Textiles in Archaeology

John Peter Wild

A Shire Archaeology book

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SHIRE ARCHAEOLOGY

Cover photograph
A fragment of all-wool tapestry from Roman Egypt depicting a female theatre-mask set amid garlands. It probably once bordered a curtain or coverlet and dates to the third century AD.
(Courtesy of the Manchester Museum.)

British Library Cataloguing in Publication Data:
Wild, John Peter
Textiles in archaeology — (Shire archaeology; 56).
1. Archaeological sources. Textiles. Interpretation
I. Title
930.1'028'5
ISBN 0 85263 931 7

Published in 2003 by
SHIRE PUBLICATIONS LTD
Cromwell House, Church Street, Princes Risborough,
Buckinghamshire HP27 9AA, UK.
(Website: www.shirebooks.co.uk)

Series Editor: James Dyer.

Number 56 in the Shire Archaeology series.

ISBN 0 85263 931 7.

First published 1988; reprinted 2003.

Printed in Great Britain by
CIT Printing Services Ltd, Press Buildings,
Merlins Bridge, Haverfordwest, Pembrokeshire SA61 1XF.

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Preface

Textile finds from archaeological sites provide insights into many facets of early man's social and economic progress. To appreciate how and why they do so it is useful to have some understanding of how textiles were made, and this survey traces the route of textile production from the raw materials to the finished goods. At each stage textile finds usually help to answer the technical questions they pose. In this book I have deliberately concentrated on the finds from Britain and north-west Europe simply because the textile research field is vast and so much progress has been made of late. An air of mystery still clings to textiles in archaeological circles: I hope this book may help to dispel it.

Acknowledgements

Warmest thanks are due to Mrs F. C. Wild for reading and criticising the manuscript: blemishes that remain are my fault. The Classical Faculty of the University of Cambridge kindly allowed me to reproduce figures 21, 24, 28, 37 and 44 from my book *Textile Manufacture in the Northern Roman Provinces*. Miss P. Wild prepared figure 8.

Chronology in Britain

The dates below are not to be taken too literally. Prehistorians depend ultimately on radiocarbon dating. Traditional divisions between the later historical periods are somewhat arbitrary.

Neolithic	4000 BC	–	2500 BC
Early bronze age	2500 BC	–	1800 BC
Late bronze age	1800 BC	–	800 BC
Iron age	800 BC	–	AD 43
Roman period	AD 43	–	AD 410
Early (pagan) Anglo-Saxon period	AD 410	–	AD 650
Middle Saxon	AD 650	–	AD 850
Late Saxon	AD 850	–	AD 1066
Viking (Anglo-Scandinavian)	AD 850	–	AD 1066

1. Iron age costume from a northern European peat-bog: a woman's clothing from the Huldremose, Randers, Denmark. Her skirt and the scarf round her neck are of wool in 2/2 twill weave with a check pattern. The cape is of sheepskin. (Courtesy of the National Museum, Copenhagen.)

1
The survival of textiles

Even archaeologists, on being told of research in progress on textiles from archaeological sites, have asked 'Do any exist?' A few outstanding textiles with early historical associations, like the Bayeux Tapestry or the Turin Shroud, are famous, but they are not archaeological finds. In early societies woven fabrics served several extremely important functions, and the excavator could expect their remains to turn up as commonly as potsherds. They rarely do, however, except under special climatic conditions or in a microenvironment which allows normally perishable organic materials to survive.

Dry conditions

The dry, often salt-laden environment of the desert has minimal bacterial activity and is ideal for the preservation of textile fabrics of all sorts. Readers may be familiar with 'Coptic' textiles from Egypt displayed in many museums in Britain and abroad. Like the piece illustrated on the front cover, they are mostly fragments of brightly coloured tapestry-woven decoration which once enlivened the tunics, cloaks, curtains, cushions and bedspreads of the Roman and Islamic inhabitants of the Nile Valley. Original colours are intact. The ancient Egyptians preferred undyed, pleated linens and these, too, remain in pristine condition in the dry climate (see Rosalind Hall's *Egyptian Textiles*, Shire Egyptology 4). On some settlement sites in the Near East the excavator is faced with a problem unthinkable elsewhere: how to store or dispose of a great volume of rags, once they have been recorded.

Wet conditions

In northern and central Europe, by contrast, peat-bogs, lakes and stream-beds provide the principal insights into the work of early spinners and weavers. Here constant moisture, the exclusion of air and permeation by humic acids secure the preservation of organic materials.

In 1850 peat-diggers discovered the body of a man on Grewelthorpe Moor near Kirkby Malzeard in North Yorkshire, clad in a 'toga of a green colour while some portions of the dress were of a scarlet hue; the stockings were of yellow cloth'. Evidently this was a bog-burial; but, alas for scientific research,

he was re-interred in the local churchyard, and only a shoe and parts of a stocking eventually reached the Yorkshire Museum in York; the shoe shows he was a Roman. Such glimpses of a complete costume are rare among the bog-finds in Britain. Denmark, however, boasts a vast collection of whole garments of prehistoric and early historic date (figure 1), mostly recovered from the lakes and bogs of the Jutland peninsula. Some of them were flung into the waters by iron age man as a gesture of dedication to the gods, while others had been worn by outcasts and miscreants condemned to solitary burial in the fen wastes.

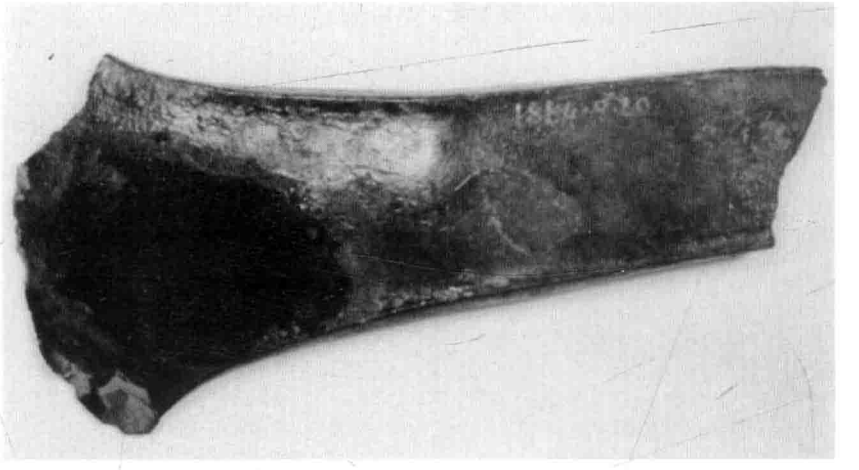
Man-made moist environments also contribute to textile history. At Vindolanda (Chesterholm) near Hadrian's Wall the early Roman forts (AD 90-120) were built across a damp hollow in the ground, a natural dumping ground for rubbish that included several hundred woollen rags. In medieval towns like London, York, Newcastle, Perth and Dublin the lower occupation layers are beneath the water-table and have consequently preserved a great corpus of textile material – evidence not just for textile technology, but for clothing fashions too.

In the damp anaerobic conditions just described some textiles survive better than others, but the reasons for this are not fully understood. In general terms, while hair and wool (i.e. animal protein) fibres are well preserved, flax (a cellulosic plant fibre) is rarely found and, presumably, decayed rapidly. Most bogs are acidic, which would accelerate the decomposition of flax fibres; a few are alkaline and that in theory should have the reverse effect. Certainly the chalky sediment on the bed of some Swiss lakes has yielded a remarkable series of neolithic textiles, of flax and tree bast fibres.

Wool cloth found in damp places is usually a shade of 'peat brown' with occasional hints of other colours, some of which can be identified by dye analysis (see chapter 8). As it dries out, the cloth loses some of its flexibility, individual fibres break off, and the material requires gentle handling.

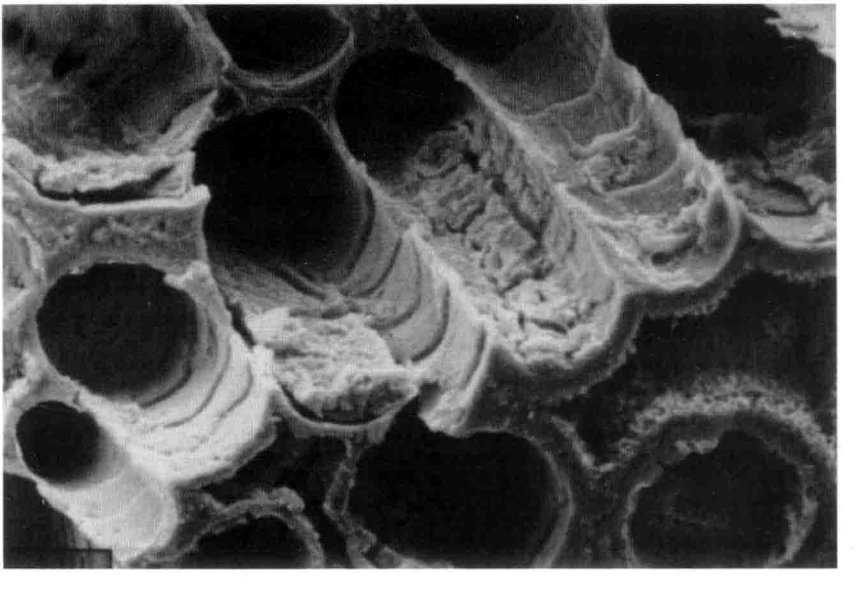
Replacement by metal salts

The metal corrosion products which encase objects of iron or copper alloy buried in the ground are an increasingly fruitful source of textile information. The main focus of interest is on burials (figure 2). In Anglo-Saxon cemeteries, for instance, the dead were laid to rest in their own clothes; for women that meant tunics pinned on each shoulder with a bronze brooch. If there were iron weapons or utensils furnishing men's graves, they too came into contact with the clothing as they rusted

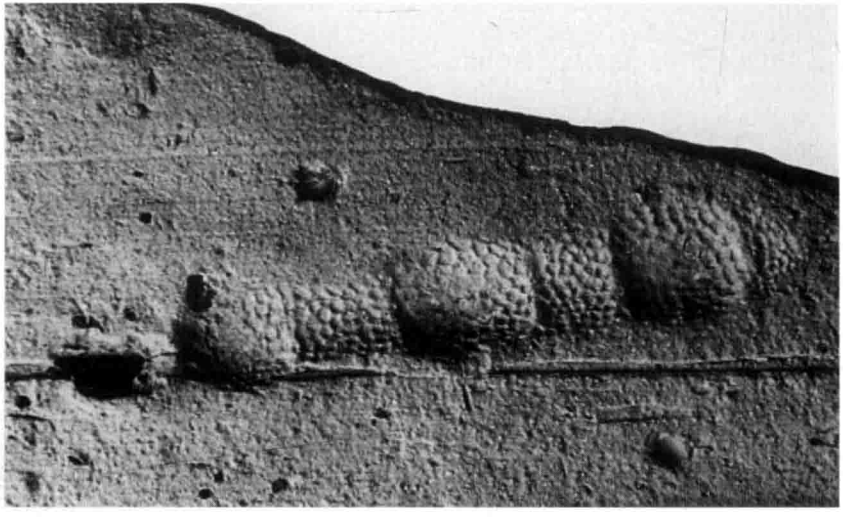


2. Patch of fine plain-weave linen (2 by 3.5 cm; ¾ inch by 1⅜ inches) preserved in the corrosion products of a bronze axe from Barrow 7 on the Dorset Ridgeway. Early bronze age. (Courtesy of Dorset Natural History and Archaeological Society, Dorset County Museum, Dorchester.)

3. Scanning electron microscope photograph of wool fibres preserved as a cast in an amalgam of iron corrosion products on a late sixth- or seventh-century spearhead from an Anglo-Saxon cemetery at Bargates, Dorset. (Courtesy of Robert Janaway, University of Bradford.)



4. Carbonised remains of a twill couch or mattress cover of wool from Colchester, Essex, still lying where it was destroyed by Boudica's followers in the uprising of AD 60-1. (Courtesy of Colchester Archaeological Trust.)
5. Negative impression of plain-weave cloth on a Roman tile from Hockwold-cum-Wilton, Norfolk. The cloth (perhaps a glove) was wrapping the tilemaker's knuckles as he stacked the unfired tiles (scale 3:2). (Courtesy of the Norfolk Archaeological Unit; photograph by David Wicks.)



away (figure 3). Gradually the sulphides leaching out of the metal invaded the adjacent patches of textile, replacing the constituent animal or vegetable fibres or causing a negative cast to be formed around them. Little or nothing of the original cloth remains, but its outward form can be studied and some significant facts can be gleaned about the garments worn by the deceased.

Lead salts, too, have a preservative quality. A Roman lead coffin at St Albans was found to contain the remains of a child, its head supported on a wad of wool cloth which was still in fair condition owing to the ground moisture and sulphides exuded by the lead.

Some unusual cases

In AD 60 Boudica's rebel forces set fire to timber buildings inside the Roman legionary base at Colchester. A mattress lying in a corner of one of the rooms was not consumed by the heat, but carbonised (like the woodwork at Herculaneum). The diamond twill weave of its blackened wool cover (figure 4) could still be recognised, but under the microscope the fibres in its yarns were heavily distorted.

Workers making building tiles, pottery or even the clay vessels for refining salt sometimes handled their products inadvertently before they were properly dry. The result was a negative impression in the clay of the clothing covering a knee or elbow or protecting the hands (figure 5). The image is often crisp and clear, but in recording it allowance has to be made for some shrinkage in drying or firing. Impressions of a similar type have been noted in the late Roman gypsum burials from Dorchester, Dorset, and York. The body was laid out in layers of gypsum powder which solidified and still carry the marks of the wrapping round the corpse.

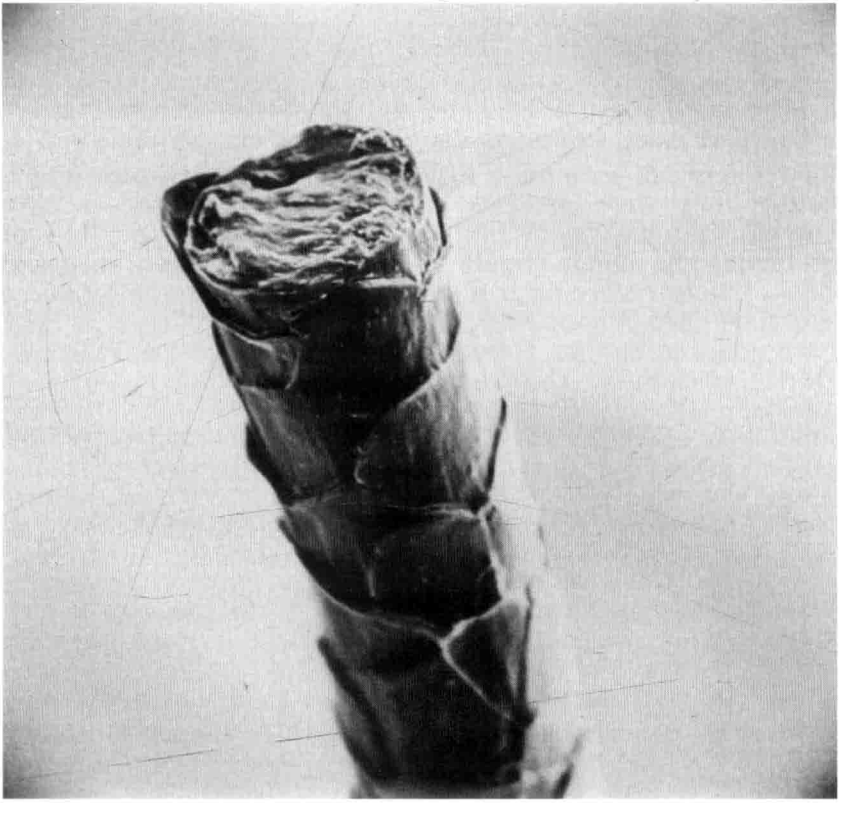
Gold thread does not decay. Among the Anglo-Saxon aristocracy garments trimmed with tablet-woven braids were popular and were sometimes enhanced with brocaded 'floating' gold weft. Even when the wool, silk or flax of the braid has disintegrated, the structure of the weave may still be reflected in undulations on the gold brocade.

Of perennial fascination for textile experts are the sealed tombs of prominent ecclesiastical figures of the middle ages. The microclimate inside the coffin may be sufficiently stable for some of the original vestments and furnishing to survive. The tomb of St Cuthbert in Durham Cathedral with its rich silks, embroideries and tablet-weaves has confirmed in spectacular fashion what the

literary sources tell us of the skills of Anglo-Saxon weavers and needlewomen.

The size of a surviving textile fragment is no guide to its importance. Two minute pieces of silk, for instance, one from Holborough in Kent, the other from Colchester, Essex, have shed a completely new light on trading connections between Roman Britain, Roman Syria and Han China. A secure archaeological findspot, however, is crucial, for out of context ancient textiles rarely look ancient! Bits of modern denim, cotton bandage and jute sacking accidentally trodden by an excavator into the muddy layer on which he was working have been brought to the writer for examination. Some were rejected at once — others nearly reached the printed page.

6. A recent wool fibre showing overlapping scales (scale approximately 1:3000). (Scanning electron microscope photograph by courtesy of W. D. Cooke, UMIST.)



2
Fibres and their preparation

Early man had a surprisingly firm grasp of the mechanical properties of the various natural fibres which were available to him. Rope, basketry, matting, netting, woven fabrics and felt were all end-products of centuries of practical experiment. The domestication of plants and animals during the so-called neolithic revolution had introduced new sources of fibre, but the constraints of geography and climate limited their availability. Some experiments involved what we would call exotica: asbestos fibres, for instance, and the silky strands with which the *Pinna nobilis*, a giant Mediterranean mussel, anchors itself to the sea-bed. None the less, the potential of a select handful of the more familiar natural fibres was recognised at an early date and they played a dominant role in the European textile industry until the advent of modern synthetics.

The principal raw materials of ancient textiles in Europe were sheep's wool and flax while animal hair, hemp and other plant fibres had a subsidiary position. The leading imported fibres were silk and cotton, luxuries until at least early modern times. Preparation of the raw fibres for spinning was often time-consuming, labour-intensive and specialised, and each fibre category demanded appropriate treatment. In what follows the main fibres and their particular modes of preparation will be considered in turn.

Wool

The sheep was domesticated by about 8000 BC in north-east Iraq, and by 3000 BC at the latest there are firm indications that its coat was being converted into wool felt or woven fabric. In Britain the earliest finds of sheep bones date to the early neolithic (from about 4000 BC), but the first extant wool textiles are early bronze age, such as those from the oak coffin in a barrow at Rylston, East Yorkshire (about 2300 BC). That is no surprise, for analysis of the earliest textiles from Europe and western Asia has proved them all to be of plant origin until almost the end of the neolithic.

The wild sheep grew an outer layer of short hair-like kemps and a sparse undercoat of short-stapled fine wool. After domestication the woolly undercoat became denser, and many of the kemps in the outer coat were replaced by long-stapled wool.