11. Textiles

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Introduction

Textiles figured prominently in all aspects of ancient Egyptian life; they were needed from the cradle to the grave. Although many examples derive from Egyptian tombs and represent cloth for the dead, recent excavations of settlement sites have produced a more representative selection of ‘daily-life’ textiles and these are now available for study. They include the textiles from Kahun and the Workmen’s Village at Amarna (Allgrove 1986: 226–52; Eastwood 1985: 191–204), forming an important source of information about the way in which Egyptian textiles were made and used.

It is clear from textiles excavated from both tombs and settlement sites that, as early as the Predynastic period, the Egyptians were proficient spinners and weavers (Caton-Thompson and Gardner 1934: 46, 49, 88, 90). Information about the textile technology of Pharaonic Egypt derives both from the textiles themselves and from representations of the various stages of textile production, from the sowing of the flax-seed in the ground to the weaving of material.

Figure II.1 Model of a spinning and weaving workshop from the early Middle Kingdom tomb of Meketra (Cairo JE 46723).

Tomb-paintings and models are a particularly valuable source of information about the production of cloth, in particular spinning techniques and loom forms. The most important paintings are in the Eleventh- and Twelfth-Dynasty tombs at Beni Hasan (BH2, 3, 15 and 17; Newberry 1893: pls. XI, XXIX, 1894: pls. IV, XIII), the Eleventh-Dynasty tomb of Dagi at Thebes (TT 103; Davies 1915: pl. XXXVII), the Twelfth-Dynasty tomb of Thutuhotep at Deir el-Bersha (DB2; Newberry n.d.: pl. XXVI.), the Nineteenth-Dynasty tomb of Neferonpet at Thebes (TT 133, reign of Rameses II; Davies 1948: pl. 35) and the Eighteenth-Dynasty tomb of Thutnefer at Thebes (TT 104; Davies 1927b: 233–55). One of the most useful models of a spinning and weaving workshop is from the early Middle Kingdom tomb of Meketra (Cairo JE 46723; Winlock 1935: 29–33; see Fig. II.1). Other models of this type are in the Metropolitan Museum, New York (MMA 32.1.125 and 30.7.3) and the Ny Carlsberg Glyptothek, Copenhagen (A 516).

Fibres

Although ancient Egypt is known for the production of linen cloth, the flax from which it was made was not the only textile fibre in use. Excavated textiles made from sheep’s wool, goat hair and palm fibre are also known. Cotton was not in general use in Egypt until the first century AD; the identification of cotton on a mummy has been discounted, as the mummy in question (Philadelphia University Museum: PUM II) was shipped to America in raw cotton. For the original report about the presence of cotton see Cockburn et al. (1983: 52–70). Silk became widely available only after the seventh century AD.
**Sheep's wool**

The earliest known depictions of sheep in Egypt are the rock drawings of wild barbary sheep in southern Egypt and Lower Nubia, which appear to date from the Neolithic or early Predynastic period. In addition, two species of domestic sheep are depicted in Pharaonic tomb paintings and reliefs. The oldest type of sheep (Ovis longipes palaeoaegyptiacus) has long, loosely spiralling horns which come out the side of the skull. It is likely that its wool was coarse. The other form (Ovis platyura aegyptiacana) has horns which develop downwards and curl forwards, while keeping close to the head. The wool is shorter than that of Ovis longipes palaeoaegyptiacus, with distinct and regular locks and it is likely that it provided reasonably good wool, suitable for weaving.

It has become an established 'fact' that the ancient Egyptians did not use wool. This, however, is a misconception based on several comments by classical authors, notably Herodotus in the fifth century BC and Plutarch in the first century AD (De Iside et Osiride: 4). Herodotus states: 'It is, however, contrary to religious usage to be buried in a woolen garment, or to wear wool in a temple' (Histories II: 82). The prohibition on wool, if it existed, appears to have applied only to priests since Herodotus also comments that lay-people, especially young men, wore 'linen tunics with a fringe hanging around the legs and called calasiris, and a white woolen garment on top of it'.

Wool and woollen textiles were known from the Predynastic onwards, and various excavators record wool from such early contexts. Thus Petrie and Quibell (1895: 44) refer to Predynastic 'brown and white woollen knitted stuff' at Naqada, while Zaki Saad (1951: 44) mentions a woolen cloth wrapped round the skeleton of a man in a First-Dynasty burial at Helwan. A find of wool from Kahun which was originally dated to the Middle Kingdom has recently been radiocarbon-dated to the Roman period (Cooke pers. comm.). From the New Kingdom come several examples of woollen textiles excavated both from the Main City and the Workmen's Village at Amarna. Finally, the unumminated body of an unknown man, was found wrapped in sheepskins in an unmarked coffin within the royal cache of mummies at Deir el-Bahari, Thebes (Andrews 1985: 67, pl. 86).

**Goat hair**

A small number of goat hair textiles have been found at ancient Egyptian sites. Several of them come from the Workmen's Village, Amarna (Eastwood 1985: 192); one of these was made from dark brown hair, while the others were of cream-coloured fibres. The range of colour suggests that either the goats may have been piebald or perhaps several different coloured goats were being reared. In fact, a wall-painting in the Middle Kingdom tomb of Khnumhotep at Beni Hasan (BH 3) depicts goats with fleeces ranging from black to cream (Griffith 1896: pl. III). Piebald goats are also portrayed alongside black- or white-haired goats on a painted papyrus dating to the mid-twelfth century BC (BM EA 10016).

**Palm fibre**

Palm fibre comes from the bast or bark of certain trees, notably the palm tree. It is usually brown in colour, hard to the touch and brittle. It is not commonly found in connection with textiles from the ancient world, but some pieces of cloth from the Workmen's Village at Amarna had a series of possible palm-fibre loops woven into them (Eastwood 1985: 192). It should be noted that some authorities use the term 'coir' to refer to palm fibre, although it strictly refers only to the husk of the coconut, which is not native to Egypt; this term is therefore avoided here.

**Grass and reeds**

The use of grass and reeds for matting is described in Chapter 10, this volume; it is possible that these fibres were also used for textiles, although this is not certain. Midgley states that some Predynastic fabrics were probably of grass or reed: 'The microscopic structure of the fibre is similar to that used in some Badarian cloths... It is apparently some fibrovascular tissue not in any way related to flax' (Mond and Myers 1937: 139-41). He also described some textiles as 'spun from reed fibres', and others as 'made from yarns of grass or reed fibre'. As Lucas (1962: 149) himself noted, much more work is still required on this subject.

**Hemp and ramie**

True bast fibres identified with ancient Egyptian textiles include hemp (Brunton 1937: 145; Lucas 1962: 149) and ramie (Midgley 1912: 6), but these identifications are not certain and more work needs to be carried out on the textiles in question.

**Flax**

The majority of ancient Egyptian textiles are of linen which is made from the bast fibre, flax. Flax is a member of the Linaceae family, of which there are twelve genera (Cating and Grayson 1982: 13). Although the genus Linum has 230 species, only a few are of use for the production of textiles. Linum is an annual herb with alternating, lanceolate leaves along the entire length of the stem. The flowers have five petals which can be white, blue or purple. The fruit is a capsule form enclosing ten seeds.

Flax is not a native of Egypt, although its use dates back to the prehistoric period and it is possible that it was imported into Egypt from the Levant (Germer 1985: 101). Two types of flax are believed to have been grown in
Predynastic Egypt: the oldest is *Linum biebne* Mill. (ex *Linum angustifolium*) which grows to one metre high and has small, white flowers. Evidence for the early use of this type of flax has been found in the form of a flax capsule (tomb 3000/object 3) at the Predynastic site of Badari in Middle Egypt (Brunton and Caton-Thompson 1928: 63). The second type of *Linum* known from Predynastic Egypt is *Linum usitatissimum*, which again grows to about one metre high, but it has small, light blue flowers. It is this form of *Linum* which became the main source of flax in ancient times. In some tomb-paintings, the flax flowers are represented by a line of blue paint, which probably indicates that *Linum usitatissimum*, rather than *Linum biebne*, was being depicted.

Turning the flax plant into a piece of cloth is an elaborate process, which took a long time to develop, but it can be shown from excavated textiles from the Fayum region that a variety of types of linen cloth were being produced by the Neolithic period (~3000 BC; see Caton-Thompson and Gardner 1934: 49, 43, 46, 49, 51 and 90).

**Sowing and harvesting**

The task of sowing flax seeds was carried out in the middle of November following the annual inundation of the Nile Valley. There are numerous representations of sowing scenes in Old and Middle Kingdom tombs, thus allowing the process to be followed and reconstructed. Often the sowing of cereal grain and flax is shown combined, as in the Middle Kingdom tomb of a man called Urarna at Sheikh Said in Middle Egypt (tomb 25; see Davies 1901: pl. XVI), where a man is depicted collecting seeds from the store-rooms watched over by two officials who note the amount on a writing board (see Fig. 11.2). The seeds are then taken to the fields. In both cases the ground has been prepared by a team of oxen pulling a plough. However, the man sowing cereal grain uses an overarm action, while the man scattering the flax seeds uses an underarm movement which is typical for the sowing of this crop. Finally, flocks of animals, usually sheep, are sent into the fields in order to trample the seeds into the ground.

Flax plants take about three months to mature; once the flowers have died away and the seed heads appear, the plants are almost ready to be harvested. The timing of the harvesting is important, because the age of the plant affects the use to which the fibres can be put. Thus, if the flax plants are harvested while still young and green then a fine textile can be produced, and if it is harvested when slightly older then the fibres are suitable for a general, good quality cloth. However, if the harvesting takes place when the plants are old, then the resulting flax is usable only for coarse cloth and ropes.

According to various representations of flax harvesting, such as the New Kingdom tomb of Paheri at Elkab (EK3; Tylor and Griffith 1894: pl. III), both men and women were involved in the process. In each case, a bundle of flax stems were grabbed in both hands and then pulled out of the ground. The flax was pulled rather than cut, in order to obtain as long and straight a length of fibre as possible, then the plants were tied into bundles and allowed to dry in the sun. This stage was also portrayed in the tomb of Urarna.

After the flax plants had been thoroughly dried, the seed heads were removed, using several different methods of stripping or ‘ripping’ the heads. They were often simply removed by hand, but the paintings in the tomb of Paheri show flax stems being pulled between the ‘teeth’ of a long...
board or rippling comb, an example of which was excavated from the Middle Kingdom town-site of Kahun (Manchester Museum Acc. No. 6859). A similar board (this time equipped with a stand) is depicted in the New Kingdom tomb of Menna at Thebes (TT 69; Petrie 1914: 95–6). The seeds of the flax (linseeds) were saved for several reasons: in order to sow the following year, to produce linseed oil, and possibly also as a form of animal-food.

Preparing the flax for spinning
In order to follow the various processes involved in preparing flax for spinning it is first necessary to understand something about the nature of the flax plant and, in particular, of its stem, which is made up of several layers (Catling and Grayson 1982: 13–5, figs. 3–4). Of importance to the production of flax are the fibre bundles (pericyclic fibres), which lie between the phloem and the epidermis and cortex. The bundles contain between twenty and eighty fibre cells (or ultimates) separated by narrow girders of parenchyma cells, and it is these fibres that are used to make the cloth. In order to release the fibre it is necessary to break down and remove the other layers of cells. The preparation of flax for spinning can be divided into two processes: (1) the retting, cleaning or scutching (i.e. the removal of the hard, outer cell layers of the flax stems); and (2) the twisting of the bundles of flax filaments into a rough, preliminary sliver or rove.

With regard to the first stage: once the seed heads have been removed it is necessary to rot or ‘ret’ the flax stems in order to remove the hard outer bark or cortical tissue of the plant. This is usually achieved by placing the stems in slowly running water; the length of time for which the stems stay in the water depends on the type of flax and the temperature of the water, but ten to fourteen days is normal. After the outer bark of the flax plants has deteriorated, the stems are removed from the water and allowed to dry in the sun.

The second stage in the process of preparing the flax stems for spinning is the beating or bruising of the plants to separate the fibres from the wooden parts of the stem. In the Dynastic period the flax was probably laid on a large stone and beaten with the mallets, but this stage is unfortunately not shown in any of the ancient representations. The excavations of several sites have yielded wooden mallets which may have been used for this task, and such implements were still being used for the same purpose in the Upper Egyptian village of Nahya during the 1930s (Crowfoot 1931: 34).

In order to remove any resistant fibres left over after retting and beating, the lengths of flax were either beaten with a large wooden fan (or ‘bat’), to shake out all the loose pieces, or passed between two sticks held in the hand (‘scutching’; see Fig. 11.3). The latter technique can be seen in the Middle Kingdom tomb of Dagi (TT 103) and the New Kingdom tomb of Thutnefer (TT 104; Davies 1913: pl. XXXVII; Davies 1927b: fig. 1).

Spinning: producing a linen thread
The ancient Egyptians had two techniques for making a thread: spinning and splicing. Spinning is the twisting together of a fibre or fibres in order to produce a long, cohesive length which is slightly elastic. As the length of individual fibres can vary from about 1 cm (e.g. in cotton), to more than two metres (in jute), different techniques of preparing and spinning have been developed to cope with these variations. It would appear both from actual finds and from representations that the technique of spinning in ancient Egypt was divided into two distinct, but related, processes: firstly the flax fibres were given a loose twist, and secondly they were actually spun in order to produce the thread.

Once the flax fibres had been scutched they were passed on to another individual who transformed them into rough but orderly lengths by rolling the threads either on the
thigh or on a semicircular form placed directly in front of the person. These forms can be seen in various tombs, including that of Thuthotep at Deir el-Bersha (DB2) and those of Dagi and Thutnefer at Thebes (see Fig. 11.3).

The next stage of the process is the winding of roughly spun lengths of flax either into balls, as in the Eleventh-Dynasty tomb of Khety at Beni Hasan (BH 17; Newberry 1894: pl. XIII), or into coils, as in the tomb of Thuthotep at Deir el-Bersha, which seems to show semi-spun lengths being coiled and then passed through an internal loop in a bowl (Newberry n.d.: pl. XXVI). The woman’s hands in this scene are held to her mouth, suggesting that she was moistening the fibres. This is of interest because it is normal for flax fibres to be moistened before being spun, in order to produce a coherent thread, usually by wetting the fingers prior to spinning or by moistening the balls or coils of flax with saliva from the mouth. The same method process was still being used by women in certain areas of Upper Egypt and the Sudan until comparatively recently, and two villages – Nahya and Kurdasseh – were famous for the ‘women who spin through the mouth’ (Crowfoot 1931: 33–5).

Spinning – the technique of twisting together a number of fibres into a strong, continuous thread – is made up of three distinct stages: (a) the drawing-out of the fibres; (b) the twisting of the fibres; and (c) the winding of the thread. Once the spindle is set in motion the spinner pulls or draws out (attenuation, drafting) a few fibres at a time from the mass held in the hand or on a separate holder or distaff. As the spindle turns the fibres, twist or spin is added. When there is sufficient twisted thread, the spindle is stopped and the thread is wound onto the spindle shaft or into a ball. Spun threads may be described as being S-spun (anti-clockwise), Z-spun (clockwise), or I-spun (no spin), with the lie of the central bar of each letter indicating the direction of spin. In general, when two or more spun threads are re-spun (plied) together, it is in the opposite direction to the original spin; thus, for example, an S-plied yarn may be made up of two or more Z-spun threads.

Numerous forms of hand spinning have been developed throughout the world, employing a range of aids from a stick or stone to more complex forms using bowls, hand-spindles or distaffs. The most common form of spinning equipment used in ancient Egypt is the hand-spindle. A hand-spindle is made up of a shaft (the spindle or distaff) and a weight (the whorl), with the latter acting like a fly wheel, keeping up the momentum of the spin. When a sufficient length of thread has been produced, the spindle is stopped and the thread is wrapped around the shaft (Crowfoot 1931; Vogelsang-Eastwood 1992a: 3–17).

A variety of materials were used for making whorls in ancient Egypt, including limestone, travertine, clay and wood (examples include Amarna 21/55 in limestone, 21/17 in travertine, 21/447 in clay and TA85.WV. no. 1784 in wood). Most ancient Egyptian whorls are either discoid or dome-shaped. The disc form would appear to be the oldest of the two and has been found at prehistoric sites such as Kom W in the Fayum (Caton-Thompson and Gardner 1934: 33). The dome-shaped whorl appeared at the end of the Middle Kingdom and was in widespread use by the New Kingdom. The shape of the whorl and its precise location on the shaft can vary depending upon local custom: in Egypt, the whorl was usually placed at the top of the shaft. The thread was often secured to the top of the shaft by means of a groove cut into its side around which the thread was secured, probably with a half-hitch knot.

Some whorls have been found to have marks cut into their sides, including three wooden examples from Amarna, one having an elongated V on its side; another with an X and a third bearing a rectangle with two horizontal lines (Vogelsang-Eastwood 1994: 22, fig. 26). A likely explanation for these marks is that they were used to identify the tools as the property of a particular spinner.

Although depictions of men spinning yarn for making nets are known from tombs of the Old Kingdom, it is not until the Middle Kingdom that representations of spinning thread for cloth can be found. There are three basic methods of spinning known from these depictions which and were apparently in use during the Middle and New Kingdom – grasped spindle spinning, support spindle spinning and drop spindle spinning.

**Grasped spindle spinning** In this method, a prepared rove is passed through a ring or over a support such as a forked stick and then spun on a large spindle grasped in both hands. This technique is shown in the tombs of Bakt III and Khety at Beni Hasan (tombs BH 15 and 17) where a forked stick is used (Fig. 11.4a) and in the tomb of Thutnefer at Thebes (TT 104) where a ring is visible (Fig. 11.4b).

**Support spindle spinning** This technique involves supporting the spindle while it moves. In the tomb of Khety (BH 17) a man is shown sitting back on one heel while drawing a rove from a pot through his left hand and spinning with a spindle held in his right hand (Fig. 11.4c). It is possible that the slightly thicker yarn he was producing was to be used either by a net or mat-maker.

**Drop spindle spinning** In the third technique, the spindle is rolled on the thigh and is then allowed to drop. This scene is depicted in a number of tombs, notably those of Bakt III and Khety at Beni Hasan. Normally the spinners stand on the ground, but sometimes they are shown standing on blocks in order to achieve a greater height (see Fig. 11.4d). Often the spinners are shown with one or two so-called ‘spinning bowls’ by their feet (Fig. 11.4b). Spinning bowls have from one to six loops or handles set in the bottom of the vessel (Peet and Woolley 1923: 21, 61, no. 22/59; see also Dothan 1963: 97–112; Vogelsang-Eastwood 1987–88: 78–88). Semi-spun and fully spun threads are passed...
Figure 11.4  Different methods of spinning, as represented in the wall-painting of various Middle Kingdom and New Kingdom tombs. 
(a) The Middle Kingdom tomb of Khety at Beni Hasan (BH17); (b) The New Kingdom tomb of Thatnefer at Thebes (TT104); (c) The Middle Kingdom tomb of Khety at Beni Hasan (BH17); (d) the Middle Kingdom tomb of Thutmos at Deir el-Bersha (DB2); (e) the Middle Kingdom tomb of Bakt III at Beni Hasan (BH15).
through these loops during spinning in order to keep the threads separate and to place a small amount of tension on the thread. The sides of the bowl can vary from a shallow slope to an upright, bucket-like, form. Such bowls are usually made from pottery, but occasional stone examples are known. In the Middle Kingdom tomb of Khnumhotep at Beni Hasan (BH 3), the spinner has two bowls by her feet, one of which is painted red to represent a ceramic vessel, the other is painted red and white, which is probably meant to represent a bowl made from alabaster (Newberry 1893: pl. XXIX).

In recent years, attention has been paid to the ancient processes by which the length of the flax thread was increased. In most cases this was done as part of the attenuation process. In Egypt, however, a second method, splicing, was also developed which gives the effect of two S-spun threads being S-plyed together.

In the case of extremely fine cloth, one to three bundles of between three and twenty ultimates are spun together (Cooke and Brennan 1990: 9). In coarser cloth, however, it would appear that two threads, rather than bundles, were spun together. In both cases it is likely that the fibres were moist when spun and as they dried they set into position, so preventing the threads from unravelling. The length of the splice varies from about 5–20 cm. Splicing seems to have been used occasionally in the Old Kingdom, but by the New Kingdom it was quite common. The use of spliced threads occurs both in extremely fine as well as very coarse cloth. It may be that the technique had to be used to achieve the desired fineness, while in the coarser examples it was a method of using up lengths of thread in the most economical manner possible.

While spinning, it is always a problem to hold enough raw fibres in the hand to continue for as long as possible, before having to stop and collect more fibres in order to continue the process. In the Classical world, the problem was partly solved by using sticks (distaffs), usually of wood, around which the fibres were wrapped, but a slightly different solution was adopted by the ancient Egyptians. They made a small ‘yarn carrier’ from lengths of wood or palm bound together to form a cage-like structure (Crowfoot 1931: pls. 39–40); the raw flax fibres were then either inserted into the cage or wrapped around it.

Preparing the warp threads
After the flax fibres have been spun into a thread or yarn they are then ready to be woven into cloth. The first task in this process is to remove the thread from the spindle and to warp (warping) the loom. This involves placing the warp threads in position on the loom. Subsequently the threads have to be tensioned. Once this has been done the actual weaving can commence (see below).

Warping involves laying threads of equal length in parallel lines. Three different methods of winding are represented in tomb models and paintings. The first and simplest method, which uses three pegs driven into a wall, is shown in the Eleventh-Dynasty model from the tomb of Meketra at Deir el-Bahari (Cairo JE 46723). The warp thread is either wound off the spindle directly around the pegs or from a previously wound ball; in either case a figure-of-eight shape is created. A second method is illustrated in the tomb of Dagi (TT103), where a woman is shown winding thread around two pairs of uprights which have a cross-beam set about halfway up each of the stands (Davis 1913: pl. XXXVII). The third method of warping is depicted in the Eleventh-Dynasty tomb of Thuthotep I at Deir el-Bersha (Newberry n.d.: pl. XXVI); it involved balls of thread being placed in bowls or containers of some kind, and then groups of perhaps as many as twelve threads either being wound onto a series of pegs driven into a wall (in the manner described above) or being directly wrapped around the warp and cloth-beams of a ground loom.

Weaving
Weaving is the process of interlacing two or more sets of threads according to a pre-defined system to produce all or part of a textile (see Fig. 11.5). The simplest form of weaving is the ‘tabby weave’ where one weft thread (pick) passes over and under the warp threads (ends). In the next row (throw) the pick passes under one end and over the next, so forming an interlocking structure. All other weaves (e.g. basket weave and tapestry weave) are variations on this idea, although some of the possible variations can be extremely complex.

In tabby weave, the basic binding system or weave is based on a unit of two ends and two picks, in which each end passes over one and under one pick. The binding points are set over one end on successive picks. Various forms of tabby weave have been found in Egyptian contexts. The most common are the simple or balanced tabby weaves whereby there is an equal number of warp to weft threads, and the warp and weft-faced tabby weaves. A faced tabby weave has more threads in one system than the other. Thus a warp-faced tabby has more warp than weft threads per centimetre. Conversely a weft-faced tabby weave has more weft than warp threads.

Basket weave, or extended weave, is a tabby weave in which the warp ends or weft picks move in groups of two or more. Several different forms of basket weaves have been recorded, but most of these are New Kingdom in date. The following forms of basket weave were recorded from the Workmen’s Village at Amarna (Eastwood 1985: 195–6): half basket (paired warp threads, single weft-threads); full basket (paired warp and weft threads); warp-faced basket (single warp and paired weft threads); weft-faced half-basket (paired warp threads, single weft threads) and warp-faced half-basket (paired weft threads and single warp threads).

Tapestry weave comprises one warp and a weft. The
latter is composed of threads of different colours which do not pass from selvedge to selvedge but are carried back and forth, interweaving only with the part of the warp that is required for a particular pattern area. Only a few examples of textiles woven in a tapestry weave have so far been found in Egypt and most are associated with royal tombs. Several pieces were recovered by Carter and Newberry from the tomb of Thutmose IV (KV 43; Thompson 1904: 143–4). One of the textiles bears the cartouche of Amenhotep II (Cairo JE 46526; dovetail tapestry), while another has a ground decorated with lotus buds and flowers (Cairo JE 46526; Thompson 1904: pl. 1). A further example, worked in slit tapestry weave, derives from an unknown tomb in the Valley of the Kings (Cairo JE 24987; Daressy 1902: 302–3, pl. LVII); it includes a block pattern and a line of hieroglyphs set within a vertical column.

A number of examples of tapestry weave have been identified among the textiles from the tomb of Tutankhamun (KV 62). These include several instances of slit tapestry (Carter nos: 3679 (JE 62626), 46cc (JE 62674), 367f (JE 62773), 505 (JE 62669), 924 (JE 30/3/34/10) 501 (JE 62708a1ff) and JE 62645), one of dovetailed tapestry (54f (JE 29/3/34/05)), a horse blanket of ‘Coptic’ or ‘bent-weft’ tapestry (333 (JE 61992ae) and a form of open-work tapestry (21e (JE 30/3/34/51)).

In addition to the tapestry textiles found in royal tombs, several examples were found in the Eighteenth-Dynasty tomb of the architect Kha (TT 8; Schiaparelli 1927), including a piece of material of unknown use which has two large squares of looping set in a tapestry-woven ground (Turin, Mus. Egizio inv. suppl. 8528; Donadoni Roveri 1988: 213, fig. 301). The ground is decorated with a pattern of lotus flowers and buds, and, as in the case of the horse blanket from the tomb of Tutankhamun, the design is worked in a ‘bent-weft’ system which later became a characteristic feature of Coptic tapestries. These New Kingdom finds indicate that this type of weave has a much longer history than hitherto supposed.

Finally, there is one piece of cloth (Carter no. 21e, JE 30/3/34/51) which has been woven in an unusual variation of tapestry weave. According to Emery’s weave classification system it is a form of open-weave tapestry (Emery 1966: 84). So far, however, no near or exact parallels to this type of cloth have been found.

A small number of textiles with warp-patterned type designs have been recorded from various New Kingdom sources. This type of cloth has been variously described as a double weave; compound weave; tablet weave or a warp-pattern weave and it is one of the most complex of the weaves used in the Dynastic period. The weave is a warp-faced form in which the close-pressed warps make the pattern while the weft thread is concealed. Relatively few details are known about the history of this type of weave. In general it is believed to be an imported form because so far it has mainly been found in the tombs of members of the royal family dating to the New Kingdom. There are several surviving textiles in this type of weave. One example, now in the Victoria and Albert Museum, London (VA T211.1921) was found by Carter in an Eighteenth-Dynasty tomb at Thebes (Vogelsang-Eastwood 1994: pl. 38). It is made from coarse flax and has a simple geometric pattern in blue, brown, red and natural, repeating over four throws of the weft. Since there are several, repeating weaving faults, it may be suggested that the cloth was woven using two heddle rods and a shed rod, or possibly three heddle rods (see section on Looms p. 276).

The so-called ‘Hood Textile’ (VA T21.1940; Crowfoot 1933: 43–5) is possibly from Thebes and probably dates to the New Kingdom; it has a triangular pattern in blue and natural flax. The textile is woven in a warp-faced weave, but

Figure 11.5 Close-up of some fine, warp-faced cloth decorated with a band in red (madder) and blue (indigotin) (Leiden, RMO, no. unknown).
the main pattern is produced by substituting weft for warp threads, which are then used to form a long fringe.

A warp-faced braid, sewn onto a saddlecloth, was found on a mummmified horse excavated in front of the Theban tomb of the Eighteenth-Dynasty official Senenmut (TT77; Lansing and Hayes 1937: 10–11, figs. 14–15). Among the textiles in the tomb of Tutankhamun (KV62), such braids were used to decorate the side of one of the king’s elaborate bag tunics (Carter no. 367f, JE 62626) as well as a number of the decorated collar-form tunics (Carter nos. 210, JE 62644; 212a, JE 62643) (Fig. 11.6). One of the largest and most elaborate examples of this type of work is the so-called ‘girdle’ of Rameses III, which is now in the Liverpool Museum (M 11158; Peet 1933), measures 5.2 metres in length and tapers from 12.7 to 4.8 cm in width, it is decorated with zig-zags, dots and rows of ankh signs in blue, red, yellow, green and undyed flax.

Sometimes the ancient weavers also used a combination of various weaving techniques, as in the case of one of the sashes in the tomb of Tutankhamun, the back panel of which was woven in a slit-tapestry technique while the rest was executed in a warp-faced tabby weave (Carter no. 100f; JE no. 62647).

At the beginning of the Middle Kingdom a form of weaving now called weft-looping appeared. This technique involves lifting or looping the weft thread up above the surface of the cloth at regular intervals, producing an effect similar to modern towelling; the Egyptians also created intricate patterns using loops, including chevrons, diamonds and bands. One of the earliest examples of this type of cloth, woven with short loops, comes from the collective burial of sixty soldiers at Deir el-Bahari in western Thebes, dating to the reign of the Eleventh-Dynasty ruler Mentuhotep II (Winlock 1945: 31–2, fig. 3, pl. 30B); similar textiles were found in other Middle Kingdom tombs in the immediate vicinity (Winlock 1945: 32). The use of weft-looping continues well into the New Kingdom and is often found in association with bedding, where looped cloth was used as a mattress (as in the tomb of Kha at Deir el-Medina, see Schiaparelli 1927: pl. 105), although in this later instance the loops are usually long. Cloth with long loops (similar to the symmetrical or ghirzde knot in construction) was also used for matting, such as that found on chariot 120 in the tomb of Tutankhamen. The springiness of the looping would have been used to cushion the movement of the vehicle.

Looms
A variety of written and representational sources suggest that two basic types of looms were in use in Egypt by the Eighteenth Dynasty: the ground (or horizontal) loom and the vertical (or fixed-beam) loom.

The ground (or horizontal) loom
The ground loom has a simple construction, consisting of a horizontal warp stretched in its length between two beams (Roth 1951; Barber 1991: 83–91), the latter being generally kept in place by a pair of pegs driven into the ground (Fig. 11.7). The warp threads are divided into two sets: 1 3 5 7 9 etc. and 2 4 6 8 etc. By lifting up one set of threads using a heddle rod (a stick with a row of long loops attached to it), a shed is created, the first of which is called the natural shed. The countershed is obtained by pulling up a second heddle rod or by individually lifting the warp ends, thus lifting the second set of threads. The weaver starts at one end of the warp and works until the other end is reached, moving the position of the heddle as needed. In order to keep the warps in place, the ground-loom weaver used a ‘warp-spacer’, consisting of a long rounded bar with slots cut into it at regular intervals (see Petrie 1917: pl. LXVI, nos. 133–6). The length of cloth woven on a ground loom was limited only by the amount of thread spun, as the web or warp thread was simply wrapped around the warp beam and unwound as needed. Thus it was not necessary to have the two sets of pegs set far apart in order to weave long lengths of cloth.

A painting executed on an early Predynastic pottery bowl from a woman’s tomb at Badari (Tomb no. 3802; Petrie Museum, UC 9547; see Brunton and Caton-Thompson
1928: 54, pl. XLV16, no. 70k) is one of the oldest Near Eastern representations of the ground loom. The painting shows four corner pegs holding two beams, one at either end, with the warp running between them. A small amount of woven cloth can be seen at one end and three bars are shown across the middle, possibly the laze rod, headdle rod and a beater of some kind. The laze rod was used to keep the order of the warp threads. It is possible that a long, straight lath found in the Middle Kingdom town of Kahun was such a rod (Roth 1951: 22, fig. 20); measuring 124 cm in length, 5.2 cm in width, and 2.2 cm in thickness, it has notches at both ends.

To support the headdle rod, two ‘jacks’ were used, one on either side of the loom. It is likely that large stones were sometimes used for this purpose, but a number of wooden jacks have been found, including several excavated at Kahun (Manchester Museum, Acc. no. 50), which vary in size from about 20–40 cm in height, each with a large notch cut out of the side on which the headdle rod rested.

A number of shaped sticks, commonly called ‘sword-beaters’, have also been found (e.g. Leiden, RMO AH1478); these were used to beat in the weft thread after it had been passed through one of the sheds. In most cases, one side of the long edge has become worn and shiny due to constant contact with the warp. Judging from the representations of swords in various tombs at Beni Hasan and Thebes, the shape and size of such sticks could vary considerably (Newberry 1893: pl. XXIX; Davies 1948: pl. 35).

Large wooden combs, found at a number of Egyptian sites, were probably used to beat in the weft threads (e.g. Leiden, RMO AH1472; see Vogelsang-Eastwood 1994: fig. 43; Petrie 1917: 54, pl. LXVI, nos. 148–54). There is, however, some doubt about their exact age and it is possible that they are Roman in date. Weaver’s combs are usually about twenty centimetres long, ten centimetres wide and about four centimetres thick, with teeth cut into one end, and a handle placed at the other. It is not clear whether the use of such combs with one or both types of loom, although the latter would seem the more likely.

One of the characteristic features of cloth woven on the ancient Egyptian ground loom is a selvedge or weft-fringe which always appears on the left-hand side of the cloth. Depictions of clothes including such fringe are common in the Middle Kingdom but less so in the New Kingdom (see the Eighteenth-Dynasty paintings in tomb TT21 at Thebes, showing User and his wife; Davies 1913, pls. XXVI and XXVIII).

The ground loom has continued in use until the present day in certain more remote regions of the Near East, although in recent years its use has declined. A virtually identical loom was used in Sudan in the late twentieth century for the production of long lengths of coarse cloth (Picton and Mack 1979: 59–62). One reason for the survival of this type of loom is that it is suitable for the life of nomadic people, because it can be easily packed and then later reassembled.

**Vertical (or fixed two-beam) loom**

The second form of loom depicted in ancient Egyptian tombs is the vertical loom or fixed two-beam loom (Roth 1951; Barber 1991: 113–16). As the name suggests, the threads were stretched vertically, instead of the horizontal tension employed in the ground loom (Fig. 11.7). The warp ends were wrapped around two beams (the top or warp beam, and the lower, breast or cloth beam). The loom was either placed vertically or leaned against a firm object such as a wall, and weavers stood or sat at the base of the loom, working upwards. The warp was released during the weaving process, by either turning or lowering the warp beam.
The lower (or cloth) beam was fixed into position by one of a variety of methods, perhaps being placed in a slight hollow in the ground, resting in grooves cut out of heavy blocks, or fixed to the floor of a room. Most depictions of ancient Egyptian vertical looms show the upright beams resting on blocks of some kind. Suitable stone blocks have been found both inside and outside houses in the Workmen’s Village at Amarna (Vogelsang-Eastwood 1994: fig. 46), notably three opening from the Main Street (Peet and Woolley 1923, pl. XVI). They are all very heavy limestone blocks, each with a large groove carved into the upper surface. Such stones are usually found in pairs, which would agree with their use as supports for a large loom, as represented in the depictions discussed above.

The size of the vertical looms seems to have varied; the two depicted in the Eighteenth-Dynasty tomb of Thutnefer at Thebes are of different heights (TT104; see Davies 1929: fig. 1). Judging from the size of the weavers, it is possible that the upright beams were three to five metres in height, but this should be regarded as speculation until actual examples are found.

Since the vertical loom is first attested in Egyptian representations at the beginning of the New Kingdom, it has been suggested that it may have been introduced into Egypt by the Hyksos (the Canaanites who came to power in the Second Intermediate Period). This attribution, however, should be treated with caution, given our lack of knowledge of the range of looms used by the Hyksos themselves.

**Balls and spools of thread**

The numerous balls of thread known from Egyptian sites may possibly have been intended for weaving; in most cases the threads are fine and likely to have been used for the web. The balls are sometimes wound around a thread core, and sometimes wound around pieces of pottery which act as a foundation for the thread (Cartland 1918: 139). Various types of short sticks wrapped with thread have also been recorded, and it is likely that these were shuttles or spools (e.g. Leiden, RMO AH152 and 176; Vogelsang-Eastwood 1994: fig. 47; Petrie 1917: pl. LXVI, nos. 111–16, 126–7); they are sometimes described as ‘embroidery sticks’, but there is no real evidence to suggest that they were actually used for embroidery.

**Dyes and dyeing**

Although the Egyptians are known for their love of colour and for paintings on the walls and floors of the houses, temples and tombs, it seems strange at first sight that so many of the surviving textiles were undyed. This may be because dyed textiles were considered more precious and therefore were not normally placed within a tomb, but this seems unlikely. It is much more probable that the dearth of coloured linen (the most common Egyptian textile) simply results from the fact that flax, being a cellulose substance, is difficult to dye.

The use of dyed threads or cloth can be tentatively traced back to the First Dynasty via a brownish piece of linen found at Tarkhan, and with greater confidence to the late Third or early Fourth Dynasty based on a red-dyed fragment from the site of Meidum (Midgley 1911: 38, 1915: 50; Germer 1993: 7–8). The Tarkhan linen should be treated with some caution as it is not certain whether the colour is natural or whether it is some form of staining which occurred later. In general, it was not until the New Kingdom that cloth was frequently woven with coloured threads.

**Dyestuffs**

Ancient Egyptian dyestuffs can be divided into two basic types: ochreous earths and plant dyes (see Chapter 4, this volume, for a detailed discussion of pigments). Ochre is an earth consisting of a hydrated oxide of iron mixed with clay. This substance can vary in colour from light yellow to deep orange or brown. Most natural ochres are coloured yellow because of the hydrated oxide, but yellow iron oxide can be transformed into red iron oxide by heating. Red ochres are coloured from the anhydrous ferric oxide.

The dyeing of linen with iron oxide has a long tradition in Egypt, which may date back to the Early Dynastic (depending on the interpretation of the Tarkhan textile mentioned above). Textiles coloured with iron oxide were also identified among the finds from the Workmen’s Village at Amarna (Germer 1992: 66–7). The long history of this form of dye can also be confirmed by several examples of cloth coloured with iron oxide in the collection of the Rijksmuseum van Oudheden, Leiden (RMO A142 and 268; see van’t Hooft et al. 1994: 34, table 5). One of these pieces is possibly Twenty-first-Dynasty in date, while the other is from the Ptolemaic period.

A wide range of plants produce a colour of some kind, but only a limited number can create a durable dye capable of being reproduced; some of these have been analysed by Germer (1992). Such research has shown that one of the most common sources of the blue colour of Egyptian textiles is indigo, a substance found in plants of both the *Indigofera* species, such as indigo, and the *Isatis* species, such as woad (*Isatis tinctoria* or *Isatis arvensis*; see Germer 1992: 65–6). At present it is impossible to determine exactly the origin of the dyestuff, but written sources suggest that it may well be woad rather than indigo. The more often that fibres or cloth are dipped into a woad or indigo dye-vat, the deeper their colour becomes, and it is clear from New Kingdom finds, especially those from the tomb of Tutankhamun and the roughly contemporary Workmen’s Village at Amarna, that both dark and light blue yarns were available (Eastwood 1985: 194–5). The relative social position of these finds would suggest economic reasons behind the difference in colour. Another
possible source of blue was the seeds and pods of sunt (Acacia nilotica). Winlock (1941: 6) suggests that a late Eighteenth-Dynasty blue textile was probably dyed with the juice of the sunt berry, but no further evidence was given to support this suggestion.

Reds were not only produced by ochre, but also by plant dyes, one of the most important of which was madder (Rubia tinctorum; see Loret 1930–35: 23–32; Germer 1992: 8–9, 68–70). The main colouring ingredients in madder are chemicals known as anthraquinones, most notably alizarin. This dye plant was introduced into Egypt during the Eighteenth Dynasty, probably from the Levant (Germer 1983: 48). Examples of madder-dyed cloth have been found at numerous sites Egyptian sites, summarised by Germer (1992). Other known sources of red dyes during the Dynastic period are safflower (Carthamus tinctorius l), henna (Lawsonia alba or L. inermis) and alkanet (Anchusa tinctoria; see Loret 1930–5: 23–32; Germer 1992). In addition, it is possible that the lichen archil or orseille (Roccella tinctoria) and the insect kermes (Kermesococcus vermilio) may have been used as red dyes, but this is not certain.

A small number of textiles have a yellowish colour and it is possible that they may have been dyed. So far, however, the actual dyestuffs have not been identified, although the potential sources are again safflower (Carthamus tinctorius l) and possibly pomegranate (Punica granatum l).

As noted above, the two most common dyestuffs associated with Egyptian textiles are indigotin and alizarin. Both of these substances are obtained from plants which are not native to Egypt. They were probably first imported from the Levant at some point during the Eighteenth Dynasty. So far no dye plants have been found in any Dynastic period tombs, despite the fact that many contain a wide array of food plants, spices and flowers.

**Dyeing methods**

Although Flinders Petrie (1908: II, pls. XIV, XXXV a) excavated a dye-works at Roman Athribis, so far nothing has been found which can satisfactorily be described as a dyeing workshop from an ancient Egyptian context. However, it can be deduced from surviving textiles that four different methods of colouring cloth were used in the Dynastic period. The oldest method is ‘smearing’, where the colour is literally spread, possibly with the aid of a medium such as clay, mud or honey, onto the cloth.

The more complex technique of ‘vat dyeing’ is necessary in order to extract indigotin, because it must first be oxidised in order to produce a colour. The solution in the dye bath is called the vat and is colourless. After the fibres are dipped into the vat they are hung up in the open where they come into contact with air and this causes the necessary oxidation. Within a few seconds of being in the open air the fibres turn blue. In order to create a dark blue the fibres must be re-dipped into the dye bath and it can sometimes take up to ten dips before the required colour is achieved. Most blues used in ancient Egypt would have been produced in this manner.

Alizarin, on the other hand, has to be dyed in another manner. It is an adjectival dye which means that a mordant or metallic salt needs to be added to the dye-bath in order to fix the dyestuff to the fibre, thread or cloth. This type of dyeing is called ‘acid’ or ‘non-vat’ dyeing. Either the mordant is applied directly to the fibres, threads or cloth themselves or it can be added to the dye-bath. By fixing the dye to the fibres, the colour is made fast and more light-resistant. Mordants are nowadays used with many dye plants, including most of those producing a red or yellow colour. The exact period when Egyptians started to use mordants is open to doubt because the contaminants occurring naturally in the Egyptian sand can make it difficult to detect such substances. Nevertheless, it is likely that the Egyptians used alum, which is a naturally occurring salt (Germer 1992: 10–11).

In addition to dyeing blues and reds, the Egyptians also carried out a process called double dyeing (two-layer dyeing or topping), whereby fibres, threads or cloth were first dyed one colour and then dyed again with a different dyestuff in order to obtain another colour. Purple, for example, is made from red and blue, while green is made using yellow and blue. It is not clear whether the first dye-bath would have been a ‘vat form’ and the second an ‘adjectival dye’ or the reverse; either is feasible. Rare examples of double dyeing have been found at various sites in Egypt, including the Workmen’s Village at Amarna. One purple thread (no. 1115 in the catalogue of textiles from the Workmen’s Village), for example, had been dyed with indigotin and alizarin (Textile no. 1507 N 17 7; Germer 1992: 70). It is unusual to find linen which has been dyed while at the fibre stage. The Egyptians usually dyed either spun threads (in which case, white patches can sometimes be seen in the thread core if it is slightly un spun) or woven cloth. In the latter case, white areas can sometimes be seen beneath the place where a warp thread passes over a weft, so protecting the lower thread.

**Other techniques for decorating cloth**

A misconception still prevails that the ancient Egyptians wore plain garments and that their houses contained only undecorated cloth. It is true that garments were often used as a backdrop to elaborate jewellery, but they played a complementary, rather than secondary role. As can be seen from the previous sections on weave types and dyeing, Egyptian textiles and garments were by no means always plain. The Egyptians also had a number of other methods for decorating and embellishing cloth, some of which rendered it more brilliantly white, while others added to its colour.
Another form of decorating cloth was the addition of rosettes and sequins. Many of the garments in the tomb of Tutankhamun incorporated gold bracteates of various sizes and shapes, as well as faience rosettes and cartouches. Gold discs were frequently used on the textiles and these ranged in size from one to five centimetres. The pall which was placed over the king’s sarcophagus was patterned with a “night-sky of stars”, made out of hundreds of gold rosettes sewn on to the cloth in staggered lines (Carter no. 209, Cairo JE 62745a).

Surprisingly it was only in the early medieval period that embroidery became a popular and widespread technique for decorating cloth in Egypt. Only a few fragments of embroidery dating to the Dynastic period have been found, and most were connected with royal establishments, usually tombs. The tomb of Tutankhamun contained several examples, including two tunics. The most famous example is a tunic apparently worn by the king when he was about 12 years old (Carter 367; Cairo JE 62626; Crouch and Davies 1941: 126), to which several embroidered panels have been applied, including hunting scenes, griffins and a sphinx (Crouch and Davies 1941: fig. XX). The stitches identified with certainty are the outline stitch, chain stitch, split chain stitch, button-hole stitch, and a form of isolated knot. The second embroidered tunic from Tutankhamun’s tomb (Carter 44; JE 29/3/34/01) was made for a child; it is decorated with small gold rosettes enclosed by embroidered rosettes consisting of chain stitches.

In addition to the embroidered pieces from the tomb of Tutankhamun, fourteen embroidered tunics were found wrapped around the mummy of a priestess which was once assumed to date to the Roman period, but has now been assigned to the Twenty-third Dynasty (National Museum, Copenhagen, Acc. no. 1038; Hald 1946: 49–67). The embroidery is a form of blanket stitch and has been worked around the neck-opening and armholes of each tunic. The embroidery is worked in blocks of red, purple (blue?) and undyed linen.

Another technique which appears in the New Kingdom, and is normally associated with royal clothing, is appliqué. There are various garments from the tomb of Tutankhamun which have been decorated with panels of applied cloth (see Fig. 11.10). In one case a vulture has been created out of strips of red and blue cloth on a natural ground (Carter 101; Cairo JE 62639). The sizes of the strips have been carefully fitted together to give the appearance of the bird’s wings. An example of appliqué found at Amarna shows that the technique may not have been confined to royal clothing (Eastwood 1985: 198–9), although the small size of the Amarna example means that it is not clear whether the textile in question was being decorated or simply repaired with a dyed piece of material.

Another form of appliqué was the use of different widths of braids in order to decorate objects, usually garments.
Various types of braids were in use in ancient Egypt. Sometimes they have small fringes along their longitudinal edges, in which case the braids were placed along the outer edge of a textile. On other occasions, however, there are no fringes and then they are usually found either sewn across the cloth or again down the edges. The size of the braids can vary from about 0.5 to 3 cm. Bands were used in a similar manner to the braids, but they are much wider; one of the best examples of the use of bands can be seen on the embroidered bag-tunic of Tutankhamun mentioned above (Carter no. 3671; Cairo JE 62626). A further example is found on the horse blanket from the tomb of Senenmut (TT71; Lansing and Hayes 1937: 10–11, figs. 14–15). Elaborately decorated bands in red, blue and natural have been sewn down the sides of the garment, both at the front and the back.

Pleating was also used to decorate garments, and the oldest examples seem to be horizontally pleated dresses dating to the Old Kingdom (Riefstahl 1970: 244–9; Hall 1985: 235–45). One of the most elaborate examples (Cairo JE 51513), probably dating to the Middle Kingdom, has three different types of pleating: the first is a simple set of pleats a few centimetres apart; the second is a series of closely set pleats which actually touch each other; and the third is a section of herringbone pleating in which firstly vertical lines were pleated and then secondly, at regular intervals, horizontal lines were pleated to create wide bands with a chevron pattern. Although this example indicates that the Egyptians were capable of complex and decorative forms of pleating, it is still not clear exactly how they achieved this. In some cases, it is likely that the linen was wetted and then pleated by hand so that the pleats set into position as they dried. It is certain, however, that every time a pleated cloth was washed it would have had to be re-pleated, which would have been very time-consuming. Another possibility is that pairs of boards with a series of raised areas, similar to those now used on cigar-making boards, were employed, although it has been suggested that such boards were in fact used for crushing spices (R. Jansen pers. comm.). A third suggestion is that either differences in the spin directions of the weft threads or changes in the weave density have been used to produce the effect of permanent pleating. All of these ideas need to be further explored before any definite answer can be given concerning methods of pleating.

Several surviving linen textiles, dating from the New Kingdom onwards, were painted with designs of varying degrees of complexity. Sometimes these textiles had secular uses, but on other occasions they seem to have been intended for funerary purposes. With regard to secular use, a length of painted cloth was found with a chariot in the tomb of Tutankhamun (Carter 120 [1]; Cairo JE 62746 and 121 [1]; see Littauer and Crouwel 1985: pls. XVIII, XX, XXI); the material has two simple, blue lines painted on it and was placed between the floor of the chariot and the side wall of the frame. In this position the textile would have been subject to hard wear and it is likely that it was necessary to replace it frequently, hence, presumably, the simple method of decoration.

There are numerous examples of textiles which have been elaborately painted in order to represent jewellery (Leiden, RMO AL 48; Raven 1993: 64–5), and such fake jewels were often placed around the wrists of mummies in imitation of bracelets. There are also less elaborately painted examples of cloth bearing the outline of a god, commonly Osiris, which were usually used as shrouds (e.g. the Osiris shroud of Nesitankh, dating to the New Kingdom, see Winlock 1926: 28, fig. 33; Raven 1993: 61). By the Greco-Roman period, more elaborate painted shrouds were in use (Leiden, RMO inv. AMM 8; Vogelsang-Eastwood 1994: 63, fig. 104).

The care of cloth

In ancient times it is likely that textiles and clothes were maintained more carefully than today, holes tended to be mended rather than discarding the garment. Some textiles appear to have been mended three or four times before they were rejected or made into something else. Although there is no direct evidence, it is likely that the care of textiles and clothing was in the hands of women rather than men. It was, for instance, a suitable job for women to carry out while looking after children, as it could be easily interrupted. Sewing, like spinning, is normally a group activity and thus has a social function in bringing people together to make a repetitive task less boring.

One of the few written references to sewing appears in a Nineteenth-Dynasty letter written to Pennisetowty, which was found at the village of Deir el-Medina (O.DM 133: Wente 1990, no. 249). This letter describes the sewing of various garments, including tunics and possibly sleeves.
which were then intended to be used to acquire other objects, including some baskets: 'I shall weave two kilts; I shall stitch one tunic; and I shall stitch the pair of sleeves [in exchange for] two baskets and two sieves'.

**Sewing equipment**

A study of ancient Egyptian sewing shows that a relatively small range of techniques and structural details, such as seams and hems, were used. This situation not only reflects the relatively narrow range of materials then available (a coarse woollen textile requires a different range of seams from a fine silk), but also the ways in which textiles were used in the ancient world. In particular, it illustrates the fact that garments were made in as simple a manner as possible, with drape, rather than tailoring, being emphasised. Before discussing the various types of sewing details it is necessary to look at the range of sewing equipment used in ancient Egypt.

An important point to remember when looking at ancient Egyptian garments is that all sewing tasks were carried out by hand. There were no mechanical devices to help speed up the process or to produce elaborate decorative effects. The basic equipment consisted of a needle, thread and a cutting implement of some kind, although inevitably other items were developed to help with the task at hand.

In addition to fine needles made from pierced fish bones, many bronze, copper and silver needles have been found at sites throughout Egypt; these range in diameter from a few millimetres to a centimetre (e.g. the needles discussed in Petrie 1917: pl. LXV, nos. 65–109; Vogelsang-Eastwood 1994: 35–6). Three different types of metal needles were used in ancient Egypt, each reflecting a different function and quality of stitching when used on cloth. Small, fine, needles pointed at both ends and with one end pierced (New York, MMA 233); needles that were flattened and pierced at one end and sharp at the other end (Leiden, RMO F 1937/1.89) and finally needles that were folded over at one end and sharp at the other (Leiden, RMO F 1937/1.80). In addition to the small needles used for sewing cloth, larger ones were available which were probably used for sewing up the incisions on bodies during the mumification process (e.g. Leiden, RMO AB 145).

Nowadays most people use little finger caps or thimbles while sewing, but the ancient Egyptians used finger guards made out of stone, which were held in place with the other fingers; a Twentieth-Dynasty example is known from Lish (New York, MMA 11.151.634; Vogelsang-Eastwood 1994: fig. 57).

In order to keep the needles safe, they were often stored in small cases, which have been found at many sites, often still containing needles. They are made from a variety of substances including the hollow leg-bone of a bird, a hollowed-out piece of animal bone or a length of wood. Two such cases – made out of lengths of papyrus rolled up and fastened around the middle with a piece of string – were found in the New Kingdom tomb of the architect Kha and his wife Merit (TT8; Schiaparelli 1927: fig. 62; Donadoni Roveri 1988: fig. 285, Turin inv.suppl. 8379); they contained several copper needles.

Sewing pins were not commonly used, if indeed at all (although cloth is occasionally found with thorns stuck into it). Instead, the cloth was simply held in the hand in order to keep the various elements of a garment together while they were being stitched.

Scissors did not develop until about the first century AD, and there is no evidence to suggest that the ancient Egyptians used them. Similarly, shears did not appear in Egypt until the Ptolemaic period, or possibly even the Roman period (Petrie 1917: 48). Before this date, it is likely that the Egyptians simply tore cloth or used a sharp flint to cut it. Straight cuts were made by simply tearing the cloth, as can be seen in a painting from the Eighteenth-Dynasty tomb of the vizier Rekhmira (TT 100; Davies 1943: pl. LVI). On the other hand, shaped areas, such as neck-lines, were probably cut with a sharp flint, which allows a considerable degree of control to be exerted.

In general, sewing thread was commonly made from two S-spun linen threads which were Z-plyed, although variations such as a three-ply yarn are occasionally found (see van 't Hooft et al. 1994: 23–3). The yarn varied in size from fine (0.02–0.3 mm) to coarse (0.6–0.8 mm). Usually the fineness of the sewing thread either matched, or was slightly thicker than, the material being sewed. Although the thread was generally undyed, occasionally a coloured yarn, usually red or blue, can be seen on textiles, especially those dating from the New Kingdom. The blue kerchief found among the textiles in the funerary cache outside the tomb of Tutankhamun was mended with a white thread (New York, Metropolitan 09.184.217–19; Winlock 1916: 238–42 and Winlock 1941).

**Sewing techniques**

The ancient Egyptians used a narrow range of stitches for functional work such as sewing seams and mending garments. These are the running stitch, overcast stitch, twisted chain stitch and a form of darning similar to that formerly known as ‘Swiss darning’. Only a limited range of structural details, such as seams and hems, were used in ancient Egypt. The most common of these were: simple hems, rolled and whipped hems, simple (open) seams, and lap-over seams. Other seams known from the Dynastic period include a form of run-and-fell seam and overcast seams (see Fig. 11.11), but these were rarely used on items of clothing.

When a braid was added to a garment, one of several techniques was used, depending on the nature of the braid and the place where it was to be attached. If it was a fringed braid placed at the lower edge of a garment, it would...
Figure 11. Various seams and hems used in garment stitching.

Overcast Seam

Overcast sewing is used for adding a hidden seam, making it look as if it is not sewn.

Run and Fell Seam

In this seam, the garment pieces are overlapped and sewn together.

Lap Over Seam

Here, the pieces are overlapped, and the seam is sewn from one side to the other.

Simple Seam

The edges of the fabric are sewn together along their length.

Rolled and Welted Seam

A rolled seam is created by rolling the seam allowance under and sewing it down.

Simple Hem

The raw edge of the fabric is turned under and sewn down.
Ptolemaic or later in date and this may reflect a Greek or Roman influence.

Many Egyptians were well aware of their appearance and especially the state of their clothes. It is not surprising therefore to find descriptions such as 'this rag of a kilt' or 'shabby loincloth' on Nineteenth-Dynasty ostraca (Cerny 1930: 35: 19; Wente 1990, no. 218; O.DM 554; Wente 1990, no. 245), or indeed to see the care accorded to many textiles and garments.

The laundry

As an extension to the care taken of textiles and clothing, the laundry played an important role in the life of most Egyptians. Nevertheless, this does not mean that the washerman was held in equal esteem. In the Middle Kingdom text, The Teaching of Duaf's Son, Khety, the man who washes the laundry is described as someone to be pitied (although it should be noted that texts of this genre routinely pour scorn on all professions other than that of the scribe):

> And the washerman washes on the shore
> and nearby is the crocodile.
> 'Father, I shall leave the flowing (?) water'
> Says his son and daughter.
> 'for a trade that one can be content in,
> more so than any other trade'
> while his food is mixed with shit.
> There is no part of him clean,
> while he puts himself amongst the skirts of
> a woman who is in her period (?)
> He weeps, spending the day at the washboard
> He is told: 'Dirty Clothes!
> Bring yourself over here', and the (river) edge.
> (Parkinson 1991: 75)

The washerman described in this passage was probably a worker attached to a large estate of some kind. His work was similar to that of the men depicted in several Middle Kingdom reliefs at Beni Hasan (tombs BH3 and 3) and the New Kingdom tomb of Ipy at Deir el-Medina (TT127; Newberry 1893: pls. XI, XXIX; Davies 1927b: pl. XXVIII; see Fig. 11.12 in this volume). It is likely, however, that the women from smaller establishments also washed the linen of their household.

It is known from a letter dating to the reign of Rameses II that washermen were also assigned to particular households in the Workmen's Village at Deir el-Medina. Various questions are raised in the letter to the scribe Amenemope about the work of one of the village washermen. It would seem that several complaints had been made about the man's inattention to his duties: 'Has the laundryman washed or not? It was only six (?) households that Pharaoh assigned to him. Now see, he has been assigned six households as two days' work, making three households per day' (O.DM 314; Wente 1990: no. 191).

A valuable source of information about the range and amount of work carried out by washermen comes from laundry lists inscribed on ostraca (potsherds or limestone chips). In some cases the lists provide information about the number of garments sent to be washed. In other examples, schematic, but still recognisable garments have been painted onto the sherds (Vogelsang-Eastwood 1992b: 105–11). Various garments can be identified on such sherds, including a loincloth, a tunic and a sash; other items of clothing recorded on the ostraca probably include skirts and kilts.

Judging from the depictions of the washing of cloth on the walls of several tomb-chapels of different dates at Beni Hasan and Deir el-Medina, the basic process appears to have been the same throughout the Middle and New Kingdoms. The first task was to dampen the cloth and then rub it, possibly with a detergent of some kind. During the Dynastic period, the Egyptians were able to use various natural detergents, such as natron (a natural soda), potash and the plant soapwort (Saponaria officinalis). The use of natron for washing clothes is incidentally indicated in the letter already quoted above: 'As for Nakhtisobek, I found no natron in his possession although you had given him [some] . . . As soon as you ascertain the [reason for the] delay, they shall procure natron for the (?) cloth' (O.DM 312; Wente 1990: no. 191).

Once the cloth had been rubbed with a detergent it was beaten with sticks or wooden clubs on a stone or a wooden base of some kind. It was then washed in water, rinsed and wrangled. The last task is depicted at Beni Hasan (BH): where one end of the cloth is shown to have been wrapped around a post while the other was firmly twisted (Newberry 1893, pl. XXIX). The damp cloth was then left to dry in the sun.

The various lengths of cloth were laid flat on the ground and then held in place around the outer edges with stones.

Figure 11.12 A laundry scene depicted in the Middle Kingdom tomb of Khnumhotep at Beni Hasan (BH3).
The drying of cloth is portrayed in a scene in the Twelfth-Dynasty tomb of Sarenput I at Aswan (Müller 1940: Abb.14; Vogelsang-Eastwood 1994: 39, fig. 63). Drying items in this way would also have had the effect of sun-bleaching the various lengths of material. Once the cloth was dry, it could be folded and then stored until needed.

Textile marks

Most Egyptian textiles bear no markings, although a significant number of marked examples have been discovered. The function of such marks is not always clear, and we must look to the size, appearance and positioning of such marks to gain an understanding of their purpose.

Some marks are hieroglyphic or hieratic inscriptions, while others are more abstract in form; almost all were placed in a corner of the material where they would have been unobtrusive but easy to check (e.g. Eastwood 1985: 199, fig. 10.11). It would have been hard to remove such marks without leaving some traces of their original presence. The function of the various marks can be divided into three groups: weaver's/maker's marks; owner's marks and quality marks.

The idea of a maker's mark is quite common and can be found on many ancient objects. In the case of textiles, the mark is woven with an extra, thicker yarn, and is usually made up of a series of lines which travel no more than a few centimetres into the cloth before returning. From a distance of a metre or so the marks cannot normally be seen. The idea that such marks may come from a weaving atelier is perhaps supported by the fact that several pieces of cloth bearing the same mark, but of different qualities, were found at the Workmen's Village at Amarna (Eastwood 1985: 199).

Large quantities of Dynastic-period cloth have been found bearing the mark/name of the owner. Some royal cloth even has the regnal year in which the material was produced. It is likely that this was done not only to keep a check on the amount and quality of cloth within an establishment, but also in order to identify the owner when the cloth was sent to be laundered. Sometimes names were painted in black ink, which did not easily wash out, as in the case of the marks on textiles found in the burial of the so-called slain soldiers of Mentuhotep II at Deir el-Bahari (Winlock 1945: 25–32, pls. XVI–XX). In other cases, the mark was either embroidered or woven into the cloth. For example, a tunic wrapped around the body of Seti II bore the name of Merenptah, a son of Rameses II, embroidered in red and blue thread (Smith 1912: 74–5, diag. 16). Similarly, several of the loincloths from the Eighteenth-Dynasty tomb of Kha at Deir el-Medina (TT8) were embroidered with his name, while other items were inscribed with his name in ink (Schiaparelli 1927: fig. 62). Weavers' marks, inscribed in black ink, were also found on thirty of the seventy-six lengths of cloth recorded from the Eighteenth-Dynasty tomb of Ramose and Hatnefer (the parents of Senenmut) in the Sheikh Abd el-Gurna region of western Thebes (Lansing and Hayes 1937: 26; Porter and Moss 1964: 669); one of these marks was a private name (Boki), while the rest referred to the state or temple stores.

A number of textiles have distinctive patterns woven or embroidered into cloth with a blue or red thread (Leiden, RMO AU 348; Vogelsang-Eastwood 1994: 41, fig. 66). Although located unobtrusively near the corner of the cloth, the colours of these marks make them considerably more striking than the weavers' marks described above. It is possible that such marks were used on large areas of cloth such as bedding or curtains, rather than on clothing where they would have been more apparent.

The last group of marks to be mentioned are the so-called 'quality marks' which are usually added to the corner of a piece of cloth with black ink (Vogelsang-Eastwood 1994: 41, fig. 67; and see Fig. 11.13). Normally there are two marks, one set above the other. It is likely that the uppermost symbol represents the institute which owned the cloth, perhaps a temple, while the lower mark may indicate the quality of the cloth.

Folding and storage of cloth

The study of how cloth was folded in ancient Egypt is of interest because virtually every country has developed its own method of folding material and clothing. The different styles of folding are related to the range of material used, the types of garments worn, and the methods of textile storage. In countries where large linen cupboards are the main form of storage, cloth is often folded so that there is a neat fold line with all the ends and sides of the material hidden. On the other hand, in places where cloth is stored...
in baskets, it is more appropriate to have a small, flat surface area, in order to store greater quantities.

Several different methods of storing cloth are known to have been used in Pharaonic Egypt. The method used depended not only on the available facilities but also on the size and type of cloth in question. In the wall-paintings of the Eighteenth-Dynasty tomb of Rekhmira (TT100), cloth is depicted in the form of flat lengths of material, long lengths and bundles, as well as having been packed in large sacks and boxes (Davies 1943: pls. XXX, XXXII, LVI, LVII).

Folded cloth was also placed in lidded baskets, as was the case with some of the textiles found in the New Kingdom tomb of Kh and his wife Merit (TT8; Schiaparelli 1927: fig. 80). In more elaborate circumstances, cloth was sometimes stored in boxes. In the Old Kingdom mastaba of Mereu at Saqqara, there are several painted relief scenes showing servants carrying lengths of cloth and chests containing cloth (Duell 1938: pl. 72). Sometimes special linen chests were made, usually having a gabled form with a pair of knobs at one end (Lansing and Hayes 1937: 24, fig. 37). A rope or string could be looped around the knobs in order to fasten the chest securely. Several such linen chests were found in the tomb of Tutankhamun, some of them including lists on the lids which described the contents. According to the inscription on the lid, one chest (Cairo JE63500B) originally contained:

The box of kāt-wood ... 
What is in it belonging to the House of Repelling-the-Bowman:
Royal linen prepared as mk, various shšt-garments
Royal linen prepared as mk, ‘šgbt-garments
Royal linen prepared as mk, long sḏt-garments
Royal linen prepared as mk, long shirts
Total of various choice linen

It should also be noted that fold marks in a garment could indicate status; thus, the Thirteenth-Dynasty group statue of Satsobek and her two sons (Leiden, RMO AST 47) includes the depiction of deep fold lines on the kilt of one of the sons, while his immaculately pressed attire is used to indicate wealth and status.

The uses of textiles

The uses of cloth in ancient Egypt may be divided as follows: ‘clothing’; ‘household’; ‘outside’; ‘economic’; ‘ritual’ and ‘funerary’.

Clothing

The basic form of Egyptian clothing can be divided into two types: wrap-around and cut-to-shapes. Wrap-around garments consist of a length of cloth wrapped around the body in various ways; this group includes kilts, skirts, cloaks, shawls and most dresses. Cut-to-shape garments tend to be simple triangles or rectangles, sewn down some or all of the edges and fastened with ties; these garments include loincloths, tunics, and one particular type of dress. There is no evidence to suggest that the garments were normally closely tailored to fit individual figures. Similarly, no garments from the Dynastic period have been recorded with pads, darts or complex shaping, elements which are common to modern clothing.

In ancient Egypt – as in many other cultures – the types of clothes worn by individuals reflect their social status. In general, the more clothes a person wears, the higher his or her social position. Differences in rank were also indicated more by the quality of the cloth worn than by other factors, such as the way in which a garment was constructed. Loincloths and tunics worn by workmen tended to be made of a strong and solid cloth (Vogelsang-Eastwood 1993: 10–12), while those belonging to a pharaoh such as Tutankhamun were made of a fine, almost silk-like, linen (Carter no. 438; JE 29/3/34/tca–b; thread count of 112 warps and 32 wefts per centimetre). The basic construction of all of these garments, however, was similar regardless of status. Unlike modern garments, ancient Egyptian clothes were characterised by few variations in the way that they were made, and forms tended to remain the same over long periods. Changes more commonly occurred firstly in the way that garments were draped around the body and secondly in terms of combinations of different garment types.

Loincloths, kilts, skirts, aprons, sashes and ‘Archaic wrap-arounds’

Loincloths were worn by most of the population (male and female) for virtually the entire Dynastic period. The loincloth is a simple garment, part of which is wrapped around the waist while the rest is drawn between the legs (Vogelsang-Eastwood 1993: 10–31; see Fig. 11.14); it is, however, a versatile garment which could be worn by itself, either open or closed at the front; tied at the top with a sash or worn under other garments. One of the more unusual garments in the ancient Egyptian’s wardrobe was the leather loincloth, which seems to be one of the few types of garments which were introduced into Egypt from Nubia, rather than vice versa. It was most popular during the New Kingdom and was only worn by men, particularly soldiers, sailors and servants. One surviving example was found in a painted box bearing the name of Maiherpri (Boston, MFA 03.1035; Carter 1933: 46–7; see Fig. 11.13). There were also depictions in the tombs of pharaohs and high court officials, showing loincloths being worn by servants and officials (e.g. Davies 1930: pl. XVI).

One separate item worn by men, either by itself or under another garment such as a kilt (Vogelsang-Eastwood 1993: 32–52), was the apron. It was worn from at least the Old Kingdom onwards, and it consisted of one or more pieces of
cloth attached to a belt, sash or band which is fastened around the waist. In general, the apron panel only covers the genital region. Aprons can be simple triangular shapes or elaborately ornate pleated items which extend from the waist to the ankles. Two such are known from the tomb of Tutankhamun, one being made of beadwork (Carter no. 269c (3) [i]) and the other of metal inlaid with glass or gemstones (Carter no. 256j, JE 60685).

Representations of kilts and skirts can be found dating back to prehistoric times. A kilt is a wrap-around garment worn by men, which covers part or all of the lower half of the body (Vogelsang-Eastwood 1993: 53–71). A skirt is a similar garment, but is worn by women. These garments can vary considerably in both size and form. In some cases they are simple items which only covered the hips, but more extreme forms of kilts and skirts could cover all the way from the chest to the ankles. Although the basic construction of kilts and skirts was similar, in general kilts were more elaborate than skirts. Sometimes the men’s short kilt was pleated, as portrayed in the painted reliefs of the Fifth-Dynasty mastaba of Khafkhufu at Giza (Simpson 1978: fig. 29), and sometimes the pleating extended from half-way around the front to the middle of the back, as depicted in the Sixth-Dynasty mastaba of Idut at Saqqara (Macramallah 1935: pl. XX).

In addition to the simple kilts described above there is a second form of kilt known as a sash-kilt, which became fashionable in the New Kingdom. It was worn over other garments, notably the tunic (Vogelsang-Eastwood 1993: 65–71). There were two basic methods of wrapping the sash-kilt: the first method involves a length of cloth which is wrapped around the hips once and then tied with a simple half-knot at the front, as illustrated in the Eighteenth-Dynasty tomb-chapel of Ramose at Thebes (T135: Davies 1941:

Figure 11.14  A linen loincloth from a 'rectangular gable-topped coffin' at Deir el-Medina.

Figure 11.15  Leather loincloths from a New Kingdom box bearing the name of Makerpri. The cloth on the left is now in the collection of the Museum of Fine Arts, Boston (acc. no. 03.1035), but the present location of the other is unknown.
the ends are then allowed to hang decoratively down the front. In the second method, one end of the sash is allowed to hang down from the waist to just above the knees, as in the statuette of Nebnefer (temp. Ramesses II, current location unknown; Wild 1979: pl. 33), while the rest of the cloth is wrapped around the hips (from left to right) and then tucked in at the top.

Sashes are long, narrow lengths of cloth which were worn around the waist. They were often used to secure another garment, such as a kilt or skirt (Vogelsang-Eastwood 1993: 72–87). They can be made of rope (Carnarvon and Carter 1912: pl. LXIX/1), a plain length of cloth (Leiden, RMO Cat. no. 260) or with a fringe for decoration (Carter no. 101m). Sashes decorated with tapestry-weave designs were found in the tomb of Tutankhamun (Carter nos. 21ff, Cairo JE 62645; 21gg, JE 62646). A more elaborately made sash is the so-called ‘girdle’ of Ramesses III (see p. 276). Another form of sash, comprising a back panel with four red streamers, was found in the tomb of Tutankhamun (KV62) (Carter no. 100f; JE 62647).

The ‘Archaic wrap-around’ is one of the oldest Egyptian clothing types of the Dynastic period. It was worn in a similar manner by both men and women, although in general the female version was much longer than that of men (Vogelsang-Eastwood 1993: 88–94). The effect of an Archaic wrap-around can be recreated using a single rectangle of cloth. The top corner of the material is draped over the left shoulder. The cloth is then passed one or more times around the body and under the arms ending near the left arm-pit. The two top corners are tied together on the left shoulder, giving the impression of a shoulder strap. The garment was then sometimes kept in place with a sash.

Dresses

The dress is a garment specifically worn by women; it generally fits closely to the upper part of the body and has either a flowing or a tightly fitting skirt (Vogelsang-Eastwood 1993: 95–129). It was the most common form of female clothing throughout the Dynastic period and was worn by all women regardless of their social position. There were three basic dress types: wrap-around dresses, V-necked dresses and beaded dresses.

Wrap-around dresses were made out of long lengths of cloth and were wrapped around the body in various ways to produce different effects. They can be divided into two types: simple and complex. The simple wrap-around dress – depicted in Egyptian art from the Old Kingdom onwards – was made out of a length of cloth wrapped between one and three times around the body, depending upon the amount of cloth available. The end of the cloth was tucked in at the top (see depictions in the Eighteenth-Dynasty tomb of Rekhmira at Thebes; Davies 1943: pl. LXIV) and it could be worn either with or without shoulder straps.

Complex wrap-around dresses appeared during the New Kingdom; they could be made out of one or two lengths of cloth, and their principal forms are portrayed on a New Kingdom stela in the British Museum (EA36; Davies 1926: pl. XII, 1944: pl. XI). They were knotted, tucked in or secured in place with a sash, or a with a combination of these fastening methods. On the basis of surviving examples and the study of representations, it would appear that there are two forms of V-necked dress: sleeveless and sleeved.

The sleeveless form has a deep V-neckline and two examples are known. One was found spread over the mummy of a woman (Reisner 1942: 451–2, pl. 42; Roth 1988: 76–7; see Fig. 11.16) and was described by the excavator, George Reisner (1942: 452), as ‘a large sheet of linen . . . laid over the body, looking like a tunic with a V-shaped neck, leaving arms and the lower part of the legs exposed’. Unfortunately this example was destroyed during the examination of the mummy, therefore it is not certain how the garment was made. A second example was found more recently at Saqqara (Munro 1983: 102–3) but it was in an extremely poor condition, thus again preventing any analysis of construction methods.

The V-necked dress with sleeves was a cut-to-shape,
usually pleated garment (Riefstahl 1970; Landi and Hall 1979; Hall 1982; Vogelsang-Eastwood 1993: 115–25; see Fig. 11.17). At least fifteen ancient Egyptian examples have been excavated, ranging in date from the Fifth to the Eleventh Dynasty and dying out by c. 2000 BC.

Beaded net-dresses were made out of beads strung together in geometric patterns, usually diamonds. So far only two have been identified. The first was found in Mastaba G 7440Z at Giza and probably dates to the Fourth Dynasty (Boston MFA 27.1548; Jick 1988) and the second was found in a Fifth-Dynasty tomb at Qau (tomb 978; Petrie Museum UC 17743; Hall 1986: 64–5). The Qau example was made up of a series of beads and the breasts were covered and accentuated by two small caps made out of blue faience with nipples in black (see also Kamal 1901: 34; Brunton 1927: 1, 64).

Tunics, shawls and cloaks
The tunic or bag-tunic (miss) was made up of a long rectangle of cloth folded in half and sewn up the sides (Iannsen 1975: 260; Hall 1981; Vogelsang-Eastwood 1993: 130–54; see Fig. 11.18). There are two forms. The full-length tunic, covering the body from the shoulders to the calves or ankles, was worn by both men and women. The half tunic, stretching from the shoulder to the buttocks (or, less frequently, the knees) was only worn by men. Both the half and full-length tunics were worn by themselves or with other garments.

Occasionally tunics are found with sleeves, which were constructed by two basic methods. In the first method, the sleeve is made out of a single length of cloth which narrows towards the wrist, as in the case of two examples from the Eighteenth-Dynasty Workmen's Village at Amarna (nos. 2674 and 1560 in the unpublished catalogue of textiles from the village; see also Hall 1980: 29). The second form of sleeve is again shaped, but this time there is a flat seam placed at the centre of the back of the sleeve (Vogelsang-Eastwood 1993: 137, fig. 8/4).

Most surviving tunics are plain, but various decorative elements are known to have been used. The basic forms of

Figure 11.17 Old Kingdom V-necked dress with sleeves, from Asyut (Louvre E 12036).

Figure 11.18 Long tunic from the New Kingdom tomb of Kha at Deir el-Medina (TT8; Turin, Museo Egizio, Inv. suppl. 8330).
decoration are: fringing along the bottom edge (Petrie Museum UC 28616C) and Brussels E. 6205, the use of coloured bands woven into the cloth along the selvedges and transverse edges (Leiden, RMO E1), vertical or horizontal bands woven into the garment (Carter no. 261a, Cairo JE 62706; Carter no. 1501, JE 62737), and the use of coloured bands sewn onto the garment along all of the edges of the garment and around the neckline (Carter no. 3671, JE 62626; see also Schiaparelli 1927, fig. 69). In addition, beadwork, sequins of gold and faience, applied pattern bands, and embroidery were sometimes used to decorate tunics (see p. 279ff., decorative techniques).

Shawls and cloaks are outer garments worn by both men and women (Vogelsang-Eastwood 1993: 155–68); they normally consisted of a square or rectangular piece of cloth. Shawls only covered the upper part of the body, while cloaks were much larger and covered most if not all of the body. Shawls were worn over the shoulders and allowed to hang down the back. Two basic types of cloaks are known to have been worn in ancient Egypt. The first was a simple length of cloth wrapped around the body, one example being a proto-dynastic figurine of a woman (Ashmolean E. 326; Quibell 1900: I, pl. IX). The second form was made from a length of cloth with two ties knotted on one shoulder (Davies 1900: I, pl. XVII; Davies 1948: pl. XXVI; see Fig. 11.19).

Leggings

There are three pairs of leggings in the Egyptian Museum, Cairo (nos. 13/1126/19 and 13/1126/18). They are made from a long rectangle of cloth folded in half and sewn (overlap seam) down the back, each having a single, very long tie knotted to the front top; this tie was probably wrapped several times around the leg. At the bottom, and set off-centre, there is a V-shaped notch cut out of the material. To date no representations of Egyptians wearing these garments are known. In the late Eighteenth-Dynasty tomb of Ay (KV23), however, there is a depiction of a table bearing various items, including gold collars, gloves and what have been described as ‘collars’ (Davies 1908: pls. XXX–XXXI) although they may actually have been leggings.

Kerchiefs

A kerchief is a piece of cloth which covers part or all of the head (Vogelsang-Eastwood 1993: 169–78). In general it is made out of a single piece of cloth, usually rectangular, kept in place with a headband of some kind or tied with a piece of string at the back of the nape (e.g. Copenhagen, Ny Carlsberg Glyptotek AE 670; Davies 1936: II, pl. XCVII). More elaborate versions, worn by kings and princes (the khat headdress), were made out of two semicircular pieces of cloth sewn together (e.g. Winlock 1916; New York, MMA 09–84.217–219; Carter no. 461, 29/3/34/30a–d). A separate tie or tape was sewn to the centre-top of the semicircle of cloth which was used to fasten the garment to the head. Several examples of these kerchiefs were recorded from the tomb of Tutankhamun (KV62).

Combinations of different garments

The ancient Egyptians used various combinations of the garments described above. The attire of both sexes varies chronologically. Men in the Old Kingdom might wear some combination of loincloths, short wrap-around kilts, long narrow aprons, sashes and long cloaks. In the Middle Kingdom they often wore loincloths, wrap-around kilts of various lengths, long, narrow aprons and triangular aprons, sashes, short shawls and long cloaks might be worn. New Kingdom male attire included loincloths, wrap-around kilts of various lengths (sometimes two worn together), sash-kilts, triangular aprons, tunics, sashes, knotted and wrap-around kilts, and various kinds.

Women in the Old Kingdom wore loincloths, skirts of various lengths, wrap-around dresses (usually simple forms), V-necked dresses, sashes and long cloaks. In the Middle Kingdom they often wore loincloths, skirts of various lengths, wrap-around dresses (usually simple forms), V-necked dresses, sashes and long cloaks. Their New Kingdom wardrobe comprised loincloths, skirts of various lengths, wrap-around dresses (both simple and complex forms), sashes, tunics and long cloaks.

Household uses

Textiles were very widely used in ancient Egypt, and constituted an important part of Egyptian daily life. Perhaps the most obvious and familiar use of cloth was within the household. Although it may be presumed that material was used for curtaining and wall-hangings, it is difficult to find actual evidence. Other household uses ranged from cushions, curtains and bedding to more prosaic items such
as spice bags and lamp wicks. Although it is likely that the ancient Egyptians used curtains and wall-coverings, especially on the inside of the buildings, no examples or depictions of such items have yet been found.

**Towels**

One of the more familiar, modern uses of textiles is that of towels made in order to dry either an object or a person. There are numerous examples of ancient textiles with all-over patterns of looping, similar to modern terry-towelling. Several such cloths were found in the mass-burial of sixty soldiers at Deir el-Bahari (Winlock 1945: 32), and two other textiles of this type were found in an Eleventh-Dynasty tomb at the same site (tomb no. DB813; Winlock 1945: 32; Riefler 1944: 16–17, fig. 19). The textiles have a pattern of chevrons, zig-zags and bands of different widths.

**Cushions**

Ancient Egyptian representations include depictions of a variety of cushions. There were at least four different ways of using them: long, lounging cushions for which a textile now in the Victoria and Albert Museum may have been a cover (VA T25.1921; Davies 1903: I, pl. VII), chair cushions (e.g. the tomb of Huya at Amarna, EA1; Davies 1905: pl. IV), stool/chair cushions (as depicted in the Theban tomb of User, TT260; Greenlees 1923: 131, pl. XXI) and footstool cushions (e.g. the tomb of Huya; Davies 1905: pl. IV). A footstool was found in the Eighteenth-Dynasty tomb of Yuya and Thuya (KV46; Cairo CG3673); it is made from two roughly rectangular pieces of linen tightly packed with feathers. The size and solidity of this cushion suggests that it was used as a footstool of some kind. A possible long cushion or pillow, made out of red leather and stuffed with bulrush down, was found in the Eighteenth-Dynasty tomb of Ramose and Hatnefer at Thebes (Lansing and Hayes 1937: 16; Porter and Moss 1964: 669).

**Beds**

Ancient Egyptian beds were made up of rectangular frames mounted on four legs. The base was made from an interlacing structure of rope, sometimes woven into intricate patterns. On top of this matting there was a length of cloth serving as a mattress which had a deep pile made from numerous closely-set loops as in the bed from the tomb of Khafre (TT8; Schiaparelli 1927: II, fig. 105; see Fig. 11.20). Over the piled cloth were placed more lengths of material to act as covers or sheets. It is likely that in winter-time additional layers were used, and possibly a woollen blanket. Instead of a pillow a headrest, usually made from wood, was placed at the head of the bed.

More elaborate beds might be surrounded by canopies. A bed canopy was placed inside the tomb of Hetepheres, mother of the Fourth-Dynasty ruler Khufu (Reisner and Smith 1923: 23–7). It measures about 3.20 metres in length, 2.30 metres in width and 2.20 metres in height. It was decorated with gold, and around the inside of the top beam there are small copper hooks which may well have held drapes covering the top of the canopy and hanging down its sides. Unfortunately, they have not survived, although they may originally have been placed in a long box which was found in the queen's tomb.

**Bags**

As with modern bags, the size, range and functions of ancient Egyptian bags were extensive. They were used for carrying spices, as well as small amounts of grain, and were made from lengths of cloth folded in half and sewn down the sides (Leiden, RMO AU 41). Cloth sacks for carrying cumbersome or numerous objects were also in use, judging from depictions in a number of tomb-paintings, such as those in the Eighteenth-Dynasty tomb of Neferhotep (TT 49; Davies 1933: pl. XVIII).

**Lamp wicks**

The Egyptian hieroglyph for a lamp wick, (Gardiner 1957, sign type V2) clearly shows the basic form of the ancient wick, which was made by twisting a length of cloth or fibres, and then allowing the length to twist back on itself (Eastwood 1985: 202, fig. 10/15). The wick was then allowed to float in the lamp oil.

**Seals**

The use of cloth as part of a seal has a long tradition in Egypt. Seals were not only used within tombs to fasten and secure doors, but they were also used inside houses, palaces and temples to secure workshops and more particularly store-rooms. In addition, they were used on commodities such as jars, with the material placed over the opening of the jar before dropping a plug of clay in place (e.g. Leiden RMO F.1957/11.4). A second length of cloth was sometimes placed over the clay plug. Occasionally a blob of clay was placed at the ends and then an impression of the owner's mark was made by pressing a seal into the damp clay.
Uses outside the home

The uses of textiles outside the home ranged from items such as the cloths used to cover an object to sacks for the transportation of grain. One of the most widely used methods of extracting oils and juices was to strain the liquid through a piece of cloth. Such strainers would have been strong but flexible, and depictions of the production of wine indicate that two forms of cloth wine strainers were used (see Chapter 23, this volume). One end of the bag could be tied to a fixed support, while the other was fastened to a pole, which was then twisted by several men as depicted in the tomb-chapel of Bakt III at Beni Hasan (BH15; Newberry 1893: pl. VI). In the second method, both ends of the bag were tied to poles and two groups of workmen wrung the bag by turning the poles in opposite directions as in the scene portrayed in the tomb-chapel of Amenemhat at Beni Hasan (BH2; Newberry 1893: pl. XII; see Fig. 11.21).

Another use for cloth strainers was in the production of oils (see Chapter 17, this volume). There are several New Kingdom and later tomb-reliefs which show the production of perfume oils. In most cases the seeds or flowers are placed in a cloth bag. These bags are not as large as those used for wine-making, but they were wrung in the same way as wine bags. A fragment of relief dating to the Ptolemaic period (Turin 1673) depicts the extraction of lily essence by this means.

Textiles were also used in the equipping of animals and the vehicles drawn by them. Donkeys were one of the main pack animals of the ancient world and to protect their backs the animals were covered in a cloth. Back cloths of this type have been depicted in numerous tomb-chapels of the New Kingdom, although no actual examples of this date have been found. A saddle cloth of the first century BC was found at the Red Sea coastal site of Quseir el-Qadim (Vogelsang-Eastwood, 1990: 197). It was made from numerous layers of small fragments of cloth sandwiched between two layers of coarse material. Cloths made in an identical manner are in use for donkeys in rural Egypt today and it is probable that the back cloths of the Dynastic period were made in the same way. Occasionally more valuable animals, such as cows and bulls, are shown wearing a cloth covering on their backs as in the Sixth-Dynasty tomb of Isi at Deir el-Gabrawi (Davies 1902: pl. XIX). In such cases it would seem that these blankets were designed to stress the animals’ importance, rather than having a more practical function as in the case of the cloths described above. Another form of animal trapping are the blankets worn by horses during the New Kingdom. The remains of such a horse blanket (housing) dating from the New Kingdom were found in association with the mumified horse buried in front of the tomb of Senenmut at Thebes (TT71; Lansing and Hayes, 1937: figs. 14–15). A large piece of cloth, with wide bands sewn onto it, was used. Elaborate versions of this type of cloth can be seen in representations of Tutankhamun and Ramses II, riding their chariots into war. Such textiles are also depicted on the hunting chest of Tutankhamun (Carter no. 21; Cairo JE 61467). It is also probable that another textile from the tomb of Tutankhamun (Carter no. 333; JE 61992e) was also part of a horse blanket. There is also a depiction of a horse blanket in the Eighteenth-Dynasty tomb-chapel of Kenamun at Thebes (TT93; Davies 1930: pl. XXII).

Another use for textiles in relation to chariots is that of coverings for the floor of the vehicle itself, upon which the occupants could stand. Several textiles have been found in the tomb of Tutankhamun (associated with chariots nos. 120 and 122). One cloth is covered with a dense layer of loops, and it is likely that they were used as a springy layer, cushioning some of the bouncing movement of the chariots.

Cloth was also used on ancient Egyptian boats, primarily for sails and awnings but probably also for such purposes as coverings over merchandise, although at present there is little information about the latter more minor uses. Most information about Egyptian sails derives from funerary models and various representations of boats in tomb-paintings. In most cases the sails are shown as large sheets of cloth, one of which was recently found re-used as a set of mummy-wrappings when a mummy was unwrapped in the Musée des Beaux Arts, Lyon (Goyon and Josset 1988: 129–32). The bandages were removed and laid out, and by matching various structural details (seams and hems) it was discovered that the cloth originally came from a shaped sail. The great wooden boat found in a pit near the pyramid of Khufu (see section on boat-building in Chapter 15, this volume) included fourteen poles which were fitted into holes along the sides of the boat forward of the cabin (Landström 1974: 34, Abb.90). These poles were originally used to hold up a large awning, presumably made of cloth, under which the king and his entourage could have sat.

Although there are several references in Egyptian texts and representations to the use of cloth or matting tents, no tents appear to have survived or have been recognised as such. Tents were mainly used by the court or by soldiers while on the move. Military tents (including a possible rolled-up example) are depicted on fragments of relief from the late Eighteenth-Dynasty tomb of Horemheb at Saqqara (Martin 1989: 37–8, 44 and pls. 28, 29 and 35), and they

Figure 11.21 Detail from a wall-painting in the Middle Kingdom tomb of Amenemhat at Beni Hasan (BH2), showing the use of a cloth grape-juice strainer.
also feature in the depictions of the Battle of Qadesh in several of the temples of Rameses II (Wreszinski 1923–42: II, no. 924). The use of tents by the New Kingdom court is indicated on one of the boundary steles (stela F) at Amarna, where there is a reference to a tent made of matting (Davies 1908: 32). In addition, there is a brief literary reference to couriers on the move who used tents: ‘be his home of cloth or brick’, in the Middle Kingdom work *Satire of the Trades* (see Lichtheim 1973: 188).

Flags played an important part in the decoration of temples and palaces in ancient Egypt. They were used both on the outside of the building and around internal courtyards. For example, in a depiction of one of the palaces at Amarna, flags are shown in such a courtyard (Davies 1903: I, pl. XXXI). Similarly, there are numerous depictions of New Kingdom temples which have two sets of flags set against the outer pylons (Davies 1903: I, pl. XXVII). Rameses II describes the erection of similar flagpoles during the redesigning and extension of the eastern part of the Temple of Amun at Karnak: ‘very great flagstaffs, I erected them in the noble courtyard in front of his temple’ (Spencer 1984: 10).

The use of decorated cloth for identification purposes by military forces is well-known from various historical sources and is still practised. Each section of the ancient Egyptian army used standards as a means of identification, and they are usually portrayed as plaques with pairs of streamers placed beneath (Davies 1903: I, pl. XV).

**Economic** functions

The ancient Egyptians did not have coinage until the end of the Dynastic period, therefore most transactions were based on a bartering system in which the rough value of most objects was known to both seller and purchaser. Surpluses of any goods were usually bartered in order to make up any deficiencies, and cloth and made-up garments played an important role within this bartering system. All wages in ancient Egypt were paid in kind, frequently in foodstuffs, but also in metalwares, basketry or textiles (although it is not clear whether these goods should be regarded as wages or as rations, see Janssen 1975: 455ff; Kemp 1989: 237). There are various direct references to garments being given as wages. Papyrus Turin 1881 records seventy-eight items of cloth or clothing as the wages of a group of men (see also O. Cairo 35504; Janssen 1975: 492). Cloth and clothing were also among the items sent by Rameses IX to the ‘feather-wearing Nubians’, according to Papyrus Cairo C-D (Wente 1990: no. 38) in which two garment types are referred to specifically: twenty-five *du*-clothing (probably kilts) of nm-cloth, and twenty-five tunics of ‘smooth cloth’.

In addition to being used as wages or rations, textiles were also used in a direct manner to acquire other objects. A Nineteenth-Dynasty letter from the village at Deir el-Medina (O. DM 125; Wente 1990: no. 229) was sent to a woman called Henutudjebu, asking her to acquire a tunic on behalf of the sender ‘in exchange for the bracelet and have it furnished to me [in] ten days’ (see also O. DM 185; Janssen 1975: 279, 281). Another way in which large households and temples might have acquired textiles was by using the so-called ‘traders’ (*swty*). These were men who travelled up and down the Nile with surplus goods produced on the estates, trading them for objects that were in short supply within the households or temples.

Income had to be found from various sources in order to support royal expenditure such as the court, temples, building programmes and the army. Part of the income was raised through country-wide tax levies, paid in the form of animals and goods up to a certain value (Kemp 1991: 237). An example of this form of taxation can be seen in the wall-paintings of the Eighteenth-Dynasty tomb of Rekhmira at Thebes (TT100; Davies 1943: pl. XXXI), where the ‘recorder’ and ‘scribe of the recorder’ of the town of Wah-set (south of Abydos) are shown delivering linen garments as well as lengths of linen cloth, some carried in a chest.

In addition to using cloth already available in a household, the weaving of lengths of material was sometimes commissioned for specific purposes, including the renting of land. In one of the early Middle Kingdom *Hekanakhte letters*, a farmer writes to his sons telling them to have some cloth woven and to use it, if necessary, to rent some land: ‘I said “Weave it”, and they shall take it [the cloth] when it has been valued in Nebeseyet and rent land against its value’ (*P. Hekanakhte no. 1*: James 1962: 13).

As well as new cloth, it would appear that there was a thriving trade in second-hand textiles, some of which came from private households, where the selling of excess material in order to purchase other items was not unusual. A New Kingdom story recounts the tale of a woman who sent her servant out to the market in order to sell a length of cloth, perhaps a cloak, but was unable to make the sale because of its poor condition (Janssen 1980). It is also likely that some of the cloth presented for sale at the markets had been robbed from various tombs. This point is reflected in some Twentieth-Dynasty trial records of tomb-robbers. Among the numerous items stolen from various tombs was ‘royal linen, *mk* linen, good Upper Egyptian linen, rolled and bound, various garments [total] 63; skeins of thread [total]’ (*Peet 1930: 89*).

Large quantities of cloth were given by various ancient rulers to each other in order to cement their relationships. When the Mitannian king Tushratta sent his daughter to marry the pharaoh Akhenaten, the dowry included numerous garments and other textiles (Amarna Letters EA4 and 25; see Moran 1992: 32, 80). Similarly, surviving records state that Akhenaten sent the Babylonian king, Bûnaburiash II, a total of 1,092 items of ‘linen cloth’ (textiles and clothes). In addition to cloth being given as part of a dowry or official gift, it is likely that linen was also used to pay obligation gifts. These are gifts which would have arisen out of a duty or obligation to someone else, symbolising the debt owed by one person to another.

Textiles were probably often obtained as booty from
various foreign conquests. In 1457 BC Thutmose III is said to have sacked the city of Megiddo in Palestine, bringing back with him, according to various accounts, quantities of cloth and clothes (Breasted 1906: no. 436), and it is likely that cloth was also brought back to Egypt among the loot and booty of other expeditions. It may even be that in this way both new production techniques and foreign weavers were brought into Egypt during the New Kingdom.

Medical uses

Because of the Egyptians’ interest in mumification, the art of bandaging was highly developed at a very early date. Indeed the term wt is sometimes used in Egyptian documents to refer to a medical bandager and a bandager of bodies in the course of mumification (Ghalioungui 1983: 6–8). There are various references in the Edwin Smith Surgical Papyrus, to the use of bandages and raw flax for medical and surgical uses (Breasted 1930). There are also references to the use of raw flax being placed on wounds in order to absorb pus or blood and thus serving as a swab (Ghalioungui 1973: 43).

Bandages are described in the surgical thesis of Papyrus Edwin Smith as ‘coverings for physician’s use’ and various different ways of using them are recorded in the case studies, including their employment as covers or splints. Bandages were used both for covering a wound and for keeping medicaments in place. One of the ways in which a flesh wound was treated was by placing a piece of raw meat over it, and keeping it in place with a bandage (P. Edwin Smith, case 32). If the sides of a wound needed to be brought together then paired strips of cloth were used to close the gap (P. Edwin Smith, case 10). It is likely that these bandages were impregnated with wax in order to keep the cloth in place. In addition, various medicaments, such as grease and honey, were soaked into the bandages in order to have healing agents locally applied (P. Edwin Smith, case 14).

The Edwin Smith Papyrus describes three different forms of splint. The first is the mouth splint, whereby pieces of wood bound with cloth were placed in the mouths of patients whose jaws had locked, perhaps because of tetanus, and who could only be fed with liquid food (P. Edwin Smith, case 7). The second form of splint was the so-called soft splint made up of rolled linen used as a plug for a broken nose (P. Edwin Smith, cases 11 and 12); this type of splint was also known as ‘posts of linen’. Another form of soft splint was a roll of linen placed behind a wounded ear in order to support it (P. Edwin Smith, case 23). The third type of splint discussed in the papyrus was used for mechanically retaining a major break in position. In such cases wooden splints were padded with linen and then bound around a fracture in the leg or arm. Splints of this type were found around the broken forearm of a Fifth-Dynasty mummy (Smith and Dawson 1924: 161, fig. 69). In the Hearst Papyrus there is a reference to bandages being soaked in some form of starch (Worth Estes 1989: 63); once the starch had dried it took on a hard, stiff form, similar to modern plaster casts.

Religious uses

Mention has been made above of various secular uses of textiles, but cloth also had an important ritual function in temples. One of the rituals which occurred throughout the country on a daily basis was the washing, feeding and clothing of the statues of deities within the various temple sanctuaries. A text in the temple of Seti I at Abydos contains a reference to ‘adorning Amun-Ra with red, green and white garments’ (Calverley and Broome 1935: pl.12). The exact nature of the ‘clothing for the gods’ is not clear, but there are two main possibilities: firstly that actual garments were made and either presented to the gods by laying them in front of the image or actually fitted onto the statues; secondly that a length of cloth was wrapped around the statues, perhaps like a cloak, in a manner similar to the ritual figures found in the tomb of Tutankhamun (KV62; Reeves 1990: 130). Of the two possibilities, the second would seem the more likely.

Although the material for clothing the gods was often woven in the temples, textiles were sometimes donated by outsiders. An inventory was made of all the property and goods given by Rameses III to various temples, and among the numerous items are garments and linen which he gave to the gods, including ‘wrappings of Horus [total] 2’ and ‘garments for the august statue of Amon [total] 4’ (Breasted 1906: 232). Special garments were made for particular events, such as the Festival of the New Year. As part of the endowment of the temple of Amun at Thebes, Thutmose III ordered that the god should be given new clothing: ‘the donning of linen garments and offering of anointing oil in the entire house as is done at the New Year’s Day festival . . .’ (Cuming 1982: 1255).

In the temple at Medinet Habu, there was a room which is now known as the ‘clothing room’ (Medinet Habu VI/2: pl. 444). One of the wall-reliefs shows the king about to clothe the statue of a god with garments which are depicted as lengths of cloth (rather like an upside-down Y) instead of conventional items of clothing. When it was time to dress the statue again, the old and now ‘sanctified’ garments were put on one side for other uses, notably as bandages for mummies (Andrews 1984: 25). This detail would suggest that lengths of cloth, rather than actual garments were meant when reference was made to the ‘clothing of the gods’.

Funerary uses

One of the most important uses of cloth was related to funerary rites. Tait (Tayt, Tayet), the goddess of weaving, is occasionally associated with funerary practises. Mummy bandages were sometimes known as being or belonging to
the ‘land of Tait’, and one of the earliest references to this
goddess appears in Utterance 417 of the Fifth- and Sixth-
Dynasty Pyramid Texts, where she is described as clothing
(i.e. wrapping with bandages) a dead king: ‘While (?) the
Great One sleeps upon his mother Nut, your mother Tait
clothes you, she lifts you up to the sky in this her name of
Kire’ (Faulkner 1969: 137).

Most ancient Egyptian burials contained items which
were regarded as essential in this life and thus equally
important in the next. These objects included pottery, food,
jars, cosmetic items, tools and weapons, as well as textiles
and clothing. In addition, cloth was placed in the tomb in
the form of covers for amulets and statues, and incidentally
as cloth being wrapped around cuts of meat and other
foodstuffs. The quantity of cloth found in a tomb can be
considerable. It has been estimated that Wah, estate man-
ger to the early Middle Kingdom vizier Meketra, had a
total of 845 square metres of cloth in his tomb (Winlock
1940: 257), including 375 square metres of linen around
the body, the rest being made up of pads and lengths of cloth
which ranged in length from 2.56 to 25.6 metres. The tomb
of Tutankhamun (KV62) contained at least 400 items of
cloth, including clothing, covers for ritual figures, linen
arrow quivers, lamp wicks and the trappings for a chariot
(Vogelsang-Eastwood and Kemp 1999).

The main element in the furnishing of the tomb was the
coffin. This was usually covered with a large length of cloth
or pall, the length of which could vary from two or three
metres to about twenty, depending on how it was used. In
representations of funerals the pall is usually shown as a
small piece of cloth, so that the coffin underneath is still
visible. The pall was also frequently painted red as this
colour was associated with death and regeneration. Tutan-
khmun was buried inside three coffins, a sarcophagus and
four shrines. The second shrine was enclosed by a frame
covered with a large sheet of cloth made out of several
lengths of material sewn together and decorated with gold
rosettes to represent stars (Carter no. 209; Cairo JE
62745a).

A shroud, or cloth cover, was also placed over, and
sometimes around, the body. Sometimes only one cloth
was placed on the mummy, and in other instances several
were used. Most shrouds consisted of a single length of
cloth wrapped around the body, sometimes being inscribed
in ink with spells, or chapters, from the Book of the Dead,
as well as the name of the deceased (see Quirke et al. 1995).
Occasionally actual garments were used as shrouding; the
Eighteenth-Dynasty burial of Ramose and Hatnefer at
Thebes, for instance, included at least two tunics covering
the outer layer of bandages around the body of Hatnefer
(Lansing and Hayes 1937: 19–20; Porter and Moss 1964:
669). A more ornate form of shroud is the so-called Osiris
shroud, comprising a linen sheet spread over the bandages
and then fastened in place by ties woven for the purpose, an
example of which was also found over the mummy of
Hatnefer (Cairo JE 66218). This type of shroud is often
decorated with a painted life-size figure of Osiris, which
may be either a simple outline executed in black ink or a
more elaborate painting. Occasionally other gods or human
forms are depicted (e.g. Leiden, RMO AMM 8). A more
unusual form of shroud, taking the shape of a human
being, covered the body of the New Kingdom queen Ah-
mose Meritamun, who was probably the Great Royal Wife
of the early Eighteenth-Dynasty ruler Amenhotep I (Hayes
1990: 54; see Fig. 11.22).

There were various sources of cloth to be used for
mummy bandaging, depending on the financial resources
to be spent on the funeral (see Benson et al. 1979; Wild
1979, and see also Chapter 16, this volume). In most cases
the mummifiers used old cloth and clothing which were
torn up and wrapped around the body. The Twenty-third-
Dynasty mummy of a priestess called Ankhefenkhonsu
was wrapped in at least twelve tunics and one or two cloaks
(National Museum of Denmark, Copenhagen, Acc. no.
1938). Old cloth and clothes for bandages also formed part
of the list of acquisitions prior to military activities, in
anticipation of losses. In a Twentieth-Dynasty letter, ‘the
general of Pharaoh’ wrote to the scribe Tjary: ‘As soon as
my letter reaches you, you shall send some old cloths in
the form of many strips . . . And don’t let them go to waste (?)
for they shall be made into bandages with which to wrap up
men’ (No. 300 Wente 1990: 182).

In more influential households it was possible to obtain
what was called ‘sanctified mummy wrappings’. These
were the old ‘clothing of the gods’, described above in the
section on religious uses (Andrews 1984: 25). In Spell 61 of
the Coffin Texts, there is a reference to such garments,
which have been used to make bandages for the dead: ‘You
are dressed in the pure garments of Ptah, in the cast-off
garments of Hathor’ (De Buck 1935: I, 258).

The amount of cloth used during the mummification
process was considerable. It was required to pack the body
in order to speed up the dehydration process and to prevent
the body from being accidentally crushed (Andrews 1984:
20–6). Linen bags filled with natron were also placed inside
the body. After the corpse had been in natron for forty days
it was emptied, washed, rinsed and then allowed to dry. Any
cavities were again filled with linen and all the facial orifices
plugged with cloth. The actual wrapping of the body began
about fifteen days later. At this point all the cloth needed
was placed into various piles around the room. The piles
were for bandages: folded sheets for layering; shaped
bundles for wadding; padding, and finally the shrouds. The
wrapping of the body began with the fingers and toes and
then the arms and legs (Andrews 1984: 26–7; Raven 1993:
21, pl. 21). Gradually the whole body was wrapped in ban-
dages, and pads of cloth were used to fill in certain areas
(e.g. under the neck). In addition, if a limb was missing, a
substitute was made out of a roll of cloth. Often worn and
damaged cloth was used for bandaging the body itself,
while the outer bandages were made of material in a better
condition.
A wide range of animals, reptiles and birds were also mummified (Andrews 1984: 64–5). In the beginning only certain animals were mummified, notably rams and geese, bulls, cows, crocodiles and falcons, but by the later periods a wide range of animals were mummified including snakes, fish, mice, gazelle, baboons, dogs and cats. The role of cloth during the mummification of animals has yet not been studied in detail.

Conclusions

Until comparatively recently, the study of textiles has lagged behind that of other Egyptian material remains. The study of Egyptian pottery, for example, was initiated over 100 years ago. In contrast, the early reports rarely dealt with textiles, providing only occasional references to ‘mummy cloth’ or simply ‘linen’. The situation changed somewhat in the early twentieth century, when various scholars, such as Walter Midgely, Ling Roth, Grace Crowfoot and later Elizabeth Riefstahl each took a specific interest in textiles. After the Second World War, however, there was for some time a general dearth of interest in the subject.

During the last few decades of the twentieth century, there has been a notable change in the attitude of Egyptologists towards the study of ancient textiles. One of the major factors in this change is that the Egyptologists themselves, who once focused primarily on the philological and religious aspects of Egyptian culture, have begun to accept the fact that the material culture of the Pharaonic period is worthy of equal attention.

Changes in the available technology for the analysis of textiles have also played an important role in the study of these objects. Until the development of minimum or non-destructive scientific tests, many museums were reluctant to allow textiles to be used for the analysis of fibres or dyes. The situation is changing, but the growing complexity of analytical techniques has meant that there is an ever-widening gap between the specialist in the field and the person who is analysing the objects; unfortunately it is likely that this gap will widen further in the future.

Despite such problems, the future of the study of ancient Egyptian textiles looks far from gloomy. There is an ever-growing awareness of their intrinsic interest and their value both to scholars and to the general public. More importantly, information about textiles is now more widely available, which means that future generations of students will realise that pieces of linen are much more than simply tatty old rags.

References


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