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HISTORY OF
WESTERN TEXTILES

I

Edited by
DAVID JENKINS



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INDUSTRIES OF THE NEAR EAST AND EUROPE IN PREHISTORY

Ancient Egypt, 5000–332 BC*

JOAN ALLGROVE-MCDOWELL

INTRODUCTION

Evidence for ancient Egyptian cloth production dates from at least the Neolithic period (*c.* 5500 BC), when linen weaving became a staple industry. Mummification, practised from the First Dynasty (2920–2770 BC), required mountains of linen for bandage. Flax was also the common fibre for clothing and household textiles. Additionally, linen cloth was used as payment for labour, as trade-goods and as gifts and tribute to palace and temple. Egypt's dry, sterile sand has preserved large amounts of cloth in fine condition, though this material has been little studied. Since the majority of excavated sites are tombs and temples, where religious belief apparently prohibited the use of animal fibres, linen predominates. However, the few known settlement sites have preserved other plant fibres and wool (Ill. 1.1).

Besides textiles, the Egyptologist is blessed with documentary and visual information. This is most prolific for the Middle Kingdom (*c.* 2040–1640 BC), the end of which is a watershed in Egypt's textile history. At Beni Hasan in Middle Egypt painted scenes showing professional workshop production appear in the Twelfth-Dynasty tombs of the province's governors from *c.* 1991 to 1783 BC while, about 150 miles to the north, in the almost contemporary workmen's town of Kahun founded *c.* 1895 BC, the Egyptologist, Flinders Petrie, found textile tools in a domestic context. Tomb models of weaving workshops, another Middle Kingdom manifestation, provide the most accurate picture of weaving on the horizontal loom (Ill. 1.2). New Kingdom evidence (*c.* 1550–1070 BC) is less abundant, but from similar sources: tomb paintings, like those of Djehutynefer of the Eighteenth Dynasty (1550–1307 BC), showing the vertical loom, and finds on town sites, including the textile tools from Gurob in the late Eighteenth to early Nineteenth Dynasties.

* We are grateful to Gillian Vogelsang for help in revising this section.

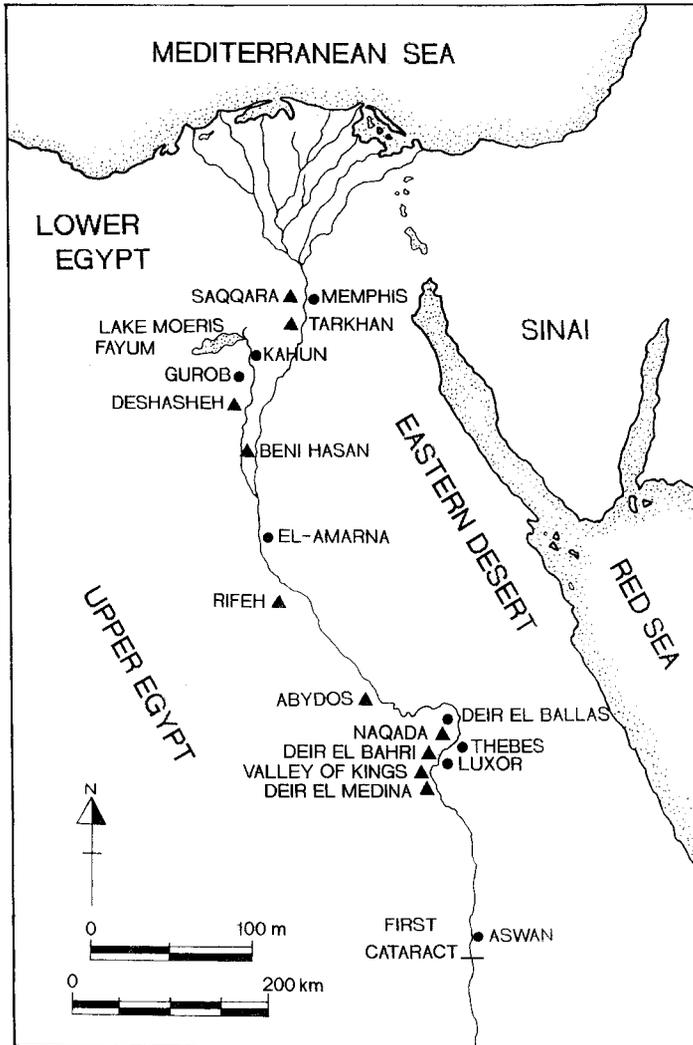


Illustration 1.1 Map of ancient Egypt showing the places mentioned in the text.

FIBRES, DYES AND PROCESSES

Wild flax was not indigenous to Egypt. The domesticated varieties were probably early imports from the Levant. The earliest evidence of flax cultivation comes from Kom W in Lower (northern) Egypt, a hunter-gatherer site in the north Fayum (c. 6000 BC). Flax requires good soil and a good water supply, and the early development of labour-intensive Nile agriculture under a centralised administration made Egypt pre-eminent in the ancient world for linen production.

Men undertook the cultivation, harvesting and fibre preparation, which was hard manual work. Flax was sown in mid-November and pulled, not cut, between



Illustration 1.2 Model of a weaver's workshop from the tomb of Mekhet-Re (c. 2000 BC) now in the Egyptian Museum, Cairo. The women are spinning, plying, warping and weaving.

mid- and late March. The bast fibres lie between the stem's hard outer cover and its woody core. Half-ripe stems have fine fibres, while over-ripe stems are suitable only for ropes and mats. Seeds were removed by rippling with a heavy, toothed wooden stripper before the stems were alternately beaten and soaked (retted) in a tank or canal to separate the layers. Finally, the dried, greyish bast fibres were combed into rovings, ready for spinning. Such careful preparation undoubtedly contributed to the high quality of the finished linen.

Settlement sites have yielded other vegetable fibres: rush, reed, palm and papyrus. They were used alone, loosely twisted, or mixed with flax to make rope, handles, baskets and mats. Although difficult to assess, wool production, particularly of the Asiatic people in Egypt, may have been greater than the textile evidence suggests. Flocks of sheep and goats ('small cattle') are documented throughout the Pharaonic period and were owned even by temples, despite the religious prohibition against the use of wool in a religious context, a result of the ram cults. Their bones have been excavated, but wool is rare. Nevertheless, it has been found on sites of various dates. Petrie found wool at pre-Dynastic

Naqada (which gave its name to a whole culture of its period). The New Kingdom workmen's village outside el-Amarna (c. 1350 BC) yielded textiles: undyed flax and wool (1/1) tabbies, a few dyed flax textiles and some of undyed brown goat hair.

Dyed textiles are rare, although examples date back to the pre-Dynastic period. Although the ancient Egyptians were expert at preparing paint pigments, their repertoire of dyestuffs of plant origin was limited. Blue was derived from indigotin, although whether this was obtained from woad (*Isatis tinctoria* L.) or a variety of indigo, is disputed. Henna (*Lawsonia inermis* L.) and madder (*Rubia tinctorum* L.) were used for red dyes. Blue and red dyes gave the brownish-purple on a textile from the Amarna workmen's village and the dark brown on fabrics from Thutmose IV's tomb, henna and saffron gave yellow, and inorganic iron deposits from the soil were sometimes used to obtain ochre. Fibres were dyed before spinning. Alum, the chemical mordant needed to fix most plant dyes (see p. 28) came from the Libyan oases.

Spinning yarn for cloth was women's and girls' work, whereas men spun yarn for nets from the Eighteenth Dynasty. Whorls of stone and bone have been discovered at early sites, notably Kom W and Abydos (c. 5500 BC). Spindles of the pre-Dynastic period (before 3150 BC), Old Kingdom (2575–2134 BC) and Middle Kingdom (2040–1640 BC) were of wood, from the New Kingdom (1550–1070 BC) with a spiral groove at the top in which to fasten the thread. Whorls of stone, bone or wood were shaped into flat, round discs. A new conical whorl of wood, probably a Levantine import, appeared before the New Kingdom. Both types varied in weight according to the thickness of thread to be spun. Innately conservative, the Egyptians retained the older tools in use after the introduction of the new.

The Egyptians used three main spinning techniques, as recorded in the tomb paintings of Baqt and Kheti at Beni Hasan (Eleventh Dynasty), namely the grasped spindle or hand-to-hand, the supported spindle with spindle and fibre rolled against the spinner's thigh, and the dropped spindle method, which produced the finest and most regular thread (p. 12). The spun thread was almost invariably S-twisted.

Splicing to create a yarn was another technique widely practised in Egypt and probably elsewhere though scholars are just beginning to recognise it. The ends of lengths of bast fibre stripped from the flax stem were stuck to one another to make a yarn that was further stabilised by gentle twisting. A series of open terracotta bowls, from the floor of which rises a pair of upright loops, which often show thread wear, have been explained as 'wetting bowls'. At one time these bowls were thought to be for plying; however, it has since been determined that the bowls were filled with water and spliced yarn passed under the loops while twist was inserted with a spindle.

The horizontal ground loom was the only loom used before the New Kingdom and was first depicted on a painted pre-Dynastic Badarian dish in the Petrie Museum, London. Warp- and cloth-beams were pegged into the ground, and the sheds were separated by heddle-rods, supported by heddle-jacks, which were raised to form the shed and kicked away to form the counter-shed (Ill. I.9). The famous loom in Chnem Hotep's tomb at Beni Hasan appears vertical, but is a frameless ground loom depicted according to ancient Egyptian artistic convention. Contemporary tomb models like that of Mekhet-Re (c. 2020 BC) from Deir-el-Bahri clearly show horizontal looms, as well as spinning, plying and warping, the latter done by stretching warp-threads over pegs driven into a wall. Warping was also carried out round two standing frames (Ill. I.2). Among tools found at Kahun are a possible loom-beam, a beater-in and a number of heddle-jacks.

The vertical frame loom with two beams was probably introduced from western Asia and appears early in the New Kingdom. A shed was formed with a heddle-rod and heddles, and the counter-shed was made by setting the shed-rod at an angle between the wefts. Since the weavers continued to produce largely plain tabby, the possibilities of this loom were not fully exploited in ancient Egypt. Wall paintings in the tomb of the royal Scribe, Djehutynefer, already mentioned, show a vertical loom with a single male weaver and a larger one with two men seated at it side by side. The early New Kingdom marked the start of male weavers being commonly depicted at the vertical loom. Until this time weaving had been women's work. For the most part, the weaver's life was as lowly and anonymous as elsewhere, the only acknowledgement being a complaint in the text of *The Satire on Trades* (*Papyrus Sallier* II 7: 2-4). 'The mat weaver in the workshop he is worse than a woman. His knees are drawn up to his belly, he cannot breathe the open air. If he cuts short the day's weaving he is beaten with fifty thongs. He must give food to the door-keeper that he lets him see the light of day.' However, on rare occasions, senior weaving overseers aspired to full mummification and burial. A multiple burial of the Fifth Dynasty (2465-2323 BC) at Saqqara in 1966 revealed a wooden box naming Watay, 'foreman of weavers'.

Weaving ateliers were well documented in the harems of royal palaces, in temples and on country estates. Recruits were trained in spinning, weaving and garment making. In the Middle Kingdom the provincial governors buried at Beni Hasan were responsible for the Oryx Nome's considerable industry, and bore the titles 'Master of linen and linen manufacturers' and 'Sem-Master of all tunics', while domestic activity at Kahun presents evidence of a cottage industry. In the New Kingdom, tomb paintings of Djehutynefer show fibre preparation, spinning, plying and weaving, supervised by the master himself in the main court of his palatial Theban home. However, in 1983, a Boston team of archaeologists, re-working the Eighteenth-Dynasty site of Deir-el-Ballas, uncovered New Kingdom evidence of a weaving workshop in a domestic context, including linen and wool, parts of a spinning-bowl and fragments of a loom-beam.



Illustration 1.3 A girl's pleated linen dress from Tarkhan (1st Dynasty, c. 2800 BC), now in the Petrie Museum, University of London (UC 28614Bi).

Most Egyptian cloth was undyed linen plainweave tabby. However, as with many other Egyptian arts, great technical virtuosity is apparent in the early Dynastic period, with cloth of the First to Fourth Dynasties among the finest. The Tarkhan dress (First Dynasty) (Ill. 1.3) is made of linen with a weave-count of

22–3 warp-threads and 13–14 weft-threads per square centimetre. There are double warp-threads in places, and occasional thicker, greyish warp-threads which give irregular warp-stripes. This is also characteristic of later linen cloth, where weft-stripes were also made in the same way. Tomb paintings show clothing of a translucent fineness, revealing the wearers' limbs. However, even the coarsest cloth was on the whole evenly woven, with few faults.

One of the few variations on plainweave tabby was the weft-loop weaves (supplementary weft-wrapping). Between regular groups of plainweave rows, extra weft-threads, usually thicker than the ordinary weft, were wrapped around usually paired warp-threads at uniform intervals. These were extended, perhaps by being wound round rods to produce large loops. The finished cloth resembles long, uncut pile which covers the regular weft (see pp. 22, 113 above). Far from being the postulated Ptolemaic import, examples of this technique date back to the First Dynasty, and would have provided warmth in the Delta's cold winter, and was used for the outer garments, bed-covers and towels.

Pleating developed early, as both a male and female fashion, and appears frequently in tomb paintings. The earliest known dress is from Tarkhan (First Dynasty, *c.* 2800 BC); now recently conserved (Ill. 1.3), it has tightly pleated sleeves and a yoke stitched to the skirt. 'Pleating boards' in the British Museum, London, in Turin and Florence have not universally been accepted as such because pleating may have been done with the fingers and the aid of starch. Women's dresses, dating to the Fifth and Sixth Dynasties (*c.* 2465–2150 BC), were horizontally pleated from neck to hem, probably intended to provide warmth, and can be found in Boston, Turin, Paris and Cairo. Like the Tarkhan dress, they show signs of wear. Men also adopted the style. However, the horizontal pleating must have sagged and been uncomfortable as well as unattractive, and the fashion, by Egyptian standards, was short-lived.

A fabric which appears crimped, resembling modern seersucker, is depicted in informal scenes during the Eighteenth Dynasty, including ladies at a banquet in a tomb painting of Neb-Amun from Thebes (*c.* 1400 BC) (now in the British Museum), wearing loose, yellow, crimped robes.

Linen varies in natural colour from grey to brownish, but the ancient Egyptians preferred white linen, which was achieved by bleaching, men's work. Middle Kingdom paintings show that cloth, just cut from the loom, was wetted beside a river or canal and rubbed with natron or potash, beaten over a stone or wood base and rinsed in flowing water. It was then wrung by twisting, bleached in the sun, folded and bundled. In the New Kingdom linen was sometimes boiled with potash in a vat to bleach it. A yellowish tint was believed to be saffron which was intended to keep lice at bay and was found on cloth from the Twelfth-Dynasty tomb of the two Brothers at Rifeh (in Manchester). Gums may have been added to the cloth surface during finishing, but these largely disappeared with ancient wear and washing and modern conservation.

USES OF TEXTILES

All classes wore linen clothing. Fashion became more elaborate in the New Kingdom, with upper-class male dress consisting of a kilt, sometimes stiffened or pleated, while women wore a full-length narrow dress. Over these, a variety of shirts or tunics, which could also be pleated, were worn. They were usually white and often translucent, setting off magnificent jewellery. Outer cloaks and shawls would have been worn in chillier conditions. Rank also determined dress. Men of the lower orders wore a kilt and a shirt or only a loin-cloth, according to rank. The loin-cloth was worn as underwear by all classes, male and female. The tomb of the architect Kha found by Schiaparelli at Deir-el-Medina (mid-Eighteenth Dynasty) housed a plentiful supply of folded triangular loin-cloths, some of them matching sleeveless tunics. All had been worn in his lifetime and bore laundry marks.

In Egyptian art foreigners, particularly 'Asiatics' and servants (who may themselves have been foreign slaves), wore coloured and patterned garments which emphasise their barbarity in contrast to the fine bleached linen worn by Egyptians. The famous tribal Aamu, ancestors of the Bedouin, appear in Chnem Hotep's Beni Hasan tomb in garments (arguably of wool) with coloured geometric patterns. Female servant figures, also from Twelfth-Dynasty tombs, wore the Egyptian-style dress, covered with repeating lozenges. Tributary foreigners and bound captives, chiefly Asiatics and Nubians, colour the monuments of the Ramesid warrior Pharaohs of the Nineteenth and Twentieth Dynasties, boasters all. It is curious, therefore, that the exceptions to the taste for white garments should be the ceremonial dress of deities, royalty and the priesthood. One explanation may be that such ritual dress derives from Egypt's distant past, retained because of conservatism in religious matters.

Evidence for decorated Pharaonic garments is very sparse before the New Kingdom fashion developed for rock-cut tombs, embellished with wall paintings which are a mine of information. The earliest example is the tiny ivory statuette of an unknown First-Dynasty king (c. 2920–2770 BC) from Abydos and now in the British Museum, wearing a short cloak, the garment associated with the Sed-festival, or King's Jubilee and, in this case, lozenge-patterned.

Of surviving textiles, Howard Carter found four linen textiles with patterns of coloured tapestry in the Theban tomb of Tuthmosis IV (c. 1401–1391 BC). They are considered to be fragments of ceremonial garments, with royal cartouches, lotus and papyrus, and three of them were family heirlooms, since they bear the cartouches of this king's father, Amenophis and grandfather, Tuthmosis III.

The large wardrobe of Tutankhamun (c. 1333–1323 BC) gives a unique glimpse of otherwise lost treasures. Tunics, gloves, kilts and a girdle are ornamented with embroidery, beadwork, gold rosettes and sequins. One tunic is tapestry woven. The famous 'dalmatic', a sleeved linen tunic now in the Cairo Museum, is thought

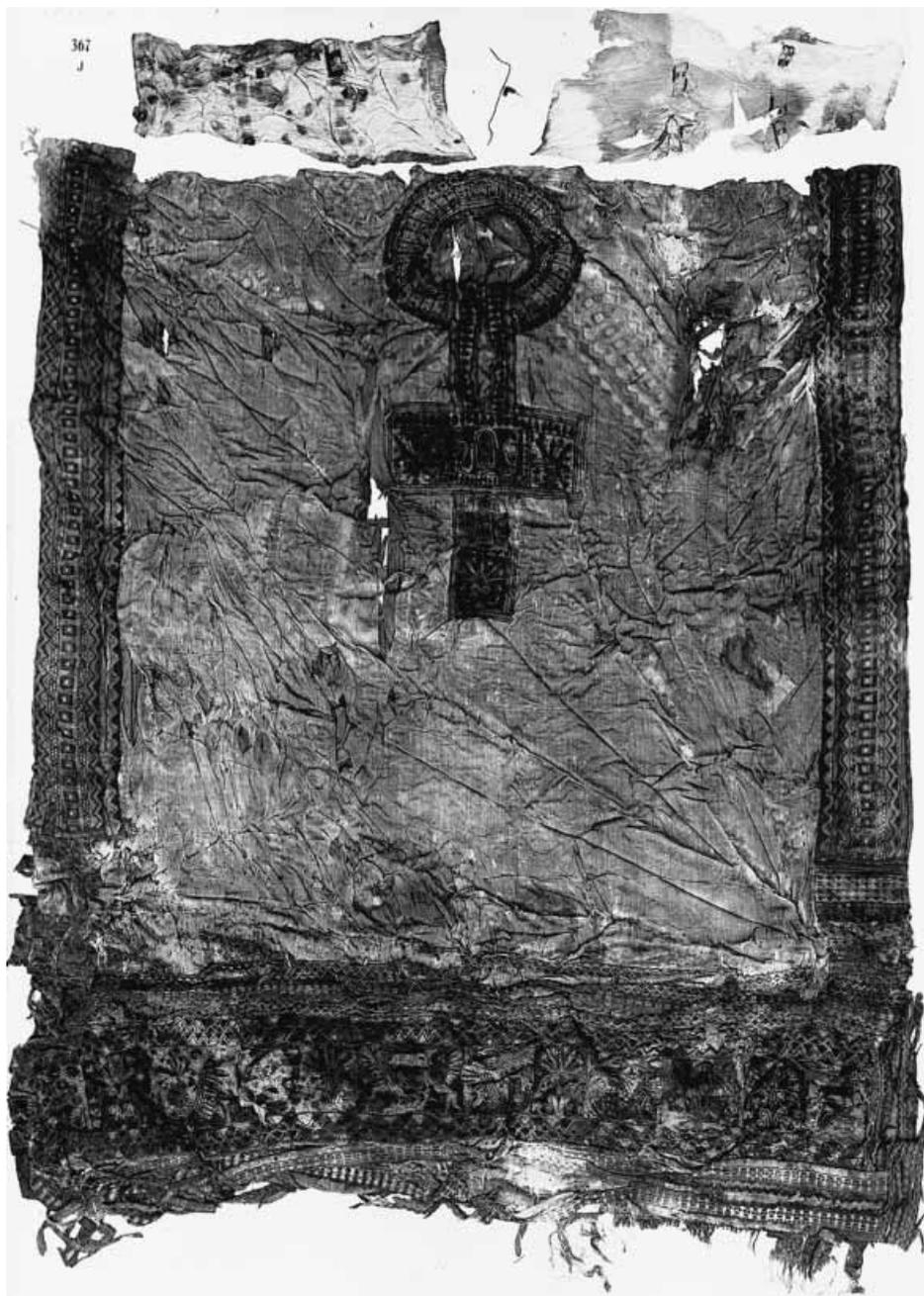


Illustration 1.4 The funerary tunic of Tutankhamun: sleeved tunic with applied ornament, now in the Egyptian Museum, Cairo.

to be a ceremonial garment (Ill. 1.4). It has applied bands of embroidery and a warp-faced weave (unidentified) at the sides and hem, an ankh (the life symbol) on the chest, and two cartouches of the boy-king at the neck. Egyptian motifs mingle with Syrian and Mesopotamian winged griffins. Some scholars believe that these motifs and the tapestry technique may point not just to foreign influence, perhaps Syrian, but to foreign workmanship. However, Kha's wardrobe (see above) included a shirt with simple bands of tapestry decorating hem, sides and neck, so it is possible that the Egyptians mastered tapestry weaving early in the New Kingdom, when the country was opened to foreign influences.

The linen girdle of Rameses III, now in Liverpool, is a compound warp-patterned weave with two bands of ankh-signs, and small geometric motifs in red, yellow, green and blue, separated by a plain band. How it was woven is still debated. It measures 5.2 m long and 12.7 cm tapering to 4.8 cm wide. It has been associated with this Nineteenth-Dynasty king (*c.* 1193–1162 BC) by his cartouches and the inscribed date of his second regnal year which appear on it. A unique piece, its purpose has been questioned, but it is similar in size and shape to girdles worn by goddesses and queens in numerous New Kingdom wall paintings of religious ceremonies. These are narrow, long enough to span the waist twice and leave long ends, and are plain red or simply patterned. The Pharaohs wear ceremonial girdles of gold and jewels, with very wide ends usually terminating in uraei, the royal cobras. Both are shown on the back of a gold-plated chair from Tutankhamun's tomb, on which the king and his wife appear, both wearing girdles.

After the death of Rameses XI in 1070 BC, Egypt faced political decline and subjugation to non-Egyptian rulers, finally becoming a province of the Persian Empire from 525 to 404 BC (Twenty-Seventh Dynasty), and 343 to 332 BC. Textile production is poorly documented during this late period, and must have suffered during times of unrest. Material remains are also few, since many later kings ruled from the Delta, where damp has obliterated organic remains. However, the Persian custom of allowing provincial governors (satraps) freedom to administer their territory must have ensured that linen weaving, one of Egypt's chief industries, survived. This added to the annual tribute sent to the Achaemenid kings, until Alexander's conquest opened a new phase in 332 BC.

Anatolia and the Levant in the Neolithic and Chalcolithic periods, *c.* 8000–3500/3300 BC

JOHN PETER WILD

The simplest woven textiles are technically only one step beyond basketry, netting and matting. Basketry, however, may be made from the fibres of many wild

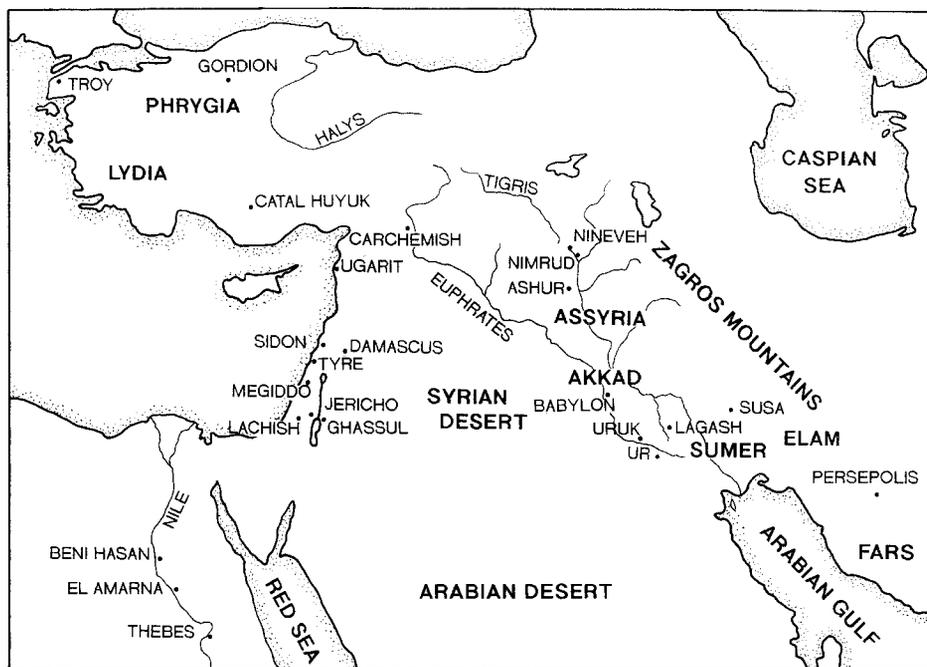


Illustration 1.5 Map of sites in the Near East showing sites mentioned in the text.

plants, while netting and woven textiles are more closely linked to the rise of agriculture in the Near East and in particular to the evolution of cultivated flax (*Linum usitatissimum* L.) from the shorter wild flax. Seeds of cultivated flax have been found at sites of the pre-pottery Neolithic (c. 8000 BC) in Syria and in the foothills of the Zagros mountains in western Iran (Ill. 1.5).

Sheep's wool was a comparative late-comer. The first positive indications that the wild sheep of the Near East (*Ovis orientalis*) had been domesticated were found at Zawi Chemi in the Zagros foothills (just before 8000 BC); but a woolly fleece, developed from the predominantly hairy coat of the first domesticates, is not attested until the early Bronze Age. (c. 3000 BC). The first spinners of the Near East, therefore, learned their craft on plant fibres which are much less tractable than most animal fibres.

Our knowledge of the earliest woven textiles of the Near East rests at present on finds (dated to c. 6000 BC by radiocarbon) from the Neolithic village of Çatal Hüyük (Ill. 1.6) on the Konya plain of Anatolia, where textiles used to wrap the dead buried under the sleeping platforms in the mudbrick houses and shrines had been carbonised in a fire. Fabrics in tabby weave and in two twining techniques have been published (Ill. 1.7). The tabbies woven in two-ply thread (S-plied from Z-spun yarns) show 12×15 and 10×12 threads per cm. Their quality is impressive.



Illustration 1.6 Photograph of a textile from Çatal Hüyük, Turkey, dating to c. 6000 BC.

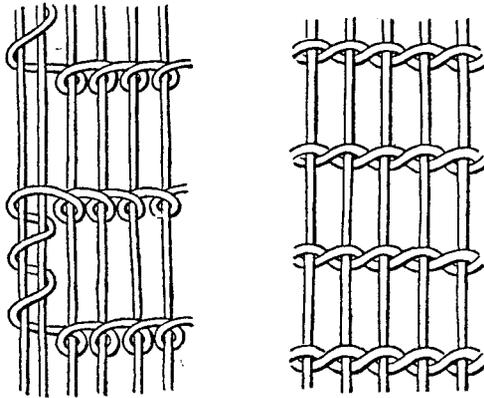


Illustration 1.7 The construction of two of the twined fabrics from Çatal Hüyük, Turkey.

A so-called 'heading-cord' was recognised on one linen fragment, but its structure was incorrectly diagnosed and it may be a selvedge. Polychrome wall paintings at Çatal Hüyük with patterns reminiscent of kilims have been over-optimistically seen as evidence of Neolithic tapestry.

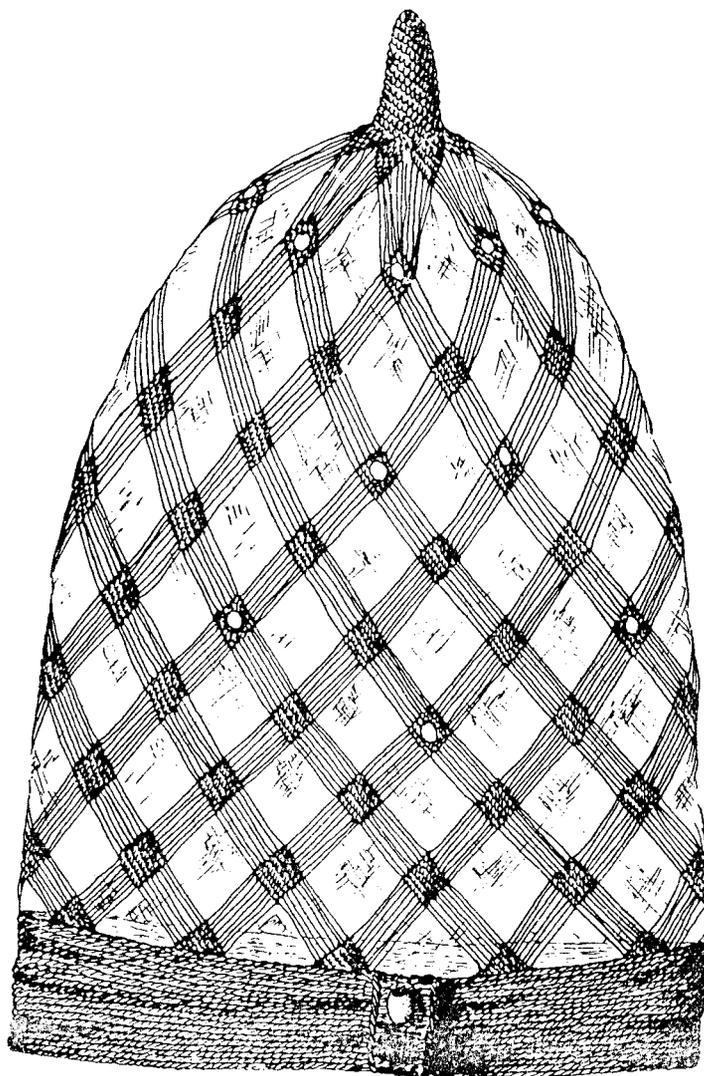


Illustration 1.8 Reconstruction of the knotted headdress from Nahal Hemar, Israel.

Woven fabrics may in fact be merely mechanically produced descendants of netting. An important collection of Neolithic sacred objects including basketry, matting, cordage and very fine netting was found stored in a cave in Nahal Hemar, Palestine, on the Dead Sea. The collection has been dated to *c.* 6500 BC by radiocarbon. Interest centres on the sophisticated netting and interlacing techniques with S-plyed linen yarn used for a ceremonial headdress (Ill. 1.8). A neighbouring cave in Nahal Mishmar has yielded a range of medium to fine tabby linens (15–23 by 10–23 threads per cm) dating to *c.* 3300 BC. At Ghassul, a contemporary site,

small fragments of carbonised tabby in two-ply yarns were recovered. Textile impressions are regularly found throughout the region. Carved figurines and the fabrics from the graves also tell us something of contemporary dress. String-skirts were worn with blouses by women while men had loin-cloths. Goddesses appear in multicoloured costumes, perhaps painted or dyed.

Spinning and weaving were just two of the specialised crafts practised in the Neolithic and Chalcolithic villages of the Fertile Crescent. Limestone and later terracotta spindle-whorls crop up in increasing numbers after 5500 BC and point to the use of the suspended spindle. The whorl was probably mounted on top of the wooden spindle. Some scholars have argued for the presence of the warp-weighted loom in the region; but it is more likely that a version of the simple two-beam horizontal ground loom was the standard equipment. The twined and knotted fabrics perhaps indicate that hand- and finger-work still had precedence over the loom until the fourth millennium BC.

To summarise the characteristics of the first Near Eastern textiles, the two-ply linen yarns, spun on a suspended spindle, were woven on the two-beam ground loom into medium- to fine-quality tabby-weave cloth. Twined and knotted fabrics played an important role in the earlier part of the period.

Anatolia, Mesopotamia and the Levant in the Bronze Age, c. 3500–1100 BC

JOHN PETER WILD

The Bronze Age civilisation of Mesopotamia under Sumerian, Akkadian and Babylonian rule shows a marked continuity in technology and culture despite the ebb and flow of political change. It was a theocratic society and the crafts ostensibly served the gods and the temple hierarchies. The peoples on the fringe in Iran, Anatolia, Syria and Palestine came at times under Mesopotamian domination, but remained distinct. Above all, the ruling class was literate: their surviving records on clay tablets in cuneiform script give us an insight into their textile industries.

In Mesopotamia sheep were the main source of fibre (Ill. 1.9) and contemporary art reveals at least three types: sheep with corkscrew horns, medium-length tail and a hairy fleece; sheep with curved Ammon horns, short thin tail and a woolly fleece; sheep with a fat tail and woolly fleece. Large flocks are documented and there was a lively trade in raw wool. Average fleeces weighed from 700 to 800 gm. The hair of goat, ibex and camel was also utilised towards the end of the Bronze Age. Flax was a minor crop on the Tigris and Euphrates, and linen was significant only in religious contexts; it was imported from Palestine and Syria where its cultivation was well established.

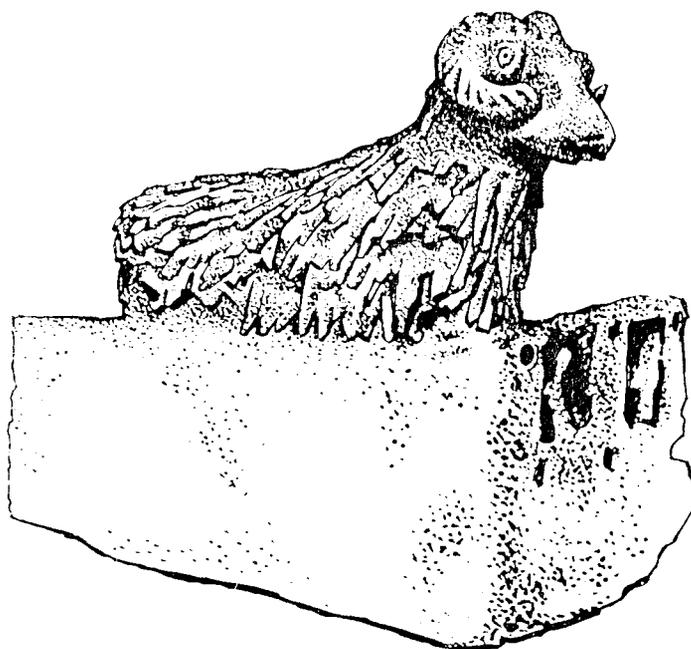


Illustration 1.9 Model of a Sumerian sheep in the British Museum, illustrating sheep with a woolly fleece (Ryder's type 2).

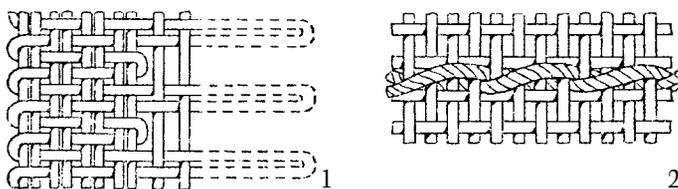


Illustration 1.10 Diagram of a reinforced selvedge (1) and twined decoration (2) from Jericho.

Comparatively few textiles have yet been recorded from Mesopotamian sites, but they are mostly good-quality plain tabby weaves. At Jericho and Bab edh-Dhra in Palestine two small groups of plain tabby fragments have been published from tombs and occupation levels. At Bab edh-Dhra (c. 2600 BC) linen cloth was woven from a variety of Z-spun and Z-plyed linen yarns in combination, while at Jericho around the same date, S-spin and ply was preferred: yarns were 'spliced' from fibre lengths. In the middle Bronze Age tombs of Jericho (soon after 2000 BC) S-plyed warp and weak Z-spun weft are the norm in moderately fine cloth (up to 10×28 threads per cm) which often has reinforced selvages (Ill. 1.10). The fibre used was leaf (probably palm) bast. At the copper mines of Timna in the Negev

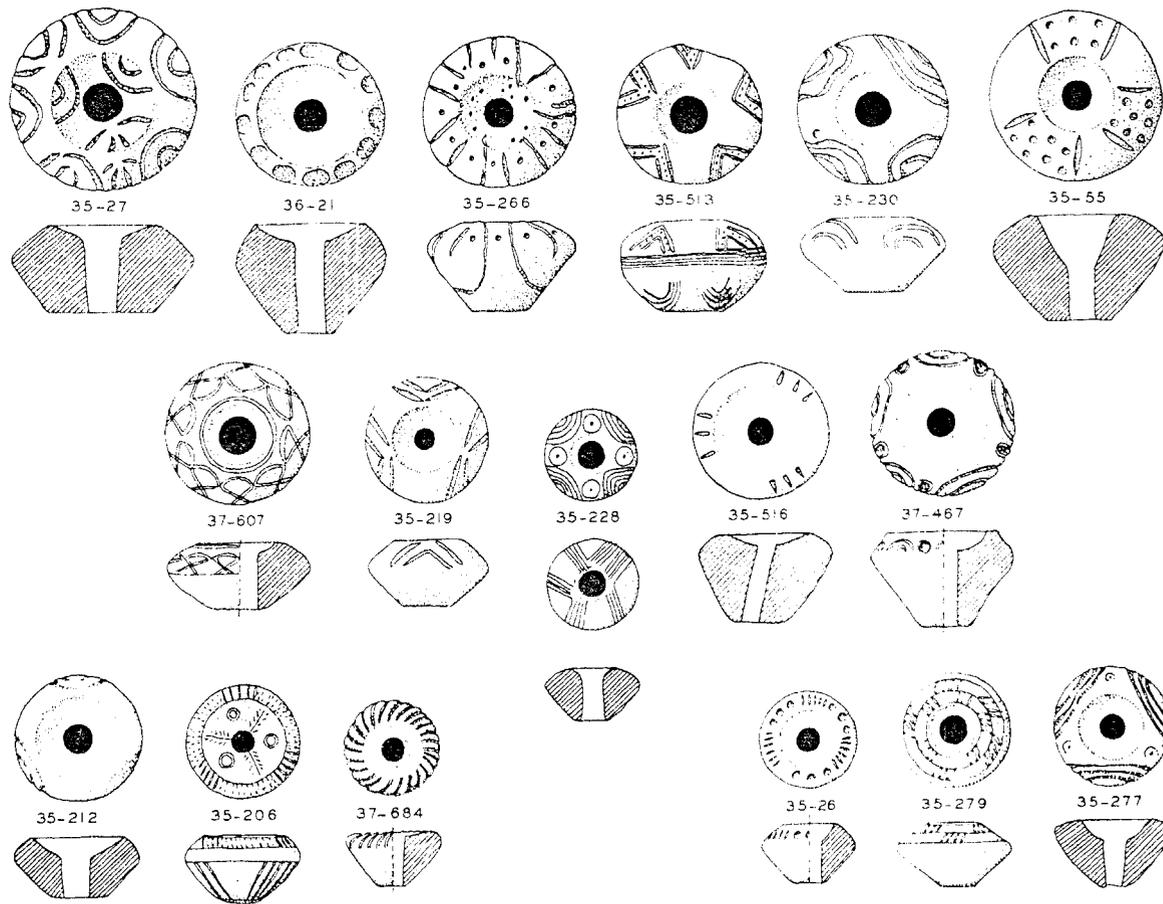


Illustration 1.11 A selection of terracotta spindle-whorls from the city of Troy (Phase II, 2400–2200 BC) (scale 1:2).

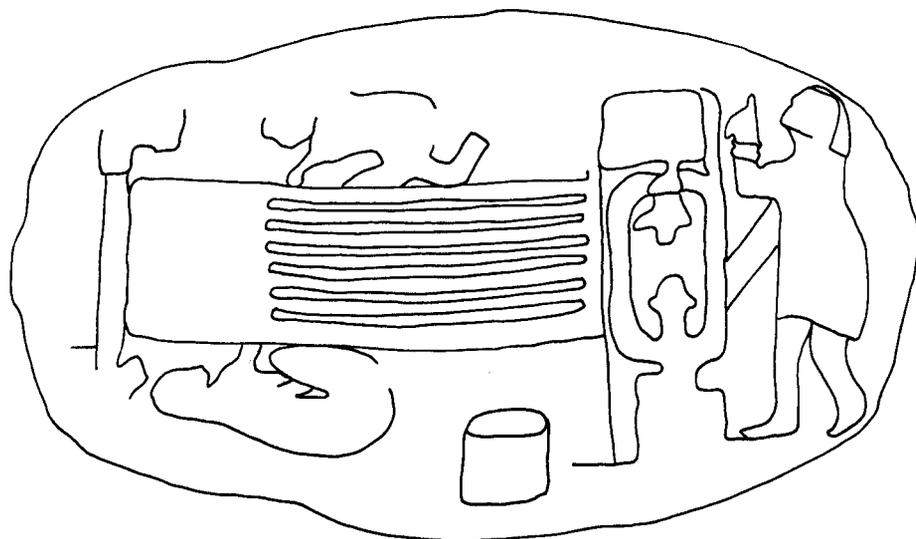


Illustration 1.12 The impression of a cylinder-seal on baked clay from Susa, Iran (before 3000 BC). It shows a horizontal ground loom and weavers.

(c. 1300–1000 BC) textiles were mostly of wool in plain tabby weave with S-spun yarns, some showing traces of red and blue dyes.

Abundant finds of spindle-whorls (Ill. 1.11) demonstrate that the suspended spindle spinning was standard practice throughout the region in the Bronze Age, probably with the whorl mounted on top of the spindle. Middle Bronze Age layers at Jericho, for instance, produced seven whorls of stone, ten of terracotta, nine cut from potsherds, six of bone and three of wood. The nature of the Bronze Age loom is more problematic. A seal from Susa in Iran (c. 2500–2000 BC) shows an Egyptian-style ground loom with its weavers (Ill. 1.12): but c. 2500 BC at Troy in north-west Anatolia rows of pear-shaped clay loomweights were found, pointing to the regular use of the warp-weighted loom there. Palestinian sites like Jericho and Megiddo have similar weights after 2000 BC.

Written records from Bronze Age Mesopotamia and Palestine refer to a strongly centralised textile industry based on the main urban temples and controlled by temple officials. The sheep maintained at Lagash, for instance, in the early Bronze Age supplied wool to spinners and weavers in the local temple's clothing factory who were mostly female slaves. By 2000 BC male weavers are recorded in the Mesopotamian workshops, serving long apprenticeships and being paid in food-stuffs and textiles. Factories were large: at Ur c. 2000 BC, 165 women and girls wove in a single building. They were set output targets, with amounts of thread supplied and clothing to be woven carefully itemised. The tablets give details of the kinds of wool used, the technical operations performed and the finishing and



Illustration 1.13 Women from Mari in Syria dressed in Sumerian style (3000–2400 BC).

dyeing processes; but we cannot translate precisely much of the technical vocabulary. Fulling was definitely an important branch of the business. At Ugarit on the Syrian coast heaps of crushed murex shells are evidence for the purple dyeing of wool mentioned in documents from the site in c. 1500–1400 BC. Textiles were important objects of long-distance trade between the Mesopotamian cities and Asia Minor.

Clothing revealed in the art and contemporary documents of the ancient Near East reflects minute distinctions of social class and ethnic origin. The emphasis is on draped rather than fitted garments, perhaps straight from the loom. For decoration, fringes and shaggy surface effects (Ill. 1.13) are overtaken towards the close of the Bronze Age especially in Palestine by surface-colour effects, woven or embroidered. Kilts and draped cloaks for men and off-shoulder long dresses and cloaks for women are basic, with shirts being worn by both sexes.

The late Bronze Age Aegean: the Mycenaeans, 1600–1100 BC

JOHN PETER WILD

Specific archaeological evidence for the Mycenaean textile industry is poor, with few textile fragments recognised. Finds of spindle-whorls and terracotta loomweights, both discoid and later spherical, indicate the people's familiarity with the warp-weighted loom. However, clay tablets in Linear B script from Knossos in Crete and Pylos in south-western Greece confirm that wool was arguably the principal source of wealth for the inhabitants of the Mycenaean palaces of late Bronze Age Crete and Greece. Flocks of wethers were kept for wool separately from the flocks of ewes and lambs and the royal sheep were distinguished from those ascribed to palace officials. Flock size averaged 100 animals, which was carefully maintained because 750 gm of wool were expected from each wether.

According to the Pylos archive, flax was grown in some quantity in the south-western Peloponnese, with some villages near Pylos having special female linen workers. Flax was also produced on Crete, but on a much smaller scale. Archives at both Knossos (to 1370 BC) and Pylos (to 1200 BC) show that raw materials were supplied to dependent female textile workers who were provided rations from central stores. In due course, the finished fabric was received by the palace authorities and was then made into costumes which were striking, particularly for Mycenaean women. The close fit and elaborate flounces suggest clever tailoring and the work of first-class dyers, with red and purple dyestuffs attested in the documents, particularly murex shellfish dyeing, which started in Crete soon after 1700 BC. The textile industry was significant, with 500–600 women being employed in Pylos alone. Although there was considerable division of labour within the textile industry, the technical terms mean that it is still largely impenetrable.

The Near East in the Iron Age, c. 1100–500 BC

JOHN PETER WILD

INTRODUCTION

The dominant political forces in the Near East during the Iron Age were the Neo-Assyrian and later the Neo-Babylonian Empires, which came to an end in the sixth century at the hands of an expansionist Achaemenid Persian dynasty. During this time, the increased use of iron had little impact on textile technology, except for the introduction of iron sheep-shears which, for the first time, allowed the whole fleece to be removed neatly. However, there were other developments in the textile industry at this time.

THE NEO-ASSYRIANS AND NEO-BABYLONIANS,
c. 1100–539 BC

Most of the characteristic features of Bronze Age Mesopotamian textile technology continued into the first millennium BC (Ill. 1.14). Perhaps the most notable non-commercial addition to the fibres used was cotton. In the eighth century, King Sennacherib introduced the 'tree which bears wool' into his gardens on the Tigris. In addition, animals were exploited for their hair, particularly the goat and the camel, which was increasingly used for transport and warfare.

Examples of contemporary textiles are rare. Fragments of fine, glossy, white linen were found in a Neo-Babylonian bronze coffin from Ur (c. 700 BC). It had S-spun yarn throughout and a higher warp-count, at 26 threads per cm, than weft-count, which was 23 per centimetre (Ill. 1.15). The texts refer to dyeing, to textile production centres and to a considerable volume of trade. Assyrian costume was characterised by short-sleeved tunics and draped cloaks. Fringes and flounces were common and there were elaborate, decorative, woven borders and overall patterns.



Illustration 1.14 A noble lady of Elam, Iran (c. 1000 BC), attended by her servant, spins by twirling the lower tip of her spindle. A relief in dark bitumen, now in the Louvre, Paris.