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Textiles on Egyptian Mirrors: Pragmatics or Religion?

Introduction

The Petrie Museum of Egyptian Archaeology at the University College London houses an impressive range of objects that showcase ancient Egyptian daily life as well as those thought necessary for the afterlife. Plentiful among these objects are mirrors. Found in burials, a handful of mirrors at the Petrie Museum fascinatingly bring evidence of another funerary artifact: textiles. When disposed in a burial in contact with metals, textiles can be preserved in their organic state or become mineralized, a process during which their organic structure is replaced by an inorganic one consisting of metal salts. Six mirrors from the Petrie Museum display such textiles, raising important questions: Why were textiles and mirrors placed together in burials? Is this survival incidental or are textiles on these mirrors representative of a wider Early Intermediate and Middle Kingdom phenomenon? Did ancient Egyptians create cases made of textiles to cover mirrors deposited in burials? If so, did their mortuary practices require the covering of mirrors for a religious purpose or was it simply a practical matter of protecting the reflective surface? This article will address these questions by investigating ancient Egyptian textiles, mirrors and the possible significance of their association.

Mineralization Process

Fiber mineralization occurs as a post-depositional process. In certain burial environments the presence of metals (in this case copper and its alloys) facilitates a chemical reaction that allows the dispersal of metal ions (Chen *et al*. 1998, 1016). These ions are able to infiltrate fiber that is undergoing degradation by microorganisms. This corrosive process is toxic to the micro-organisms and thus at times is able to decrease the amount of damage that these organisms would normally cause to the textile. Textile mineralization can preserve the external structure of the fiber in what is known as a negative cast, or as a positive cast with the metal ions penetrating throughout the entirety of the structure (Gillard *et al*. 1994, 133). The positive casts most often occur as a result of contact with copper and its alloys, of which the mirrors in the present study are made.

Materials and Methods

Six copper or copper alloy mirrors with organic or mineralized textiles were analyzed at the Petrie Museum of Egyptian Archaeology for this study presented in the Catalogue below. Microscopic analysis was carried out and micro-photographs taken using digital DinoLite microscope, noting when possible the following technical parameters: the location of mineralized textiles on the mirrors and their size, weave type, thread count, thread diameter and twist direction, and any special features. Diameter measurements were carried out on at least three yarns in each case and since they often varied substantially, a range is given in each instance (cf. Kemp and Vogelsang-Eastwood 2001, 65). As none of the textiles have preserved borders, it was not possible to identify warp and weft, but since in most pharaonic linen textiles warp is usually denser than weft (Kemp and Vogelsang-Eastwood 2001, 99-107), the denser system is listed as the first system in Table 1. In one case, fibre identification was carried out using Scanning Electron Microscope at the Wolfson Archeological Science Laboratories at the Institute of Archaeology, University College London.

Fig. 1. Mirror 1 (UC58772), unknown date and context (Photo: K. Price, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

Catalogue
Mirror 1 (Fig. 1)
Accession Number: UC58772
Date: Unknown
Context: Unknown
Mirror description: circular bronze mirror; tang missing; broken into several fragments and recomposed; size 14.5x15.3 cm.
Textile description: mineralized textile traces present on upper and central part of one face, measuring approximately 12x6 cm (Fig. 2)

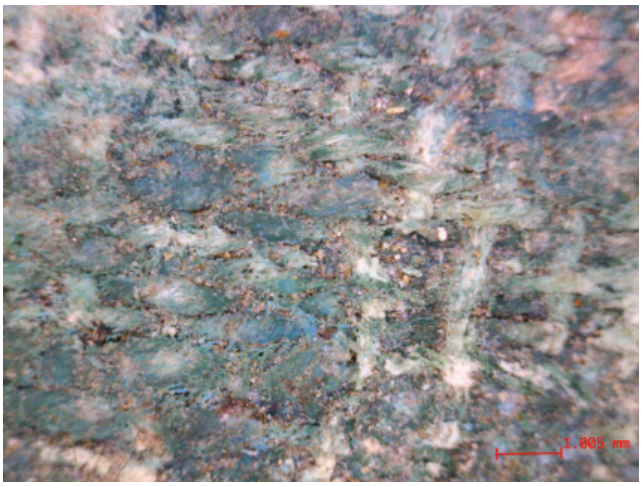


Fig. 2. Detail of textile on Mirror 1 (Photo: authors, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

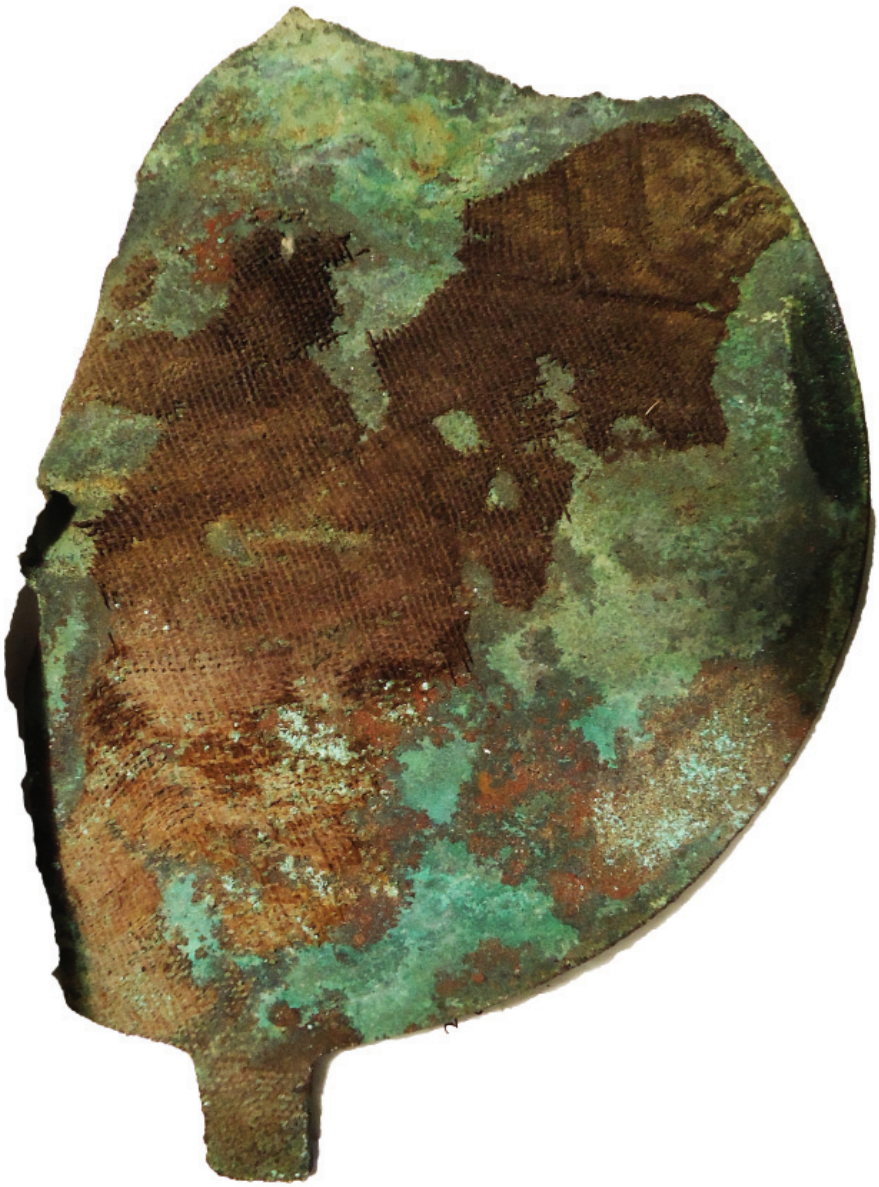


Fig. 3. Mirror 2 (UC18094), Dynasty 11, Abydos tomb 291 (Photo: K. Price, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

Mirror 2 (Fig. 3)
Accession number: UC18094
Date: Dynasty 11, Middle Kingdom (2060-1991 BC)
Context: Abydos Tomb 291
Mirror description: circular bronze mirror with rectangular tang, broken vertically before or during deposition; size 17x11 cm.
Textile description: dark brown cloth preserved in patches on one face of the mirror with only small areas of mineralized textile (Fig. 4). A dark brown color of the textile may be due to degradation (Kemp and Vogelsang-Eastwood 2001, 16). What appear to be 3 seams (two parallel with one perpendicular to them) are present in the upper right area (Fig. 5). The sewing thread in at least two of the seams is Z2s (cf. Kemp and Vogelsang-Eastwood 2001, 60). The upper two seams are similar to the "type 1 seam" found among the Amarna textiles (Kemp and Vogelsang-Eastwood 2001, 172, 178). This seam entails rolling under the edge of each piece of cloth and then attaching the two pieces together with stitching.

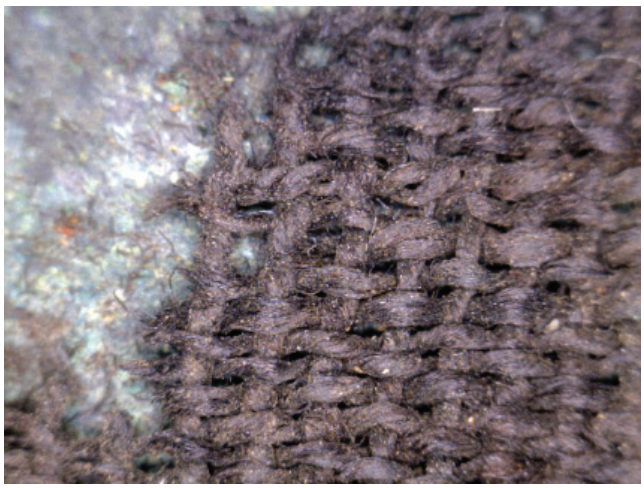


Fig. 4. Detail of textile on Mirror 2 (Photo: authors, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

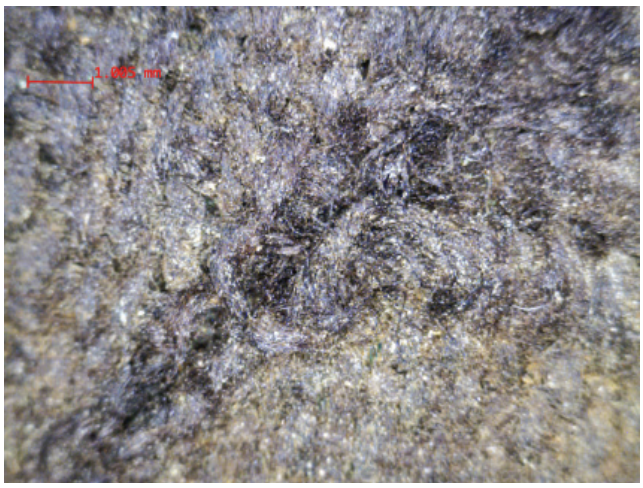


Fig. 5. Detail of textile on Mirror 2 showing possible seams (Photo: authors, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

Fig. 6. Mirror 3 (UC26069), Dynasty 12, Qua (Photo: K. Price, with permission of The Petrie Musum of Egyptian Archaeology, UCL).

Mirror 3 (Fig. 6)
Accession number: UC26069
Date: Dynasty 12, Middle Kingdom (1991-1782 BC)
Context: Qua
Mirror description: circular bronze mirror with triangular tang; size 9x9.7 cm.
Textile description: mineralized traces of two different fabrics on both faces of the mirror, wrapping around on top right and bottom left corners (Fig. 7).

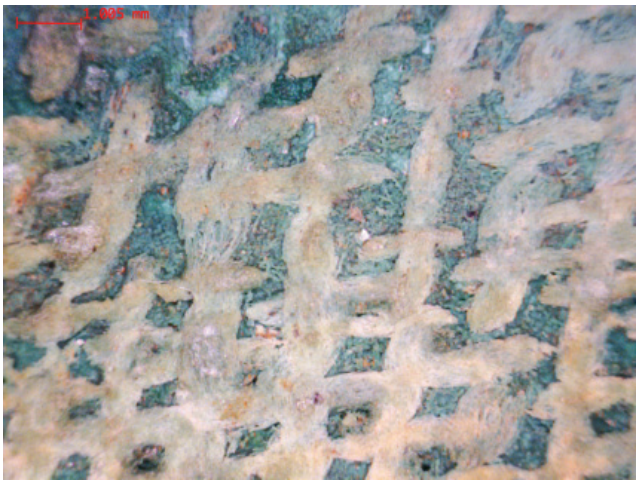


Fig. 7. Detail of textile on Mirror 3 (Photo: authors, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

Fig. 8. Mirror 4 (UC43125), Dynasty 11, Abydos (Photo: K. Price, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

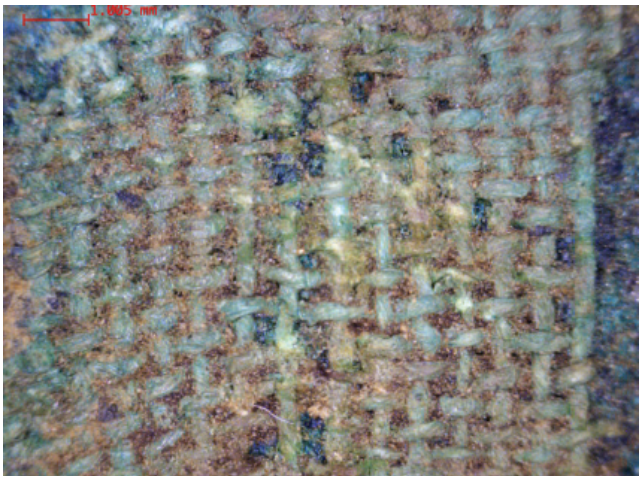


Fig. 9. Detail of textile on Mirror 4 (Photo: authors, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

Mirror 4 (Fig. 8)
Accession Number: UC43125
Date: Dynasty 11, Middle Kingdom (2060-1991 BC)
Context: Abydos, west of Shumeh el Zebib
Mirror description: Circular bronze mirror with rectangular tang; size 13x13.7 cm
Textile description: Six patches of tabby weave textiles remain while most were scraped off (Fig. 9); textile present on both faces of the mirror.

Fig. 10. Mirror 5 (UC43073), Dynasty 12?, Abydos tomb 275 (Photo: K. Price, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

Mirror 5 (Fig. 10)
Accession Number: UC43073
Date: Dynasty 12?, Middle Kingdom (1991-1782 BC; Hall 1986, 5)
Context: Abydos, Tomb 275 Sq. Memeith
Mirror description: Circular bronze mirror, tang missing; size 13.5x12.9 cm
Textile description: mineralized textile patches adhering to both faces (Fig. 11)

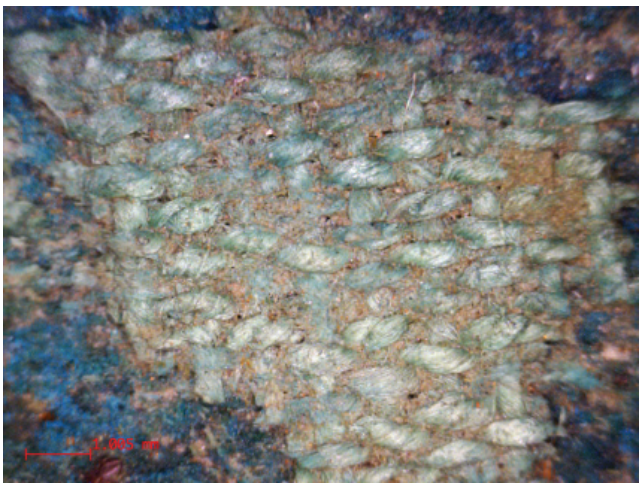
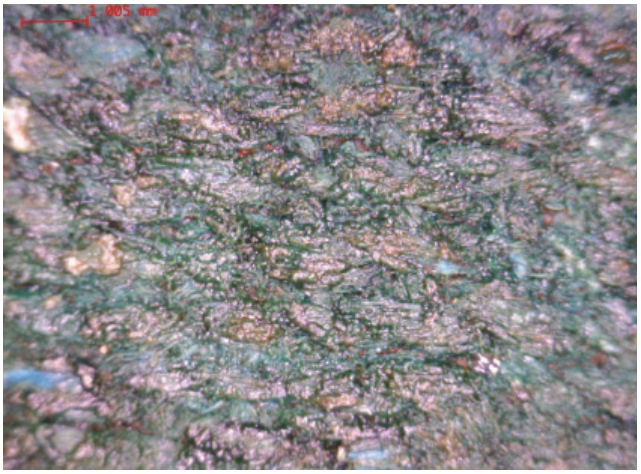


Fig. 11. Detail of textile on Mirror 5 (Photo: authors, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

Fig. 12. Mirror 6 (UC18094), Dynasty 9, Qua, Badari tomb 4979 (Photo: K. Price, with permission of The Petrie Museum of Egyptian Archaeology, UCL).



Mirror 6 (Fig. 12)
Accession Number: UC18094
Date: Dynasty 9, First Intermediate Period (2181-2040 BC; Hall 1986, 5)
Context: Qua, Badari tomb 4979, Tomb of Women.
Mirror description: heavy circular copper mirror with square tang preserving remains of wooden handle; size 15.x15.5 cm; conserved – covered with consolidant.
Textile description: mineralized textile traces on both faces, wrapping around the edge and preserving overlapping folds (Fig. 13).

Fig. 13. Detail of textile on Mirror 6 (Photo: authors, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

Results

Technical characteristics of the textiles adhering to the mirrors are described in Table 1.

Four of the mirrors (3-6) have mineralized textiles on both the front and back of the mirror with one mirror (4) presenting evidence of the removal of textile remains in the past as a conservation treatment. Two mirrors (5, 6) have evidence of the original textile wrapping around the mirror from front to back, one of which shows overlapping folds of fabric (6).

Textiles on the six mirrors at the Petrie Museum are all tabbies with quality ranging from 10 to 28 threads/cm in System 1 and from 7 to 16 threads/cm in System 2 or between 28/16 and 10/7 threads/cm. This is a relatively narrow range and fits well within the normal range published for the vast quantity of textiles excavated at the Workmen's Village at Amarna and other sites for which the data is available (Kemp and Vogelsang-Eastwood 2001, 107). The twist is either s/s or S2s/s, although in some cases it was not possible to define the thread twist with certainty due to heavy mineralization. This also fits well with the results presented by Kemp and Vogelsang-Eastwood for the Amarna material (2001, 59-60). In some cases, splices are clearly visible (Fig. 14). Yarn diameter ranges between 0.24 and 0.66 in System 1 and between 0.29 and 1.02 in System 2, varying between fine and very coarse according to the classification by Kemp and Vogelsang-Eastwood (2001, 64). The finer yarn diameters in System 2 correspond to higher thread counts. The diameters vary considerably within each textile and within each thread system. Twist angle, mostly corresponding to medium, is also similar to the Amarna material (Kemp and Vogelsang-Eastwood 2001, 64).

The raw material of all textiles is most likely flax. A sample of loose thread from Mirror 2 was analyzed using Scanning Electron Microscopy (SEM), confirming that the fibre is flax, *Linum* sp. (Fig. 15), which is the predominant fibre used in pharaonic Egypt (Kemp and Vogelsang-Eastwood 2001, 25-34, 53). Diameter of 15 fibres measured ranges between 7.9 and 22.9 microns, with an average of 15 microns.

Fig. 14. Detail of textile on Mirror 5 showing a splice (Photo: authors, with permission of The Petrie Museum of Egyptian Archaeology, UCL).

Discussion

In addition to the Petrie Museum mirrors, at least four other Egyptian mirrors were found to bear proof of textile presence: three in the Boston Museum of Fine Arts: no. 21.10559 from Naga el-Deir 453b dated to Dynasty 12 (1991-1783 BC; Lilyquist 1979, fig. 53; *Museum of Fine Arts, Boston Online Collection 21.10559*); no. 13.3571 from Sheikh Farag dated to Dynasty 12-16 (1980-1630 BC; *Museum of Fine Arts, Boston Online Collection 13.3571*); no. 15-2-63 from Nubia (Sudan) of Kerma culture (2500-1520 BC; Lilyquist 1979, fig. 69; *Museum of Fine Arts, Boston Online Collection 15-2-63*); and one mirror in the Metropolitan Museum of Art: no 29.2.2 from unknown context dated to Middle-Late Kingdom (Lilyquist 1979, fig. 45).

However, it is possible, as with Mirror 4 and the mirror 21.10559 in the Museum of Fine Arts in Boston, which since being photographed has been unwrapped, that mineralized textile remains have been removed from many other artifacts during cleaning and conservation process (compare Lilyquist 1979, fig. 53 and *Museum of Fine Arts, Boston Online Collection 21.10559*). Indeed, Lilyquist (1979, 63) notes that: "impressions for remains of cloth are found on the surface of disks of every period". Although the mirrors from known contexts investigated for this study date from the Ninth Dynasty of the First Intermediate period (2181-2040 2025 BC) to the Twelfth Dynasty of the Middle Kingdom (204025-1782 BC), archaeological evidence

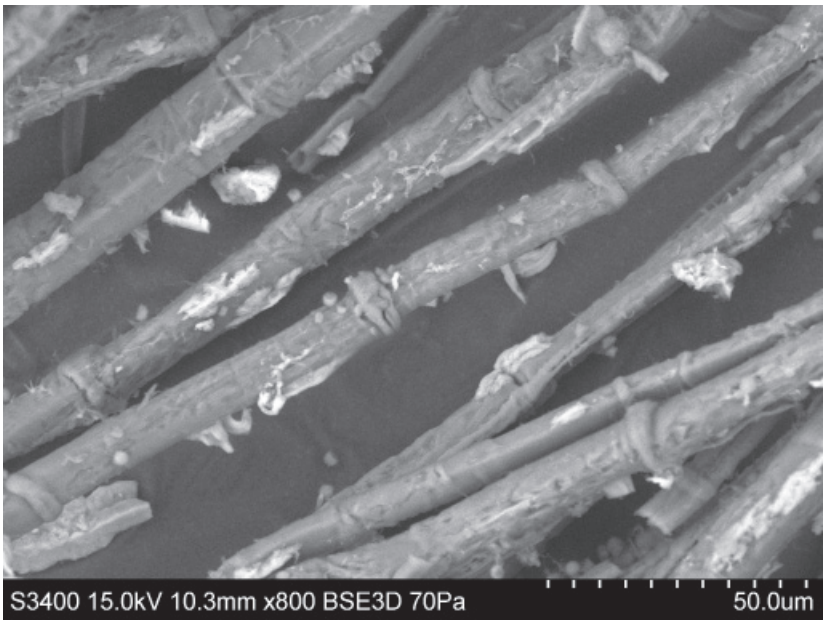


Fig. 15. SEM micrograph of flax fibres from Mirror 2 (Photo: M. Gleba).

attests to the presence of textiles on mirrors dating back to the Archaic or Early Dynastic Period (3050-2613 BC; Lilyquist 1979, 4). Therefore, it would appear that the relationship between textiles and mirrors, and their likely intentional placement together lasted for a very long time in Egyptian culture.

There are various reasons as to why mirrors would need to have been covered in textiles for burial. The simplest explanation is a practical one: the protection of the reflective surface. In fact, actual mirror cases have been found in excavations, the most famous being the gold and silver ankh-shaped case from the tomb of King Tutankhamun (see *e.g.* Desroches-Noblecourt 1989, 188). Mirror cases could also be made of materials such as bronze and wood (Wallis Budge 1987, 262). Egyptian iconography includes representations of mirror cases made out of animal hide typically depicted white with black patches, or plaited rush represented as checked squares or cross-hatching, reminiscent of basketry (Lilyquist 1979, 63, 65).

Most relevant to this study are cloth mirror cases. When discussing the presence of textile remains on mirrors, Lilyquist (1979, 63) surmises: "Impressions for remains of cloth are found on the surface of disks of every period, and it is a logical assumption that cloth was the basic protection for reflective disks throughout ancient Egypt". "Plain cases" are noted in representations with an outer row of stitching (Lilyquist 1979, 63). Although their material is difficult to ascertain, it is possible that they were made of woven cloth with two pieces sewn together. While it is difficult to tell if the textiles on the Petrie Museum mirrors were once such cloth mirror cases, at least one of the mirrors preserves traces of two different textiles on its two faces, suggesting that a case may have been sewn together from fragments of different fabrics. On the other hand, three of the six mirrors at the Petrie Museum (Mirrors 4-6) and some mirrors from other museum collections appear to have been wrapped in a textile, possibly a strip of cloth, from front to back. The mirror 21.10559 at the Museum of Fine Arts, Boston was wrapped with a fringed cloth made of reed fiber (Lilyquist 1979, 65).

It seems to have been a common practice to reuse textiles in burials in ancient Egypt. Although the preparation of tombs was considered an intensive and prestigious activity (de Moor 2009), the use of recycled garments for the afterlife does not appear to have had a low-class stigma. This is well expressed in the last words of the relatives inscribed in a New Kingdom tomb: "he who had so much fine linen, and so gladly put it on, sleeps now in the cast-off garments of yesterday" (Erman 1907, 137). Most mummy bandages were actually made of reused fabrics (Ikram and Dodson 1998, 153). It can be surmised that textiles associated with mirrors, possibly used to wrap them, may have been such reused fabrics as well.

Although not found in burials, textile remains from the Workmen's Village at Amarna also included recycled strips of cloth. These strips had signs of being deliberately torn and cut from another, larger piece

of cloth and would have been used as a substitute for ropes, lamp wicks, bandages, and inserts used to strengthen the folds and seams of fabric (Kemp and Vogelsang-Eastwood 2001, 222-223). Small pouches made from recycled cloth are also known at Amarna (Kemp and Vogelsang-Eastwood 2001, 230-232). These pouches appear to have been made by gathering together the corners of a rectangular piece of cloth around an object and then tying them together with a string (*e.g.* fig. 6.66a-f in Kemp and Vogelsang-Eastwood 2001, 231-232).

Another example of the intentional wrapping of a mirror in loose cloth is seen in the case of Mirror 2. This mirror has a mineralized textile that is present not only on the surface of the mirror but also on its tang, the protruding appendage at the bottom of the mirror which would have been inserted into a handle. As the tang was usually covered by the handle and thus already protected, evidence for the wrapping of tang may point towards burial without a handle. However, it is also possible that the entire mirror with tang was wrapped in a textile before being reinserted back into the handle, which would suggest that mirrors were wrapped for reasons other than simple surface protection.

An alternative or perhaps additional motive for wrapping or covering mirrors in burials may have been due to cosmological power ascribed to these reflective surfaces. In Egypt, mirrors were associated with the revitalization of the deceased, conserving his/her appearance and possibly even acting as a depository for the soul (Lilyquist 1979, 98-99). At least in the Middle Kingdom, the uncased mirrors are usually positioned towards the head in tombs while those in cases are more frequently found near the feet (Lilyquist 1979, 76) and Lilyquist (1979, 99) suggests that in the former case "the readiness of the mirror for use must be significant". Perhaps some mirrors were encased to prevent them from being readily available for use and to deter the (dangerous?) agency of its reflective surface. Conceivably, through encasement in cloth (or other material), the power of mirrors would be restricted in burial, perhaps so that they did not act on their own accord or were not misused.

In this respect, of special interest is King Tutankhamun's ankh-shape mirror case. Its shape may actually be a play-on-words representing the mirror's power as ankh meant both 'mirror' and 'life' in ancient Egypt (Ross 2008, 91). As 'mirror' and 'life' were conveyed with the same word, mirrors could thus be used in burials to transfer life to the deceased (Bird 1986, 189). It has also been suggested that mirrors acted as depositories for the soul (Lilyquist 1979, 99; Graves-Brown 2010, 167).

In fact, cross-cultural comparisons certainly indicate that mirrors across time and space had important cosmological significance. Thus, Chinese burial practices reveal beliefs in the power of reflective

Number	Date	Context	Weave	Thread count	Thread twist	Thread diameter	Twist angle
UC58772	unknown	unknown	tabby	20-21/9	s(S2s?)/s	0.43-0.56/ 0.68-0.82	medium/medium
UC18094	Dynasty 11	Abydos	tabby	20-22/10	S2s/s	0.27-0.57/ 0.37-0.52	medium/medium
UC26069	Dynasty 12	Qua	open tabby	10-11/7	S2s?/s	0.34-0.62/ 0.57-1.02	?
			tabby	20-22/11	s/s?	0.24-0.35/ 0.32-0.37	?
UC43125	Dynasty 11	Abydos	tabby	28/16	s/s	0.28-0.36/ 0.29-0.37	medium/low
UC43073	Dynasty 12?	Abydos	tabby	24/10	s/s	0.39-0.53/ 0.40-0.50	medium/medium
UC18094	Dynasty 9	Qua	tabby	20/7	s/s?	0.60-0.66(splice 1.22)/0.47-0.68	medium/?

Table 1. Technical characteristics of the textiles on Petrie Museum mirrors.

surfaces. Although later in date, Chinese mirrors from the Winthrop collection at the Harvard University Art Museums, dating from the Zhou Dynasty's Spring and Autumn Period (771-476 BC) to the Tang Dynasty (AD 618-906) preserve mineralized textile traces (Costello 2005, 1, 10). These mirrors, placed on or next to the deceased, were necessary in burial to ward off evil spirits, as they became visible in their reflective surface (Costello 2005, 2; Ho 2005, 91-92). Since their placement with textiles has not been investigated systematically, it is possible that the impressions might be the result of contact with the deceased's clothing, yet the association of mirrors with textiles is curious.

The need to restrict the power of mirrors is also seen with a small number of mirrors found in Etruscan burials in Italy. Nancy de Grummond (2009, 171) states: "the act of breaking or covering a mirror is commonly accompanied by strong feelings, probably because of the widespread perception that a mirror contains within itself another world that is no longer accessible if the mirror, a kind of pathway to that world, is closed down". This pathway appears similar to "scrying", or seeing into other worlds through reflective surfaces as described by Graves-Brown (2010, 167). The manner in which this pathway was closed in late 4th and early 3rd century BC mirrors found in Etruscan burials was through the canceling of mirrors by "suthinizing" (inscribing the mirror with ′suθina′ meaning 'for the tomb', usually on its reflective side), and/or the ritual mutilation of mirrors by folding, gouging or hammering (de Grummond 2009, 172-175). Some of the mirrors bear traces of textiles. It may be that by wrapping an object the same objective was achieved. Although seemingly destroyed, Etruscan mirrors appear to have been defaced with restraint, perhaps a way in which to decrease the power of the mirror but not ruin it (de Grummond 2009, 176-177). Similarly, on the above-mentioned Chinese mirrors inscriptions were utilized to draw supernatural attention to the burial in order to assist the deceased and keep away malevolent spirits (Bulling and Drew 1971-72, 44). Ancient Egyptian mirrors do not show evidence of a similar practice, although at times they were inscribed (see Lilyquist 1979, figs. 5-19 for drawings of inscribed mirrors). These inscriptions usually listed the names of the male and female owners of the mirror.

It is plausible to assume that ancient Egyptians believed that the power of the mirror needed to be controlled during burial. As with cased mirrors placed on the eastern side in coffins, a method for doing this may have been to cover the reflective surface. Textiles constituted an easy way to accomplish this.

Conclusion

The six mirrors analyzed at the Petrie Museum of Egyptian Archaeology, combined with others located in other museum collections, provide evidence that mirrors in pharaonic Egypt were intentionally covered with textiles when placed in burials. This phenomenon, combined with the fact that many mirrors may have been cleaned before or after entering museum collections, during which process textile traces would have been removed from their surfaces, more than hints at a wider burial practice that involved the covering of these reflective surfaces. It is still unclear as to why this was done. Although the explicit evidence that appears in Etruscan and Chinese burials for the need to mutilate or inscribe the mirror to call upon or reject supernatural forces is not present in the case of Egyptian mirrors, it is possible that mirrors were covered for similar reasons. This may have been done with a gold ankh-shaped mirror case, wood, metal, hide, rush, cloth cases or simply recycled textiles, donated to the burial for use in the afterlife. While further research of textiles on Egyptian mirrors is necessary in order to fully understand their function in burials, it is likely that mirrors were purposely covered with textiles probably for more than pragmatic reasons, and that these textiles aided the controlling of their supernatural power within mortuary contexts. Even when minute, textile traces on ancient objects not only provide new information about these objects but also lead us to ask new questions about their significance in the past.

Acknowledgments

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