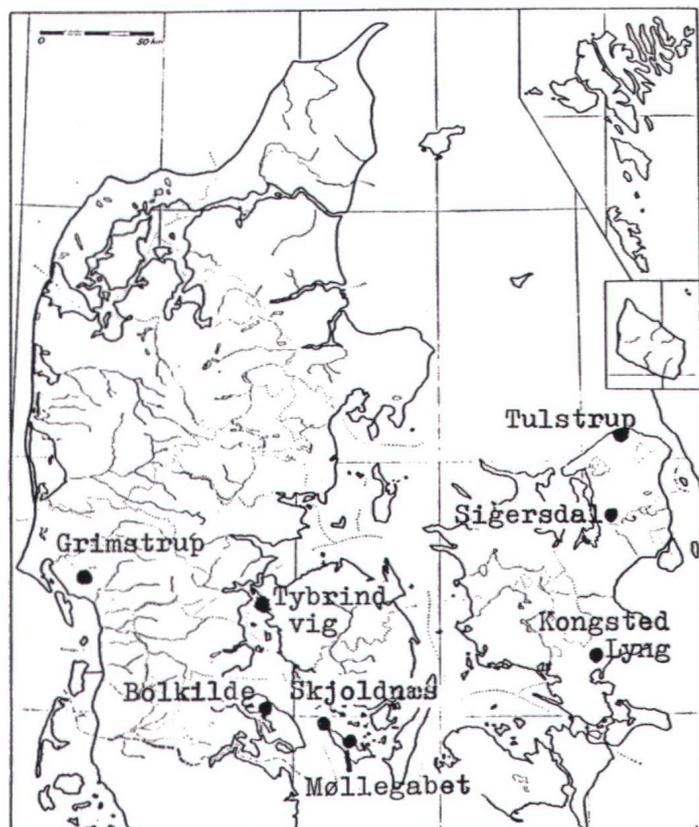
Masada: The luxurious fortress was built by Herod in 73-31 B.C. Later it became the last stronghold of the Jewish Zealots. It was destroyed by the Romans in A.D. 73. Several hundreds of textiles were found all over the fortress, but only 50 have so far been cleaned. Work on the textiles has only just begun. A popular book on the excavations by Yadin gives some information: Yadin, Y. *Masada* (1966), 140, 154.

A. Sheffer

Mahal Hemar Cave: A cave site in the Judean Desert of Israel which probably served as a cult centre and a storage place for trade items. The site yielded a large amount of perishable material in

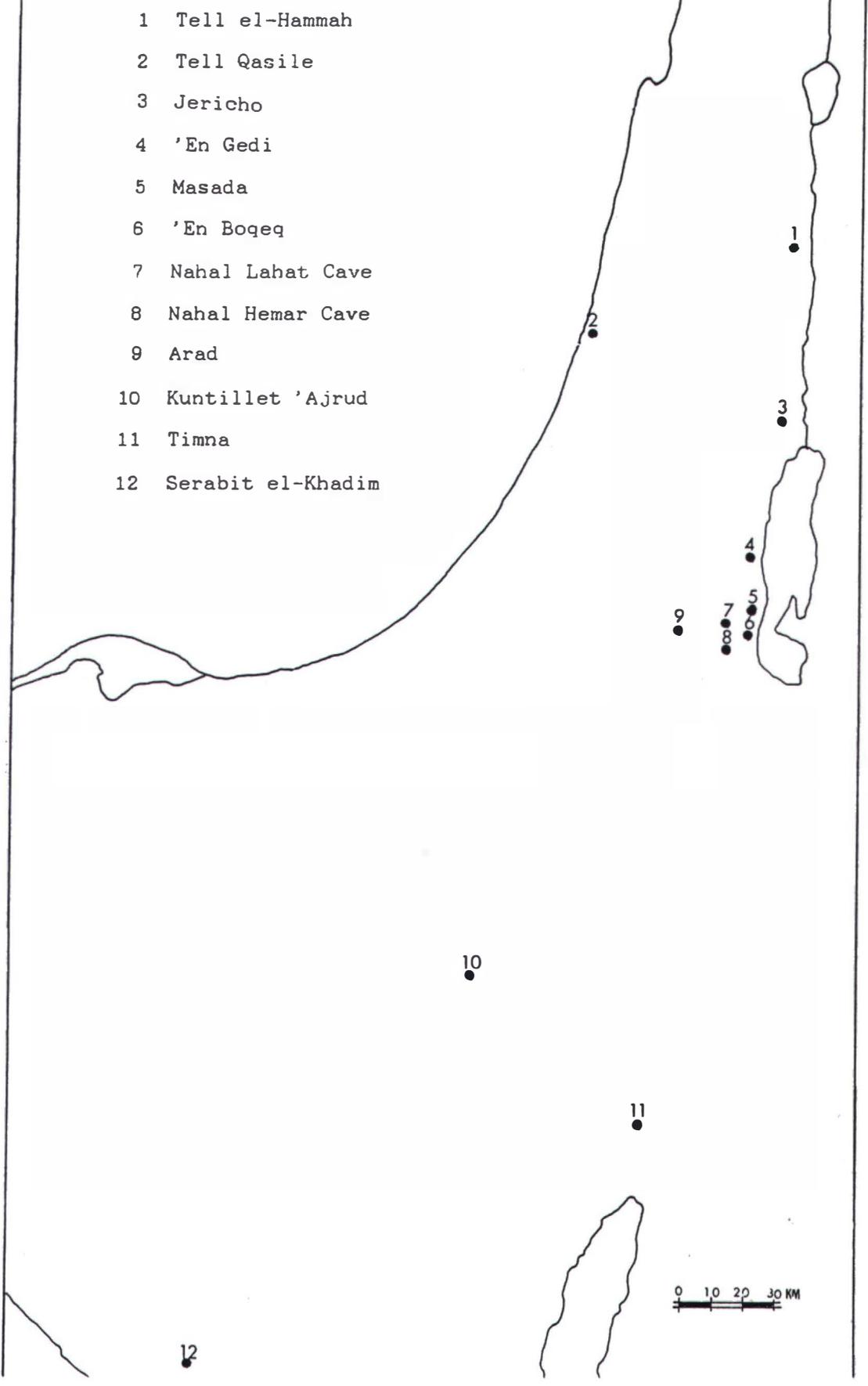


Map 1: Map showing the position of current excavations in Denmark where textiles have been found.



Map 3: Map showing the position of Danish sites referred to in the Site Summary.

Map 2: Map showing the position of current excavations in Isreal and the Sinai where textiles have been found.



a well preserved condition. The C14 dates are 7160 - 6150 B.C. In addition to cordage, basketry and matting, the textile finds consist of spun yarns, mostly plied (Z-2xs), fabrics in a variety of primary techniques such as simple looping, cross knit looping, knotted looping, knotted netting, interlinking and in several methods of twining. Also, there was a small number of plain woven (tabby) textiles, a few of which are dyed blue. The fibres are of vegetable origin. Flax has been identified. The fabrics are decorated with tassels, shells and beads.

Excavators: Prof. O. Bar Josef, Institute of Archaeology, Hebrew University, Jerusalem, Israel, and D. Allon, Isreal Department of Antiquities and Museums. A preliminary report is forthcoming. Bibliography: Catalogue No. 258, *A Cave in the Desert - Nahal Hemar*, The Israel Museum, Jerusalem.

T. Schick

Mahal Labat Cave: A cave site in the Judean Desert of Israel. It yielded several fragments of plain woven (tabby) textiles, the largest measuring c. 27 x 8 cm. Fibres are of vegetable origin (flax). The yarn is s-spun in the singles or S-2xz plied. Selvages are preserved in two of the fragments. Also there are the remains of a large mat, cordage and worked skin. Excavators: Dr. I. Gilead, Ben Gurion University of the Negev, Israel, and D. Allon, Israel Department of Antiquities and Museums. Excavations will be resumed in 1986.

A 4th millennium B.C. (Chalcolithic Period) date has been suggested by comparative material. Detailed analysis of the textiles is not yet completed.

T. Schick

Serabit el Khadim (13th century B.C.): In the Egyptian mines of Serabit el-Khadim, Sinai, a small piece of linen textile was found, 12 x 7 cm. with one selvedge intact.

A. Sheffer

Tell el-Hammah (Hamat): The finds associated with the textile industry consist of spinning equipment - wooden whorls, wooden spindles with thread wound on them. Flax fibres, yarn and plain woven (tabby) textile fragments of linen were also found in the same stratum. These were preserved in a carbonized state due to fire that had accompanied the destruction of the 10th

century B.C. settlement. The stratum of the 9th - 8th centuries B.C. yielded over twenty perforated clay balls thought to be loom weights, and "fossilized" textile remains (pseudomorphs) on pottery.

The excavation was carried out by a team of archaeologists from the Institute of Archaeology, Hebrew University, Jerusalem, Israel. Excavations will be resumed in 1986.

T. Schick

Tell-Qasile (Tel-Aviv): Traces of dyed impressions of fabrics were found in the shrine of Tell-Qasile (12th - 13th centuries B.C.) Loom weights were also found in the shrine enclosure. Bibliography: Mazar, A. *Excavations at Tell Qasile*, pt.2, Monograph 20 of the Institute of Archaeology, The Hebrew University of Jerusalem (1985), 151.

Timna (near Eilat): An Egyptian shrine to the goddess Hathor (13 century B.C.), in the centre of the ancient mining and smelting area of Timna, Sinai. The shrine measures 15 x 15 metres, and leans against one of King Solomon's Pillars. Along the east and west walls of the shrine a heavy red and yellow cloth was uncovered, perhaps part of a tent. A popular book on the exavations is available: Rothenberg, B. *Timna* (1972). Most of the textile remains are of wool. Impressions on pot bases are also of wool textiles.

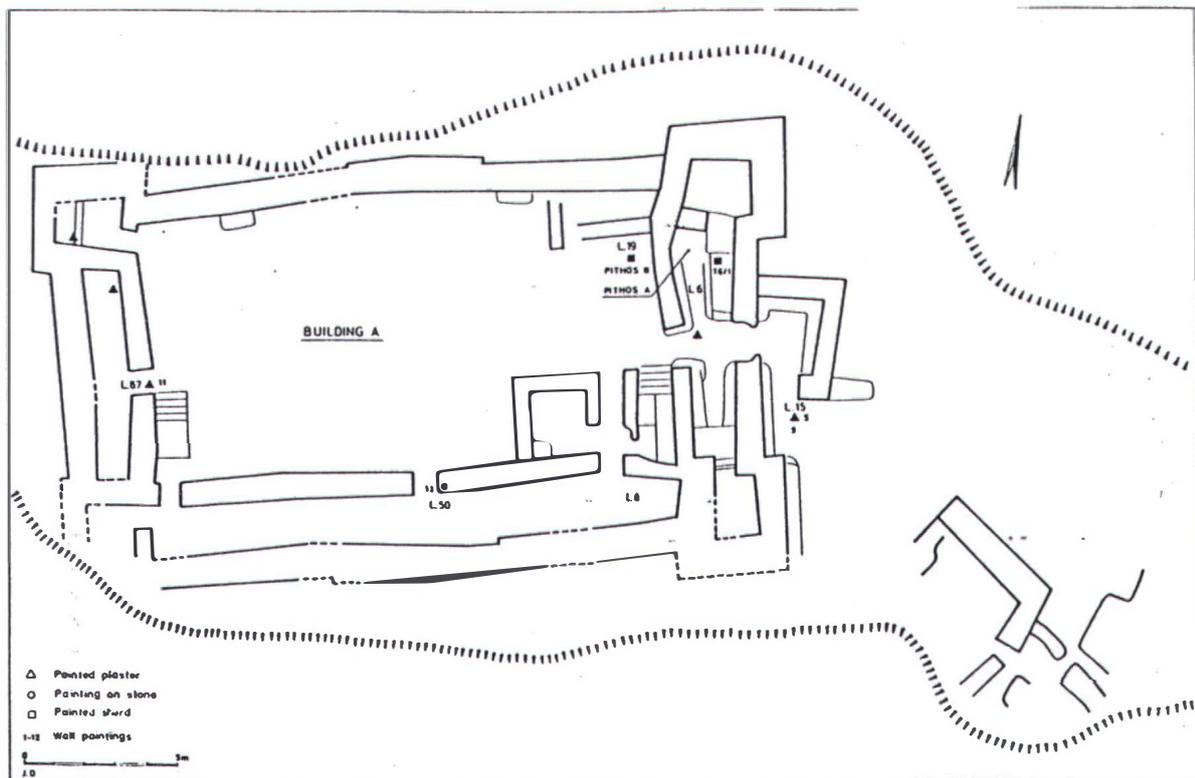
A. Sheffer

topica

QUERIES

COPTIC TEXTILES

In *ATN* 1 (1985), 11, the forthcoming publication was announced of a catalogue describing the collection of Coptic textiles in the National Museum of Antiquities, Leiden, The Netherlands. In relation to this, the author is seeking contact with persons, or institutions that might be able to give any information about the pattern of one particular piece. This example is identical with the textiles published by P. du Bourguet in the *Catalogue des Etoffes Coptes 1*, (The Louvre Museum) under the numbers of G 236/237, p.436.



Plan 1: Plan of Kuniliet 'Ajrud; an Israelite religious enclosure of the Monarchical period (see Table 1, Current Excavations).

any information about archaeological textiles of an Indian origin which have either been published or which are in collections outside India.

Please contact: Jasleem Dhamija, 78, Swastik Society, Navrangpura, Ahmedabad 380 009, India.

She would like to learn if any more textiles of a similar kind exist.

The textiles in the Leiden collection consist of several rectangles sewn together (some upside down), thus forming a cloth of approx. 94 x 50 cm. Human or heavenly (?) figures, clad in striped garments of yellow and bluish green and holding a sword or scepter with a cross on top are depicted on a bright red ground. Besides these figures, the cloth is decorated with C-scrolls (imitating leaves?) and roundels with small human and animal figures.

Please contact: Philomeen van 't Hooft, Elsa Brändströmstraat 12, 2037 LR Haarlem, The Netherlands.

INDIAN TEXTILES

I am working on a history of Indian textiles and would be very grateful for

THE PETRIE MUSEUM: The Petrie Museum of Egyptian Archaeology, University College London, which houses a large Dynastic textile collection, will be closing from the 1st May for the installation of environmental control. The estimated closure period is at least until the end of 1986.

Rosalind Hall,
Curator,
The Petrie Museum.

ANCIENT AND MEDIEVAL TEXTILES CONFERENCE

A weekend conference on the general theme of Ancient and Medieval Textiles will be held from the 19th to 21st September 1986, in Manchester, England. For further information please contact Miss Kay Staniland, Museum of London, London Wall, London EC2Y 5HN

diverse notes

Textiles from 17th century graves at Danskøya, Svalbard (Norway)

During the 17th century, Danish-Norwegian whalers hunted from Danskøya, a small island north-west of Spitsbergen (Svalbard).

In 1984, twenty-one graves were excavated at the Jensenvatnet lake in the northern part of the island. The excavating team consisted of experts from the Museum of Tromsø, Norway, and the Danish Maritime Museum, Helsingør. The expedition leader was Svend E. Albrethsen of the Danish National Museum, Copenhagen. The textile collaborator was artist-designer Ingrid Lütken, Denmark.

Many of the graves contained textiles. These finds consist of knitwear, woven fabrics and miscellaneous items, such as rope, buttons, felt, plumes etc.

The knitwear finds include three well preserved caps (two of which are double), one cap fragment with embroidery, one knitted hat, four pairs of stockings, one large stocking fragment, plus various small knitwear fragments. The fibre type used was wool.

The woven material includes one jacket and various jacket fragments, some large fragments of one pair of trousers, a few smaller ones from a second pair, plus various garters and fragments of different ribbons, one of which is silk. Apart from this piece, all the material is wool. — A few fragments however, are wool/vegetable material. There are also a number of small remnants made from vegetable fibres, these finds include shirts, and pillow slips. One shirt was made from a small chequered cloth, another from striped material, both are in blue/white (or neutral).

The textile finds have been subjected to various forms of technical analysis, for example, colour and fibre analysis; feather analysis; in addition to this, the buttons were also subjected to metal and wood analyses.

I. Lütken,
Espergærde,
Denmark.

Seventeenth century textiles from coffins in Roskilde Domkirke.

Since the Middle Ages, Danish Royalty and noble families have been laid to rest in the crypts of Roskilde Cathedral.

The maintenance of the coffins may allow the National Museum an opportunity to examine their contents, depending on whether the inner metal coffin is sealed or not. So far seven coffins have been examined. The mummified bodies had been very splendidly dressed.

Two royal children wore knitted stockings and were dressed in garments of knitted indigo dyed silk with designs in gold metal thread. There were several signs of wear including darns and some evidence of the existence of now perished undergarments of linen. After the examination, the coffins were returned to their original condition. E. Østergaard, "To kongelige barnekister i Roskilde Domkirke", *Nationalmuseets Arbejdsmark Copenhagen* (1982).

E. Østergård,
Konservator,
Nationalmuseet,
Brede, Denmark.

Kurzbericht über besondere Maßnahmen in der Abteilung für Textilrestaurierung des Bayerischen Landesamtes für Denkmalpflege.

Bedeutende textile Schätze wurden anlässlich der Umbettung von Gebeinen im Garten des Bamberger Domkreuzganges geborgen. Die Gebeine stammen aus der Sepultur des Bamberger Domkapitels.

Die Bergung, Konservierung und Dokumentation der Grabfunde wurde von der Abteilung Textilrestaurierung des Bayerischen Landesamtes für Denkmalpflege, Schloß Seehof, durchgeführt.

Nach der Konservierung und systematischen Erfassung dieser ca. 800-1000 Einzelfragmente wurden 153 verschiedene Gewebemuster dokumentiert. Bisher konnte ein großer Teil der Muster zeichnerisch rekonstruiert, technisch analysiert und wissenschaftlich bearbeitet werden.

Die erste wichtige Gruppe gehört zu den kostbaren Textilien, die Kaiser Heinrich II. seiner neugestifteten Diözese Bamberg und ihrem Dom geschenkt hat. Offensichtlich ist dieser älteste Bestand kontinuierlich wenigstens bis zum späten 14. Jahrhundert vermehrt und bereichert worden.

Die Seiden dürfen ursprünglich vor allem als liturgische Paramente gedient haben und wurden dann, teilweise noch kaum gebraucht, zumeist aber wohl als bereits ältere Stücke zu Grabgewändern umgearbeitet, mit denen wahrscheinlich nicht nur die verstorbenen Bischöfe, sondern wohl auch Domherren vor der Bestattung bekleidet worden sind.

Es wurden außer Fragmenten von großartigen Imperialseiden der Jahrtausendwende mit Greifen, Adlern oder Elefanten, Produkte der kaiserlichen Manufaktur in Byzanz, auch Seiden aus Syrien, Persien, dem Irak, sowie Spanien aufgefunden.

Während eines Kolloquiums im Frühjahr 1985 wurde in Referaten die Bearbeitung dieses Fundkomplexes vorgestellt. Bisher unbeachtete Gewebetechniken konnten erstmals ausführlich analysiert und systematisch erfaßt werden. Diese detaillierten Arbeiten und neuen Erkenntnisse können der Forschung auf kulturgeschichtlichem und kunsthistorischem Gebiet einen wertvollen Beitrag leisten.

H. Hermann,
Textilrestauratorin,
Bayerischen Landesamt für
Denkmalpflege,
Außenstelle Bamberg,
Schloß Seehof,
8602 Memmelsdorf b. Bamberg,
W. Germany.

Adult Garments

two woman's face veils of the *burqu'* type,
one complete (Eastwood, 1983, 33-38) (now in the Islamic Museum, Cairo).
one *galabiyah* in undyed flax with side neck opening.
one peaked man's cap in undyed felt (probably worn with a turban band).
various decorative men's caps:
four quilted caps.
three patchwork caps.
two oval caps (Eastwood, 1982, 293).
cloth slippers/shoes (Whitcomb and Johnson, 1979, 192).

Children's Garments

two small tunics (a) well made in blue and white flax and (b) crudely made in white cotton.

In addition to these pieces, fragments of the following garments were also found:

cuff of a child's tunic.
embroidered sleeve from a *galabiyah*.
neck openings from various gowns.

Unless otherwise stated these objects are now stored in the Quseir al-Qadim Storeroom, The Oriental Institute, The University of Chicago.

G. M. E.

Eastwood, G. M. (1982) textile report in D. Whitcomb and J. Johnson *Quseir al-Qadim 1980 Preliminary Report*, 285-326.
Eastwood, G. M. (1983) "A fourteenth century face-veil from Egypt", *Costume*, 17, (1983), 33-38.
Whitcomb, D. and Johnson, J. (1979) *Quseir al-Qadim 1978 Preliminary Report*, Cairo.

Medieval Garments from Quseir al-Qadim, Egypt

In the last edition of the *ATN* (1, 1985, 8), I referred to the fact that a number of Ayyubid/Mamluk garments had been found at Quseir al-Qadim, Egypt. Since then I have had several requests for further information concerning these items. I felt it might be useful therefore, to publish a list of the identifiable garments which were found at this medieval Islamic site.

Speeding-up Fibre Diameter Measurement by Computerisation

Introduction The ways of measuring fibre diameter can be divided into precision methods based on the (projection) microscope, and rapid methods, which are suitable only for bulk samples and tend to sacrifice accuracy for speed. Rapid methods are based on a variety of principles, such as weight per unit length, and the amount of air drag created by a mass of fibres. They tend to provide only a mean value with no indication of variability. The main use of rapid methods is in processing control during textile manufacture; they are unsuitable for the small staple samples used in fleece studies or the yarn from archaeological remains (Ryder and Stephenson, 1968).

With the projection microscope method, the width of projected images of the fibres is measured at a magnification of 500x using a transparent mm scale in a dark room. The doubling of these measurements gives the fibre diameter in microns, i.e. thousandths of a mm. This method was well established in Britain before being adopted as a standard by the International Wool Textile Organisation (IWTO; Anon. 1961). Although developed for use with wool, the method can be used for other animal fibres, e.g. silk, and plant fibres such as flax. Financial and other constraints have retarded the automation of this precision method.

I have used a modification of this method to define fleece type (Ryder, 1969; 1974; 1983). A Gillet and Sibert 'Lynx' Conference Microscope is used with a mirror fixed to a wall so that the image of the fibres is projected on to a bench. The IWTO method involves the cutting of fibres into short lengths to take account of variations along the length of fibres. This gives a length-biased mean of fibre diameter, which is of importance in wool processing. Such a mean is what will be obtained from the measurement of fibres in yarns.

In fleece studies, however, the difference between fibres is more important than the difference along the length, and so the first modification was the measurement of diameter in lengths cut always from the base of the staple. Secondly, no more than one hundred fibres (as opposed to three hundred) are measured since an accurate mean is of less importance than a diameter distribution in defining fleece type. Instead of increasing the number of fibres, where possible, more samples from different fleeces were measured.

It is difficult in any case to obtain more fibres from a small fleece sample, and there are often fewer than one hundred fibres in the archaeological yarns studied.

Other modifications included the adoption of Euparal as a mounting medium and the omission of a prior conditioning of the wool in an atmosphere of 65% relative humidity (r.h.) at a temperature of 20°C. Since the apparatus to condition the fibres to a standard moisture content (and therefore diameter) was lacking, the r.h. was noted and tables were used to adjust the mean. This was soon abandoned when it was noted that variations in r.h. were changing the mean fibre diameter no more than 0.3 microns, in a situation where a diameter distribution rather than an accurate mean was required.

It was similarly assumed that conditioning would not be necessary for archaeological material. To those who question whether fibre diameter has remained constant with time, one can point to the constant values obtained, e.g. fine wool fibres are always about twenty microns in diameter whatever their age.

By default, measurements falling between two mm divisions on the scale were assigned to the nearest division before multiplying by two to give the micron value. The IWTO standard recommends assignment to the lower value, and the addition of 0.5 mm, before multiplication.

Fibre diameter measurement in processing control is generally concerned with fine wools (mean no more than twenty-five microns) that are to be spun on the worsted system. The mean diameters of these have a relatively low standard deviation (SD) and coefficient of variation (CV%), and the diameter distribution is symmetrical (approaching statistically 'normal'). In contrast, fleece and archaeological studies include coarse wools with asymmetrical (skewed) diameter distributions, so that the diameter mode (most frequent value) and 'tail' of the distribution (whether ending in medium or hairy range) become more important than the mean in defining fleece type.

As electronic calculators became available, it was possible to speed up the SD and CV calculations given in the IWTO method (Anon. 1961), but the histograms of fibre diameter were still plotted by hand. Next, a programme written for a mainframe computer not only made these calculations, but printed out the histograms, although the fleece types were defined subjectively by eye. The Pearson coefficient of skewness was incorporated at the

suggestion of Miss P. Walton, but since this varies considerably within fleece types it has not yet been possible to use the coefficient of skewness for the objective definition of fleece type.

The first ideas regarding the automation of measurements concerned the use of a calliper attached to a transducer. This enables length (diameter) to be measured as voltage, but the data obtained would still have had to be fed manually into the mainframe computer. The use of a Bit-pad (digitiser tablet) in point mode was suggested in 1981 by R. C. Janaway, but the need to have a separate mainframe terminal adjacent to the microscope prevented its use. These difficulties were overcome by the availability of a relatively cheap microcomputer.

The electronic hardware and measuring method Instead of projecting the image of the fibres onto the bench, it is projected onto the surface of a Summagraphics Bit-pad One. The height of the Bit-pad is adjusted to give a magnification of about 500x, precise calibration being carried out before the measurement of each sample of one hundred fibres. The Bit-pad has a stylus (like a biro) and measures the distance between successive positions on the surface (i.e. between one edge of the fibre image and the other) located by the point of the stylus. The Bit-pad is connected to a microcomputer, having a monitor screen, which controls the Bit-pad and processes the data. An Intertec Superbrain QD has been used, but other microcomputers such as the BBC Model B would be suitable (Hutchings and Ryder, 1985).

The computer is in turn connected to a printer used to record the results obtained. The computer and the printer can be either placed on the bench alongside the microscope, or mounted on trolleys.

The Bit-pad has a central measuring area fifteen cm in diameter and a small control area in each corner to record naturally pigmented and medullated fibres, and to reject erroneous measurements or to terminate the series before the set one hundred fibres have been measured (Fig. 1). These areas are drawn on a piece of thin card which is placed on the surface of the Bit-pad when it is being used for fibre diameter measurements.

The programme is given to the computer on a floppy-disc, and the data can be stored for future use on a second disc. The programme, through the monitor screen, first asks for the sample number and then requests calibration by touching each end of a

projected three hundred microns scale (stage micrometer) with the Bit-pad stylus. The screen then displays: "Start measuring". The computer issues an audible tone (bleep) to indicate that the position touched by the stylus has been recorded - first one edge or each fibre image then the other. The screen then displays the number of that fibre in the measuring sequence (in the first column, number or No.) and its calculated diameter (in the second column, fibre diameter or F.D.). When there is no medulla the third column will display '0.0' (medulla width or M.W.) and if there is also no pigmentation, the fourth column will display '0' (pigment or P.)
e.g.

No.	F.D.	M.W.	P.
2.	25.6	0.0	0

Medullated fibres are recorded by first touching the 'medulla' control area with the stylus. The diameter of the fibre is then measured before the width of the medulla is measured, and this measurement appears in the third column:
e.g.

3.	50.8	9.3	0
----	------	-----	---

Pigmented fibres are recorded by first touching the 'pigment' control area before measuring the fibre diameter or touching the 'medulla' control if the fibre should be medullated. Pigmentation is recorded as '1' in the fourth column:
e.g.

4.	32.4	0.0	1
5	63.7	12.6	1

Errors, premature termination and calculation Gross errors, such as a fibre diameter less than one micron or more than two hundred microns, or a medulla width greater than the diameter of the fibre, are detected by the system and rejected. The operator is alerted to the rejection by a longer bleep than that which accepts a point location. Other errors made and detected by the operator can be rejected by touching the 'reject' control area of the Bit-pad with the stylus. Possible errors are the failure to record medullation or pigmentation, or faulty positioning of the stylus. The measurement can then be repeated. A sequence of errors can be eliminated by touching the reject area once for each error.

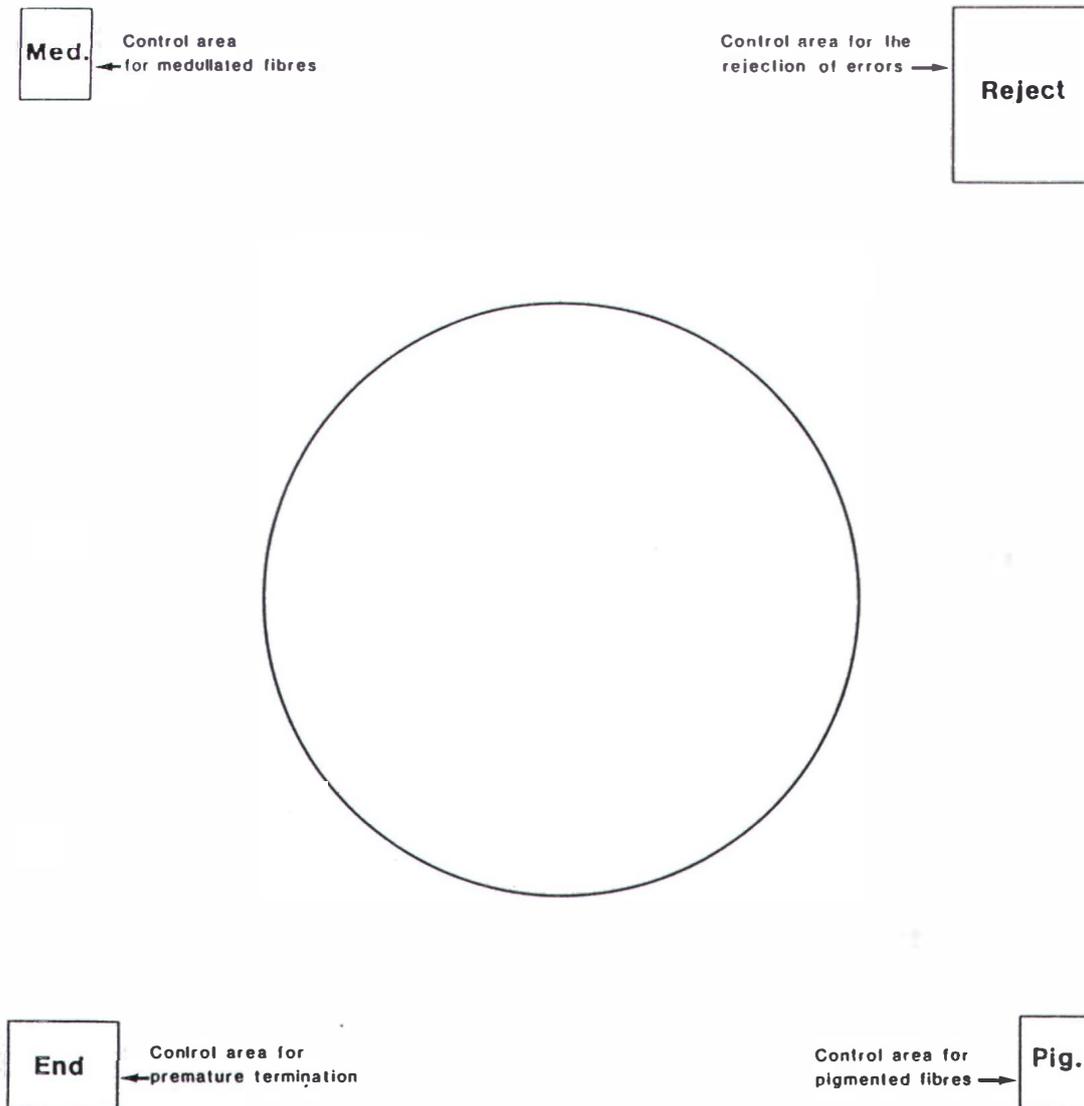


Figure 1: Central Measuring and Control Areas of an Intertac Superbrain QD Bit Pad.

The system is programmed to calculate the results after one hundred measurements, and again the operator is alerted by an audible tone. Termination after fewer than one hundred measurements is possible by placing the stylus on the 'end' (or terminate) control area of the Bit-pad.

The data are printed in ranked order of fibre diameter to the nearest 0.1 of a micron, together with a mean, a standard deviation and the percentage of

medullated and pigmented fibres. The frequency distribution of fibre diameter is printed out as a histogram in increments of one micron, together with the Pearson's coefficient of skewness.

The method has been checked with the IWS standard fibre samples. Eight measurements of one hundred fibres were made on the same slide of each sample. A figure of 21.8 ± 0.44 microns was obtained for the 21.7 micron standard and 28.3 ± 0.69 microns was obtained for

the 28.3 micron standard. These results are remarkably close since new observers using the manual method frequently obtain figures two or three microns from the true standard mean values.

This new method should be more accurate than the original method. Although the precision of measurement has the same limitations of the optical system, and the new need for the stylus to be positioned accurately on the edge of the fibre image, the decision on whether to round-up or round-down the measurements is now made by the computer. Possible errors from manual recording and subsequent typing into a computer are also removed.

The major advantage, however, is the increased speed of the method since it takes only ten to thirteen minutes to measure a sample, which is at worst one-third to one-half of the time taken with the manual method, after which the results still have to be analysed. With the new method the results are calculated in two minutes, during which time the slide can be changed for the next measurement.

A Bit-pad has been used also by Mrs Gabra-Sanders in the measurement of the diameters of fibres in textiles mineralised by contact with metal objects. This was suggested by Ryder and Gabra-Sanders (1985). Measurement is carried out by placing Scanning Electron Microscope micro-photographs of known magnification of cross-sections of yarns on the surface of the Bit-pad and by using the stylus in the same way as described above. Again the aim is to measure one hundred fibres and it is often necessary to use more than one micro-photograph to obtain this number of fibres.

This Bit-pad is linked to a Hewlett Packard 85 computer, and a more general programme, Graphic Information Systems Quantitation program V 3.0 is used. This prints out a mean, SD and CV plus a fibre diameter distribution and skewness coefficient as well as the kurtosis, which is a way of describing the 'spread' of distributions that is applicable to normal distributions.

M. L. Ryder,

References

Anon. (1961) IWTO Technical Committee. Specifications for Test Methods. IWTO - 8-61 (E). (Available from the International Wool Secretariat together with the standard samples A and C).

Hutchings, N. J. and Ryder, M.L. (1985) "The automation of the projection-microscope method of fibre diameter measurement", *J. Textile Inst.* 76, 295-299.

Ryder, M. L. (1969) "Changes in the fleece of sheep following domestication", 495-521, in Ucko, P. J. and Dimbleby, G. E. (eds). *The Domestication of Animals*. Duckworth, London.

Ryder, M. L. (1974) "Wools from antiquity", *Textile History* 5, 100-110.

Ryder, M. L. (1983) *Sheep and Man*, Duckworth, London.

Ryder, M. L. and Gabra-Sanders, T. (1985) "The application of microscopy to textile history", *Textile History* 16, 123-140.

Ryder, M. L. and Stephensen, S. K. (1968) *Wool Growth*. Academic Press, London.

recent publications

Anon. "Formation of Fossilized Fabrics - Focus of Textiles Research Project. *Chemical and Engineering News 1984 Annual Meeting*, (1984), 38-30.

Barish, L. "Overcoming Problems in the Scanning Electron Microscopy of Textiles", *Microscope* XXXI (1983), 139-163.

Becker, J. and Wagner, D. "Silk-weaving Techniques of Han China", *Bull. CIETA*, 53 (1981), 21-43.

Boeck, J. de. "The Conservation of a Coptic Sprang Cap", *Conservazione e restauro dei Tessili*, Como (1980), 159-162.

Buhl, M.L., Møller, S., Støvring-Nielsen, S. "Historien om en Aegyptisk Sarkofag og dens Indhold", *Nationalmuseets Arbejdsmark* (1982), 153-168.

Ferdiere, A. "Le travail du textile en Région Centre de l'Age du Fer au Haut Moyen-Age", *Revue Archéologique du Centre de la France*, 23, no. 2 (1984), 209-75.

- Frayn, J. M., *Sheep Rearing and the Wool Trade of Italy during the Roman Period*, Liverpool (1984).
- Giner, C.A. *Tejido y cesteria en la península Ibérica. Historia de su técnica e industrias desde la prehistoria hasta la romanization*, *Bibliotheca Præhistorica Hispana XXI* (1984).
- Granger-Taylor, H. "Weaving Clothes to Shape in the Ancient World", *Textile History*, 13 (1982), 3-25.
- Granger-Taylor, H. "The Two Dalmatics of Saint Ambrose?", *Bull. CIETA*, 57-58 (1983), 127-173.
- Hägg, I. "Die Textilfunde aus dem Hafen von Haithabu, Berichte über die Ausgrabungen in Haithabu, 20 (1984).
- Hall, A.R. *et al.* "Dyeplants from Viking York", *Antiquity*, 58 (1984), 58-60.
- Hoke, E. "Mikroanalytische Untersuchungen von Edelmetallfäden an Textilien in Gräbern von Kordlar Tepe", *Archäologische Mitteilungen aus Iran*, N.F., 15 (1982), 307-310.
- Hutchings, N.J. and Ryder, M.L. "The Automation of the Projection-microscope Method of Fibre-diameter Measurements", *Journal of Textile Institute*, 76, no. 4, (1985), 295-299.
- Janaway, R.C. "Textile Fibre Characteristics Preserved by Metal Corrosion: the Potential of SEM Studies", *The Conservator*, VII (1983), 48-52.
- de Jonghe, D. "Les moyens de façonnage et leurs caractéristiques", *Association pour l'étude et la documentation des textiles d'Asie*, (1985), 9-34.
- de Jonghe, D. "Twee schijnbaar identieke Florentijnse boorden met de boodschap aan Maria", *Bull. van de Koninklijke Musea voor Kunst en Geschiedenis*, 55, no.2 (1984), 83-92.
- de Jonghe, D, Tavernier, M. and Pollet, L., "Le phénomène du croisage des fils de chaîne dans les tapisseries coptes", *Bull. CIETA*, 57-58 (1983), 174-181.
- de Jonghe, D. and Tavernier, M. "De textielresten uit graf 6": in *Maria van Bourgondië, Brugge. Een archeologisch-historisch onderzoek in de Onze-Lieve-Vrouwekerk*, Brugge (1982).
- de Jonghe, D. and Tavernier, M. "Met selectieroeven geweven koptische weefsels", *Bull. voor de Koninklijke Musea voor Kunst en Geschiedenis*, 50 (1978), 75-106.
- Jørgensen, L.B. "Textilresterne fra Hjemsted" in Ethelberg, P. "Hjemsted - en gravplads fra 4 og 5 årh. e. Kr." *Skrifter fra museumsrådet for Sønderjyllands amt 2* (1986).
- Jospin, J.P. and Vial, G. "La tapisserie aux poissons d'Antioche", *Archéologia*, (Sept. 1983), 20-30.
- Jungschleger, I. "Samoerai in Spijkerbroekenblauw", in: *De Volkskrant*, Friday 13th, Dec. 1985.
- Lehtosalo-Hilander, P.L. "Ancient Finnish Costume", *Sarks* (1984)
- Mackie, L.W. "Covered with Flowers: Medieval Floor Coverings Excavated at Fustat in 1980", *Oriental Carpet and Textile Studies*, 1 (1985), 23-35.
- Masschelein-Kleiner, L. "Conservation of Very Brittle Textiles", *Conservazione e Restauro dei Tessili*, Como (1980)
- Muthesius, A. "A Practical Approach to the History of Byzantine Silk Weaving", *Jahrbuch der Oesterreichischen Byzantinistik*, 34 (1984), 235-254.
- Petrascheck-Heim, L. "Die Mittelalterlichen Textilfunde von Kordlar Tepe", *Archäologische Mitteilungen aus Iran*, N.F.15 (1982), 287-305.
- Pritchard, F. "Saxon Textiles from London Excavations", *The London Archaeologist*, 4, no.13 (1983), 349-354.
- Purhonen, P., Söyrinki-Harmo, L., Tömantera, L., Aav, M., Masala, S.-L. and Johansson, M. "Ken kantaa kalevalaa" (A Pageant of Ancient Finnish Dress) *Kalevala* (1985).
- Ramaswamy, V. "The Genius and Historical Role of the Master Weavers of South Indian Textile Production", *Journal of the Economic and Social History of the Orient*, XXVIII (1985), 294-325.
- Ryder, M.L. *Sheep and Man* (1983).
- Ryder, M.L. "Skin, Hair and Cloth Remains from the Ancient Kerma Civilisation of North Sudan", *Journal of Archaeological Science*, XI (1984), 477-482.
- Sakamoto, K. "Ancient Pile Textiles from the At-Tar Caves in Iraq", *Oriental Carpet and Textile Studies*, 1 (1985), 9-17.
- Sheffer, A. "Textile Impressions from Tel Masos", *Tel Aviv*, 3 (1976), 81-88.

Sheffer, A. "The Use of Perforated Clay Balls on the Warp-Weighted Loom", *Tel Aviv*, 8 (1981), 81-83.

Stack, L. "A Christian Cross - A Woven Representation at the Minneapolis Institute of Arts", *Bull. CIETA*, 59/60 (1984), 12-16.

Taddei, M.S. and di Vignale, F.C. "I Tessuti Copti del Museo dell'Alto Medioevo di Roma", *Conservazione e Restauro del Tessili*, Como (1980), 138-143.

Thompson, D. "Coptic Hangings with Marine and Hunting Themes", *Bull. CIETA*, 54 (1981), 63-81.

Walton, P. "Needlework from Jorvik", *Embroidery*, 36 (1985), 130-131.

Whiting, M.C. "A Report on the Dyes of the Pazyryk Carpet", *Oriental Carpet and Textile Studies*, 1 (1985), 18-22.

Wild, J.P. "Camulodunum and the Silk Road", *Current Archaeology*, VIII (1984), 298-299.

Wild, J.P. "Early Silk Finds in North-West Europe", *The Textile Museum Journal*, 23 (1984), 17-23.

Wild, J.P. "The Textiles from Building 23" in O. Brogan, D.J. Smith, Ghirza: A Libyan Settlement in the Roman Period, *Libyan Antiquities Series 1*, Tripoli (1984), 291-308.

Wild, J.P. "The Triangular Loom Weights", in F.M.M. Pryor, *Excavation at Fengate, Peterborough, England: The Fourth Report*, Toronto (1984), 168-170.

EXTENDED BIBLIOGRAPHY

ROSALIND HALL

"A Pair of Linen Sleeves from Gurob", *Göttinger Miszellen*, 40 (1980), 29-38.

"A Mohair Dress in the Petrie Museum", *Göttinger Miszellen*, 41 (1980), 51-58.

"Fishing-net Dresses in the Petrie Museum", *Göttinger Miszellen*, 42 (1981), 37-43.

"The Pharaonic *mss* Tunic as a Smock?", *Göttinger Miszellen*, 43 (1981), 29-37.

with Janssen, J.J. "(htri'n)i'sh = 'a Pair of Sleeves?'" *Göttinger Miszellen*, 45 (1981), 21-25.

"Two Linen Dresses from the 5th Dynasty Site of Deshasheh Now in the Petrie

Museum of Egyptian Archaeology, University College, London", *Journal of Egyptian Archaeology*, 67 (1981), 168-171.

"Garments in the Petrie Museum of Egyptian Archaeology", *Textile History*, 13, no.1 (1982), 27-45.

"Textiles in the Petrie Museum of Egyptian Archaeology", *Conservation News*, 17 (1982), 11-12.

"The World's Earliest Dresses", *The Egyptian Bulletin*, 3 (1982), 15-17.

Egyptian Textiles, Shire Egyptology 4 (1986).

(Available from Shire Publications Ltd., Cromwell House, Church Street, Princes Risborough, Aylesbury, Bucks. HP17 9AJ. Price £2.50, plus 50p Postage).

SANDRA Y. VONS-COMIS

"Laat-middeleeuwse textielvondsten in het Brinkmann-complex te Haarlem, *Haarlems bodemonderzoek*, 12 (1980), 59-66.

"Vijftiende en zestiende eeuwse textielvondsten uit Amsterdams stadskernonderzoek: poetsdoeken en teerkwasten", *Verslag van de Textieldag*, 29 november 1979, Amsterdam (1981), 15-24.

"Medieval Textile Finds from the Netherlands, preliminary results of the examination of textiles from Amsterdam, Dordrecht, Haarlem and Spijkenisee (dating c. 1225-1550 A.D.) in Jørgensen, L. Bender, and Tidow, K. (eds), *Textil-symposium Neumünster, Archaologische Textifunde*, Neumünster (1982), 152-162.

with Leene, J. E. "Conservation of Archaeological Textiles", *Textil-symposium Neumünster, Neumünster* (1982), 239-243.

"Een veertiende eeuwse textielsnipper uit het kasteel Voorst te Westenholte" in *Het kasteel Voorst*, (Vereeniging tot geoefening van Overijsselsch Regt en Geschiedenis, werken nr. 36), Zwolle (1983), 85-86.

"Zestiende en zeventiende eeuwse textielvondsten", Janssen, H.L. (ed), *Van Bos tot Stad. 's-Hertogenbosch* (1983), 271-273.

"Textielvondsten", in Hacquebord, L. *Smeerenburg*, Groningen (1984), 203-214.

"Zeventiende en achttiende eeuwse kledingresten van Spitsbergen", *Kostuum*, 2 (1984), 32-36.

"Archeologisch textiel: rangen en standen in de zeventiende en achttiende eeuw", in van der Leeuw, S.E. (ed), *Raakvlakken, bijdragen aan een studiedag archeologie/antropologie 30 september 1983*(1985), 98-105.

"Dagelijks kleding in de late middeleeuwen", *Fibula*, 26 (1985), 14-19.

"Achtttiende-eeuwse textiel opgegraven op het Waterloo plein te Amsterdam", *Verslag van Textieldag*, 11 november 1983, 's-Gravenhage (1985), 5-18.

1. The Find...

THE TEXTILE SPECIALIST...



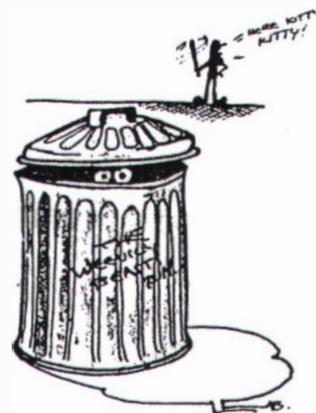
2... analysis...



3. Proverance



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- H. M. Appleyard 8, Bridle Stile, Shelf, Halifax, England, HX3 7NW
- E. Barber 1126 North Chester Ave., Pasadena, CA, 91104, USA.
- A. Bergli Historisk Museum, Konservenkringsavdelingen, Arstadsvollen 22, N-5000 Bergen, Norway.
- M. Bergstrand c/o Emaus, Vildgåsvågen 11A, S-22235 Lund, Sweden.
- K.M. Boe Stationsgade 20, DK-8240 Risskou, Denmark.
- W. Cooke Dept. of Textiles, UMIST, PD Box 88, Manchester, England, M60 1QD.
- E. Crowfoot River View, Big Row, Geldeston, Suffolk, England.
- J. Dosogne-Lafontaine Musées Royaux d'Art et d'Histoire, Parc du Cinquanteenaire 10, B-1040 Bruxelles, Belgium.
- M. Fentz Norupvej 44, Vammen, DK-8800 Viborg, Denmark.
- K. Finch 7, Western Gardens, London, W5, England.
- T. Gabra-Sanders Teaching and Research Centre, Western General Hospital, Edinburgh, Scotland, EH4 2XU.
- C. A. Giner Gobernador Viejo 34^{aa}, 46003-Valencia, Spain.
- H. Granger-Taylor 22, Park Village East, London, NW1 7P2, England.
- E. E. Gudjónsson National Museum of Iceland, PD Box 1499, IS-121 Reykjavik, Iceland.
- R. Hall Petrie Museum of Egyptian Archaeology, University College, Gower Street, London, WC1E 6BT, England.
- A. Hedeager Madsen Lollandsgade 63, DK-8000 Arhus C, Denmark.
- L. Heckett Dept. of Archaeology, University College, Cork, Ireland.
- M. Hoffmann Almevegen 28, Oslo 8, Norway.
- P. van 't Hooft Elsa Bränströmstraat 12, NL-2037 LR, Haarlem-Schalkwijk, The Netherlands.
- A. Johnson Rønnekrogen 13, DK-3400 Hillerød, Denmark.
- D. de Jonghe Koninklijke Musea voor Kunst en Geschiedenis, Jubelpark, Brussels, Belgium.
- L. Bender Jørgensen Bryggerivej 8,^{42v} DK-2500 Valby, Denmark.
- P. van de Lee-Harms Statenjachtstraat 494, NL-1034 EW Amsterdam, The Netherlands
- M. Lindström Kulturhistoriska Föreningen för Södra Sverige, Box 1095, S-22104 Lund, Sweden.
- D. O. R. Lugtigheid Gieterstraat 9¹¹¹, NL-1015 HB Amsterdam, The Netherlands
- I. Lütken Enggårdsvej 8, DK-3060 Espergaerde, Denmark.
- W. I. Mackay 130, Maidmont Road, Edinburgh EH9 1A4, Scotland.
- L. M. Mackie Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, Canada, M5S 2C6.
- C. McClintock Redhall, Ballycarry, Carrickfergus, Co. Antrim, N.Ireland.
- N. Moore 5, Rue Eliane, F-92190 Meudon, Haut-de Seine, France.
- E. Munksgaard 2, Kastanievej, DK-2960 Rungsted Kyst, Denmark.
- K-H. Nielsen Hulsøvang 17, DK-2960 Rungsted Kyst, Denmark.
- S. Niessen Rijnsburgerweg 164, NL-2333 AJ Leiden, The Netherlands.
- E. Peacock Arkeologisk Audeling, UNIT Museet, Erling Skakkes gt. 476, N-7000 Trondheim, Norway.
- I. R. Pedersen Konserveringsbygget, Arstadveien 22, N-5000 Bergen,

-
- Norway.
- I, Petrascheck-Heim A-1190 Wien, Dionysius-Andrassy-Strasse 16, Austria.
 - K, Prangsgaard Spobjergvej 82, Lej 7+8, DK-8220 Braband, Denmark.
 - F, Pritchard Dept. of Urban Archaeology, Museum of London, London Wall, London, EC2Y 5HN, England.
 - F, Roberts Konserveringsanstalten, Vestergade 5-7, DK-6870 Ølgod, Denmark
 - M, L. Ryder Hill Farming Research Organisation, Bush Estate, Penicuik, Midlothian, EH26 OPY, Scotland.
 - K, Sakamoto 13-25, Tennoji-Ku, Shinpoin-Cho, Osaka 543, Japan.
 - H, Sancisi Klassiek Instituut, Pleiadenlaan 10-26, NL-9742 NG Groningen, The Netherlands.
 - T, Schick The Israel Museum, Jerusalem 91012, Israel.
 - E, Schølberg Allégt 38, N-5000 Bergen, Norway.
 - A, Sheffer Institute of Archaeology, Tel Aviv University, Ramat Aviv 69 978, Tel Aviv, P.O.B. 39040, Israel.
 - M, A, van Zeist-Slager Wilhelminalaan 9, NL-9781 CT Bedum, The Netherlands.
 - G, Tata P.O. Box 8414, Salt Lake City, Utah 84108, USA.
 - G, M, Vogelsang-Eastwood Van Swietenstraat 45, NL-2334 EA Leiden, The Netherlands.
 - S, Vons-Comis Griend 87, NL-1112 KZ Diemen, The Netherlands.
 - P, Walton The Garden Flat, 12, Bootham Terrace, York, YO3 7DH, England.
 - S, Wikström Bergvik, Adö, S-19700 Bro, Sweden.
 - J, P. Wild Dept. of Archaeology, Manchester University, Manchester, England.
 - C, Wyaux Rue des Meuniers 4, B-5973 Glimes, Belgium.
 - W, H. Zimmermann Vor der Burg 26, D-2935 Bockhorn, W. Germany.

b INSTITUTIONS

- Abegg-Stiftung, Ch-3132 Riggisberg (Bern) Switzerland.
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 - Historisk-Arkeologisk Forsøgscenter, Slange Allé 2, DK-3423 Lejre, Denmark.
 - The Library, The Royal Ontario Museum, 100 Queen's Park, Toronto, Canada, M5S 2C6.
 - Nationalmuseet, Bibliotekstjenesten, NY Vestergade 10, DK-1471 Copenhagen, Denmark.
 - Niedersächsisches Institut f. Marschen-und Wurtenforschung Viktoriastraße 26/28, D-2940 Wilhelmshaven, W. Germany.
 - Research Archives, The University of Chicago, The Oriental Institute, 1155 East 58th Street, Chicago, Illinois 60637, USA.
 - Rijksdienst voor het Oudheidkundig Bodemonderzoek, Kleine Haag 2, NL-3811 HE Amersfoort, The Netherlands.
 - Riksantikvarieämbetet, Box 5405, S-114 84 Stockholm, Sweden.
 - Somerset County Museum Service, Weir Lodge, 83, Staplegrove Road, Taunton, TAI 1DN, England.
 - Textielmuseum, Goirkestraat 96, NL-5046 GN Tilburg, The Netherlands.
 - Textile Conservation Centre, Apartment 22, Hampton Court Palace, East Molesey, Surrey, KT8 9AU England.
 - Textile Conservation Laboratory, Bevaringssektionen, Nationalmuseet, Brede, DK-2820 Lyngby, Denmark.
 - Textilmuseum Krefeld, Andreasmarkt, D-4150 Krefeld, W. Germany.
 - Victoria and Albert Museum, South Kensington, London SW7 2RC, England.
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