

# MORE ITEMS OF FUNERARY LINEN FROM THE DEIR EL-BAHARI BURIAL ASSEMBLAGES

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**Abstract:** A corpus of funerary linen was found in the 2012/2013 season in one of the rock tombs cut in the cliff bordering the Tuthmosis III temple platform in Deir el-Bahari during the work of the Polish–Egyptian Archaeological and Conservation Mission of the Temple of Hatshepsut at Deir el-Bahari. It derives from unidentified burials and from disturbed archaeological contexts and most probably was deposited in the tomb in modern times. It constitutes an important addition to the known body of funerary linen from the Third Intermediate/beginning of the Late Period, as attested by a cartouche of Taharqo and other elements of the burial assemblages. The discovered textiles provide important information about the funerary functions of linen, as well as technical aspects of Pharaonic textiles.

**Keywords:** textiles, funerary linen, burial assemblage, Deir el-Bahari, Theban tombs

About 300 pieces of linen were rediscovered inside the shaft and the two subterranean rooms (C and D) of a tomb (Tomb II) cut into the rock cliff bordering the temple of Tuthmosis III (*Dsr-ḥt*) [Fig. 1]. The state of preservation of the textiles varied considerably. A representative group was chosen for detailed study based on selection criteria including diagnostic features, such as fringe, starting-border, self-band, selvedge, hem, preserved color, as well as traces of a black and/or reddish substance. The assemblage included inscribed pieces<sup>1</sup> (Field Inv. 2021, 2022, 2023, 2024, 2025, 2026, 2027), among these Inv. 2026 bearing a partly preserved cartouche of Taharqo (Hallmann 2015a), as well

as uninscribed textiles, many of them inventoried as groups (Field Inv. 1982/1–3, 2028/1–9, 2029, 2030/1–3, 2031/1–15, 2032/1–6, 2033/1–5, 2034/1–2, 2035, 2036/1–4, 2037, 2038/1–2, 2039/1–4, 2040/1–15, 2041/1–3, 2375/1–4, 2400/1–5).



*Fig. 1. Entrance to Tomb II in Deir el-Bahari, used as a depository of funerary textiles from other locations in West Thebes*

<sup>1</sup> To be studied by Zbigniew E. Szafrński.

## PRELIMINARY TEXTILE ANALYSIS

Most of the examined textiles are small and shapeless fragments (i.e., a piece of weave from the body of a cloth), used as body packing when making mummies or ripped when mummies were carelessly and intentionally unwrapped. But even small pieces can carry meaningful information from a technical point of view, providing they retain the transverse edges (top and the bottom), two sides (selvedges), and self-bands.<sup>2</sup> Hence the importance of this particular corpus for further research.

Pieces varied in size from the smallest, approximately 0.5 cm long, to the largest, approximately 200 cm long, whereas the widest piece was 70 cm wide. No one piece was preserved to its full length (from one edge to the other).

## TRANSVERSE EDGES (STARTING-BORDER AND WARP-FRINGS)

The transverse edges which start and finish off a cloth survived on some textiles from this assemblage. It is possible for a cloth to start and finish with fringes made from loose warps, but the starting-border characteristic of Egyptian textiles consists rather of groups of interwoven yarn (thickened cords) which are tied to the breast beam, and permanently incorporated into the cloth (Kemp and Vogelsang-Eastwood 2001: 117). Some of them consist of four (Inv. 2021 [see Fig. 8], 2041/1–3 [Fig. 4], 2033/4–5), five (Inv. 2036 [Fig. 5]) or even six (Inv. 2033/1–3 [Fig. 6]) strands which create a decorative effect and resemble self-bands grouped



Fig. 2. Linen Inv. 2028/1; inset, close-up of self-bands and warp-fringe

All photos Aleksandra Hallmann.

<sup>2</sup> The technical terminology used for describing textiles was adapted from Kemp and Vogelsang-Eastwood 2001: 89–144; van't Hooft et al. 1994: 13–20.

together. The decorative effect of grouped strands used as a starting-border, as well as their similarity to self-bands, is attested on Inv. 2041/1–3 [see *Fig. 4*], where the blue stripe bordered by the two-stranded self-band begins just after the four-stranded starting-border. Strands on both edges of the blue stripe clearly look the same. The function of separating a colored stripe from the rest of cloth is also seen on Inv. 2029 [*Fig. 3*] where two double-stranded self-bands frame the pinkish stripes.



*Fig. 3. Linen Inv. 2029; inset, close-up of color stripe framed by two double-stranded self-bands*



*Fig. 4. Linen Inv. 2041; inset, close-up of color stripe bordered by a double-stranded self-band*



The warp-fringes are the only observed transverse end edge on the textiles from the corpus (for all technical aspects of warp-fringes, see Kemp and Vogelsang-Eastwood 2001: 133–142). Unfortunately, the warp-fringes are not always evident

owing to the state of preservation (Inv. 2028/1–3,8, 2029, 2031/12, 2032/1–6, 2039/1). Some warp-fringes resulted from the unworked warp ends being left free (e.g., Inv. 2028/1–3 [Fig. 2]), whereas others seem to have fringes initially made



Fig. 5. Linen Inv. 2036/3; bottom, close-up of starting border

from the ends being bound together (e.g., Inv. 2029 [see *Fig. 3*]). Moreover, all surviving warp-fringes are preceded by two double-stranded self-bands (Inv. 2028/1–3 [see *Fig. 2*], 2029 [see *Fig. 3*], 2031/12, 2032/1–2,4,6 [see *Fig. 7*]), one double- and one three-stranded self-band (Inv. 2032/3,5 [see *Fig. 7* top left]), and a single three-stranded self-band (Inv. 2039 [see *Fig. 9*]) some distance above.

### SELF-BAND

A self-band is another characteristic feature of Egyptian textiles from the Early Dynastic period through Roman times (Kemp and Vogelsang-Eastwood 2001: 109). It is made from multiple threads inserted into a cloth, appearing frequently in groups of two or three (Kemp and Vogelsang-Eastwood 2001: 109–116).

The self-band is seen on the textiles from this corpus as two double-stranded self-bands (Inv. 2021 [see *Fig. 8*], 2022, 2024, 2028/1–2,8 [see *Fig. 2*], 2029 [see *Fig. 3*], 2032/1–2,4,6 [see *Fig. 7*], 2036/1–2) [see *Fig. 5*], one double- and one three-stranded self-band (Inv. 2032/3,5 [see *Fig. 7*]) or a single three-stranded self-band (Inv. 2039/1 [see *Fig. 9*]). Moreover, on some pieces the three-stranded self-bands (Inv. 2375/1–4) transform into double-stranded self-bands, as on piece Inv. 2375/1 [see *Fig. 10* top].

The group with two double-stranded self-bands is not homogenous, differing in the amount of space left between the two threads. The whole composition of two double-stranded self-bands and the space left between them measures usually 7 mm to 1 cm (Inv. 2021 [see *Fig. 8*], 2022,

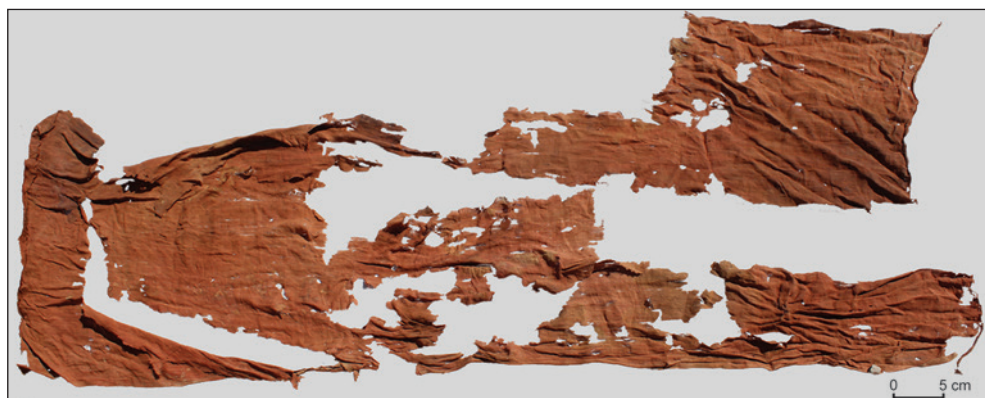


*Fig. 6. Linen Inv. 2033; top, close-up of starting border*





*Fig. 7. Linen Inv. 2032; bandages: pieces of linen with warp-fringe and self-bands*



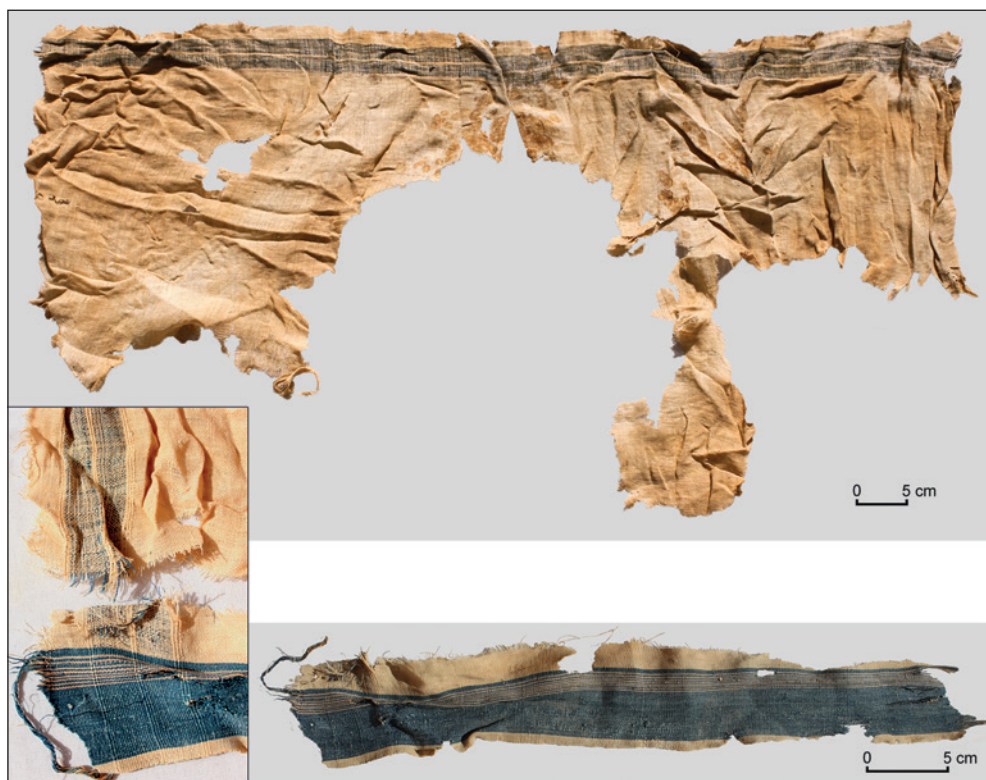
*Fig. 8. Linen Inv. 2021: shroud*

2024, 2028 [see *Fig. 2*], 2032/1–2,4,6 [see *Fig. 7*], 2036/1–2 [see *Fig. 5*]). The space between the two double-stranded self-bands could be widened to make room for a larger decorative stripe woven with color yarn. This is the case with Inv. 2029 [see *Fig. 3*] which has a pinkish stripe between two double-stranded self-bands. The entire composition measures 2.7 cm. A similar situation occurs in Inv. 2041/1–3 [see *Fig. 4*] where a blue stripe is woven between two double-stranded self-bands. An analogous blue stripe occurs on Inv. 2375/1–4 [see *Fig. 10*], but this time it is bordered

by two self-bands with varying numbers of strands, from two to three depending on the section of the cloth. Moreover, on this



*Fig. 9. Linen Inv. 2039: piece of linen with warp-fringes and a single three-stranded self-band*



*Fig. 10. Linen: top, Inv. 2375/1; bottom, Inv. 2031/1; inset, close-up of blue stripes on Inv.2031/1 connected with blue stripe on Inv. 2375/1*

particular example, the double-stranded self-band runs through the middle of a blue stripe, dividing it into two equal parts. The same pattern is observed on the torn edge of one of the long strips as well (Inv. 2031/1), which indicates that the piece originally belonged to linen Inv. 2375/1 [see Fig. 10].

Self-bands usually run close to the edge of a textile finished with warp-fringes (Inv. 2021, 2028/1–2,8 [see Fig. 2], 2029 [see Fig. 3], 2032/1–6 [see Fig. 7], 2039/1 [see Fig. 9]). Alternatively, it is also seen a significant distance (approximately 32 cm) from the transverse edges (e.g., Inv. 2022). There are also fragments with self-bands which were preserved through the fabric and which have neither a starting border nor warp-fringes (e.g., Inv. 2024), and thus it is impossible to place them in the context of the whole

cloth. Moreover, it is noteworthy that wherever the inscription and self-band survive, the text appears near the self-band (Inv. 2022, 2024).

It has been proposed that the self-band could be used also as a weaver's mark identifying the workshop or an individual weaver who constructed the piece (van't Hooft et al. 1994: 19; Eastwood 2002: 130). If true, this observation could help with identifying the workshops weaving linen in the Theban area and supposedly supplying the embalmers there. The patterns of self-bands appearing on the textiles from this corpus are not identical but they are repeated. Most of them have two double-stranded self-bands of the same width, approximately 0.7–1 cm, which could indicate that at least some of them represented the work of the same workshop.



Fig. 11. Linen Inv. 2400; inset, blue stripe with a plain selvedge; possibly part of a holding strip



## SELVEDGE

A completely preserved piece of cloth always has two selvages on both side edges. It is placed “where the weft threads turn back on itself and return into the web” (van’t Hooft et al. 1994: 18). Some pieces from this corpus still have one selvage, but not always in complete form. Plain selvages were observed on some fragments (Inv. 2021 [see *Fig. 8*], 2022, 2023, 2028/3,7 [see *Fig. 2*], 2031/1–15 [see *Fig. 10*]). Inscriptions seem to have been written immediately next to the selvage, similarly as in the case of the self-band (Inv. 2021 [see *Fig. 8*], 2022, 2023).

## WEAVE

Three categories of weave have been identified on Pharaonic textiles. The most popular was the tabby weave, but there are also two other categories, being the extended tabby weave and the basket and half-basket weave, the latter frequently

being warp-faced (van’t Hooft et al. 1994; Kemp and Vogelsang-Eastwood 2001: 91–98).

All the examined textiles from the present corpus are a tabby weave with the exception of those where part of the fabric, namely the blue stripe was a half-basket weave (Inv. 2041/1–3 [see *Fig. 4*], 2375/1–4 [see *Fig. 10*]). On linen Inv. 2041/1 [see *Fig. 4*], the blue stripe situated just after the four-stranded starting-border is a half-basket with a paired weft (11 blue and 11 natural picks per cm) and a single warp (26 ends per cm), whereas the rest of the cloth, just after the double-stranded self-band, is a tabby weave (weft 12, warp 26). An analogous situation was observed with linen Inv. 2375/1 [see *Fig. 10*] where the blue stripe was woven in a half-basket (11 blue and 11 natural picks per cm) and a single warp (22 ends per cm), and the remaining part of the cloth is a tabby weave (weft 15,



*Fig. 12. Linen Inv. 2034: loose weave*

warp 22). On both examples, the blue yarn is woven inside the fabric and is therefore muted by the plain yarn. The different ways of starting a textile, as well as the presence of the additional double-stranded self-band in the middle of a blue stripe on Inv. 2375/1 [see *Fig. 10*] are the main differences between two very similar groups of linen (Inv. 2041/1–3 [see *Fig. 4*] and 2375/1–4).

A similar effect of a muted color, although this time in a tabby weave, is seen on cloth Inv. 2029 [see *Fig. 3*]. The pinkish hue of a stripe situated between two double self-bands is achieved by using a reddish weft (14 picks per cm) and a natural warp (22 ends per cm). The other instance where two colors of yarn were used during weaving is seen in multiple sets of long strips (Inv. 2031/1–15 [see *Fig. 10*] and Inv. 2400/1–5 [*Fig. 11*]) that were once the edges of a larger piece of cloth. Theoretically, the initial appearance of the whole textile is reconstructible when combining Inv. 2031/1 and Inv. 2375/1, which seem to belong together [see *Fig. 10*].

Most of the examined textiles have a higher density of warps (warp-dominant, e.g., Inv. 2031 [see *Fig. 10*]), although this cannot be confirmed for pieces of fabric from the body of a cloth. As far as it is possible to judge, there is no example in this corpus of a balanced cloth, where the warp and weft are of the same density. There are, however, some examples of open-weave textiles, where more of their structure is visible owing to a loosening of the yarn (Inv. 2034/1–2 [*Fig. 12*]). The quality of the textiles is determined by the density of the warp and weft yarn and the thickness of the yarn itself, but it is always a personal judgment to determine which of the examined cloths can be classified as

fine linen (Kemp and Vogelsang-Eastwood 2001: 99). One of the finest linens among the examined pieces from the corpus has 25 weft over 32 warp yarns per cm (Inv. 2039/1 [see *Fig. 9*]).

### COLORS

All of the examined textiles are made of flax (*Linum usitatissimum*), which is not surprising since linen was used as the standard material for wrapping mummies. The natural, undyed hue of linen is light to dark brown (van't Hooft et al. 1994: 14). Some pieces are whiter in appearance, which might be due to intentional or unintentional bleaching. The latter could be caused, for instance, by frequent washing and exposure to the sun, or even by leftover natron used during the mummification process, which could have bleached and damaged the fabric. A “natural” color of the textiles predominates in this corpus, although there are examples which were clearly dyed. Colors may be analyzed truly only after examining the nature of the dye, hence conclusions here are based on visual examination alone.

It seems that at least three different shades of colors apart from the “natural one” (bleached or not) can be observed in this corpus. These are reddish-brown, pinkish, and blue. It is possible that dyeing took place at different stages of manufacture, before or after the cloth had been woven. While it is easy to say that those pieces which are preserved in two colors had the yarn dyed before weaving (Inv. 2029 [see *Fig. 3*], 2031/1–15 [see *Fig. 10*]), but regarding examples which are in one color, it is difficult to say whether the yarn was dyed first or the cloth was dyed after it was woven (Inv. 2021 [see *Fig. 8*], 2028/1–9 [see *Fig. 2*]).

Vivid colors still preserved on the textiles permit a very dark red, almost brown color to be distinguished (Inv. 2021 [see *Fig. 8*] from a lighter reddish/pinkish one (Inv. 2028/1–9 [see *Fig. 2*]). The preservation of colors is significant, since on many funerary pieces of linen kept in museum collections the reddish/pinkish hue is faded, and thus, the exact shade, namely brown, red or pink, has to be an educated guess.<sup>3</sup> A larger piece of textile found in the tomb (L. about 200 cm) was completely dyed a reddish-brown color (Inv. 2021 [see *Fig. 8*]) whereas smaller fragments (Inv. 2028/1–9 [see *Fig. 2*]), intentionally torn from a larger piece and most likely used as mummy bandages, were dyed with a much lighter red, almost pink shade.<sup>4</sup>

The most extraordinary find was a piece of fabric with warp-fringes and a light pink stripe that was divided from the rest of the fabric by two double-stranded self-bands (Inv. 2029 [see *Fig. 3*]). The lighter pinkish color was achieved during the process of weaving, the reddish yarn being woven inside the fabric, and the red weft was muted by a natural warp. Thus, the lighter pinkish color is an illusion and not due to dyeing. It is highly probable that the yarn used to weave the pinkish stripe inside the cloth (Inv. 2029 [see *Fig. 3*]) and the yarn used to weave the pinkish/reddish cloth (Inv. 2028/1–9 [see *Fig. 2*]) were dyed the same way.

The reddish-brown and pink colors seem to be characteristic hues of linen coming from burials dated from the

Twenty-third Dynasty onwards, and are frequently seen as a hue of shrouds.<sup>5</sup> The chemical experiments of colored threads from reddish-brown cloths (samples from the Twenty-third/Twenty-fourth(?) until the Twenty-sixth Dynasty) proved that around this time color was achieved by tanning with “gerbsaures Eisen” (iron tannate dye) and with an addition of madder (Germer 1992: 91–96).

None of the discovered textiles were completely dyed in blue, but there are pieces partly colored in blue which indicates that the yarn had been dyed before weaving. Twenty fragments of linen with a pattern of blue stripes along a plain selvedge were found (Inv. 2031/1–15 [see *Fig. 10*] and 2400/1–5 [see *Fig. 11*]). The border band consists of three parallel striped sections: a large blue stripe about 3 cm wide, a stripe (approximately 1.2 cm wide) composed of alternate blue and natural stripes (approximately 1 mm wide each), and finally a wider blue stripe (around 3 mm) with a single white thread near its external edge, after which the torn edge is visible. The section with the alternate blue and natural yarn is not equal on all of the examined pieces, which clearly shows that not all of the fragments came from the same cloth. This difference is not the only feature which differentiates these pieces of linen. The group with a separate inventory number (Inv. 2400/1–5 [see *Fig. 11*]) has an additional vertical stripe, much wider and situated just after the group of blue and natural stripes. This wider section is left in a natural color, and is ornamented

<sup>3</sup> See, for instance, mummies from Leiden where the “red” hue of shrouds has survived fragmentarily and frequently is very faded (Raven and Taconis 2005: 124 Cat. 111, 134 Cat. 114, 141 Cat. 116).

<sup>4</sup> Reddish shrouds were found on mummies dated from the New Kingdom to the Third Intermediate Period (Taylor 2001a: 60).

<sup>5</sup> See, for instance, the pinkish shrouds found on mummies belonging to the members of Twenty-fifth Dynasty family of “priests of Montu”, and nowadays kept in the Musée de l’Homme in Paris (Yoyotte and Monier 2011: 99, 101, 112).



by small, blue rectangles that are arranged horizontally.

Apart from the earlier mentioned textiles with blue stripes or bands, there are examples of larger textiles with a blue stripe that had clearly been made using a different technique. As with Inv. 2029 [see *Fig. 3*], the colored yarns, this time blue, were woven into the fabric and are therefore muted by the plain yarn (Inv. 2041/1–3 [see *Fig. 4*], 2375/1–4 [see *Fig. 10*]), creating the different shades of blue that are observed on Inv. 2031/1–15 [see *Fig. 10*] and 2400/1–5 [see *Fig. 11*].

The different colors of the funerary textiles can have various functions. First of all, the color applied to any funerary linen has to have a symbolic meaning in the same regard as it was with other burial assemblages (Taylor 2001b: 164). This function seems to be clear for pieces dyed in hues of red (Inv. 2021 [see *Fig. 8*], 2028/1–9 [see *Fig. 2*]) since this color had strong symbolic connotation and was rather not used as a color for terrestrial garments. For instance, the red color linen (𓄏𓄏𓄏𓄏) is specifically mentioned several times in the Ritual of Embalming written on P. Boulaq 3 (Sauneron 1952: e.g., VI 3,15 and VII 15,15).<sup>6</sup>

Pieces of linen were frequently reused for burial purposes, and thus the initial decorative function of colors should not

be excluded. This implication seems to be true for the blue stripes (Inv. 2031/1–15 [see *Fig. 10*]) that once edged the larger pieces of linen that could have been easily used in daily life as one of the wraparound garments.<sup>7</sup> The blue edged costume/outfit is worn, for instance, by some women represented on a number of wooden stelae (Saleh 2007: e.g., stelae Nos 34, 35, 39). It cannot be excluded, however, that when the blue stripes were intentionally torn out from the bigger pieces of linen, it was done because of the color, and that blue stripes gained a symbolic function all their own when used for wrapping a body. Finally, the colors of textiles can be interpreted from a different perspective. It was proposed, for instance, that some parts of the decoration, namely, the combination of colors or stripe widths could be considered as a mark identifying a workshop or individual craftsman (van't Hooft et al. 1994: 22).

### TEXTILE USE

There is no doubt that all the textile fragments deposited in Tomb II came from burial contexts, but it cannot be excluded that many pieces had been used in life and had not been woven specifically for burial purposes.<sup>8</sup> This implication should be kept in mind since many pieces can predate their burial context. The rectangular pieces of linen were worn as wrap-

<sup>6</sup> The Ritual of Embalming survived on three papyri written in hieratic and dated on paleographic grounds to the second half of the 1st century BC (Smith 2009: 215): P. Boulaq 3, which preserves a larger part, supplemented by some passages on P. Louvre 5158 and six small fragments on P. Durham O.M. 1983.11. P. Boulaq was first published by Auguste Mariette (1871). A complete hieroglyphic transcription was given by Serge Sauneron, who included also P. Louvre 5158 (Sauneron 1952). The fragments on P. Durham O.M. 1983.11 were published by Reeves (1985: Pl. 125). A new English translation of the Ritual of Embalming, discussing previous publications, was prepared by Smith (2009: 213–244). Recently, a German translation of the Ritual including one more papyri, namely P. St. Petersburg 18128, was published by Töpfer (2015).

<sup>7</sup> The problem of reusing old clothing, also for the purposes of mummification, is discussed extensively by the author in her dissertation (Hallmann 2015b).

<sup>8</sup> For a general overview of textile usage in body wrapping, see Taylor 2001a: 58–60; van't Hooft et al. 1994: 26–27.

around garments (e.g., cloaks, shawls, kilts of different size, and wraparound dresses), as well as being used as household linen (Hallmann 2015b). It is almost impossible to determine the initial use of a particular linen nowadays and only those which have areas of wear or signs of mending can be considered with certainty as textiles that had seen earlier use.

Clothing as a valuable commodity was not discarded, but reused in different ways. Thus, apart from the new garments made especially for burial purposes (Hall 1981), old sheets of linen were widely adapted for funerary purposes (Vogelsang-Eastwood 2000: 295; Eastwood 2002: 128). It is clear from the examination of linen from funerary contexts that old pieces were torn into strips and used as bandages (van't Hooft et al. 1994: 26). There are texts which confirm this practice as well.<sup>9</sup> The examination of a mummy in the Guimet Museum of Natural History in Lyon revealed that even an old and repaired sail, which was torn into pieces, was used as wrapping material (Goyon and Josset 1988: especially 85–133). Thus, it comes as no surprise that worn garments, both wraparound and cut-to-shape, were used to wrap mummies, although the former are much more difficult to recognize than the latter.<sup>10</sup> Cut-to-shape garments were discovered, for instance, on the mummy of the Chantress of Amun Djedmutesankh,

found in the Second Cache (TG 688) in Deir el-Bahari; the body had been wrapped in eight tunics (Aston 2009: 166). Moreover, old sheets were also folded up into packets and placed between the mummy bandages to fill the space during wrapping (Winlock 1940: 253; Hall 1980: 32).

All of the textiles from the corpus found deposited in Tomb II were used as funerary textiles, which is clearly indicated by the black and reddish stains found on many pieces.<sup>11</sup> The black substance seeped



Fig. 13. *Linen Inv. 2035; fragment of cloth with remnants of cartonnage*

<sup>9</sup> Part of the funerary lament: *sḏr m sh(=f?) n sf* “the one who rests in (his?) garment of yesterday” can be found in the tomb of Neferhotep (TT 49), dating from the very late Eighteenth Dynasty (Davies 1933: Pl. XXIV). See also Germer 1992: 74. There is also a letter, dated to the Twentieth Dynasty, containing the instruction “to send some old cloths in the form of many strips . . . for they shall be made into bandages” (Meltzer 1990: 182 No. 300).

<sup>10</sup> For the list of mummies accompanied by clothing from Third Intermediate Period, see Aston 2009: 381. For earlier examples of garments used during mummification, see, for instance, Winlock 1940: 253; Salmon 1988: 181–182.

<sup>11</sup> The exact nature of substances observed on the textiles from the corpus deposited in Tomb II is unknown pending chemical analysis. It was concluded on samples of resin taken from a mummy that it is more likely a plant wax mixed with animal fat, see Taconis and Maat 2005: 66. The presence of bitumen among embalming materials is also doubtful as already noted a century ago by Lucas (1914: 241–245). A recent study using gas chromatography (GC) on animal mummies in the Brooklyn Museum revealed the absence of bitumen from all analyzed samples, see Bruno 2013: 126–127.



Fig. 14. Linen with holes burned into them: top, Inv. 2037; bottom, Inv. 2038



through the fabric and burned holes in it (e.g., Inv. 2037 [see *Fig. 14* top], 2038/1–2 [see *Fig. 14* bottom]), making an exact imprint on the cloth beneath. On one of the examples, the black substance was poured in a way that resulted in unidentified, but rather intentional patterns (Inv. 2038/1–2 [see *Fig. 14* bottom]). The concentration and application of the two substances varies, as there are also pieces with stains that are almost missing (e.g., Inv. 2028 [see *Fig. 2*]), or the stains are very scant (e.g., Inv. 2032).

The fragments with limited staining belonged most probably to the outer and not inner wrappings which were heavily saturated with resins, the usage of which significantly increased during the Twenty-first Dynasty (Taconis and Maat 2005: 60–61, 65–66; Taylor 1996: 80, 92). Thus, linen found as solidified masses belonged to this category (e.g., Inv. 2146). These fragments, as well as the small shapeless pieces of linen, frequently bonded together, had to be used, at least

in part, as body packing to ensure the body was of the correct shape. Filling material could come in a number of different forms; for instance, a systematic study of the entire collection of mummies in the Rijksmuseum van Oudheden in Leiden showed that filling material could also be formed as wads, rectangular pads or rolls (Taconis and Maat 2005: 55, 64–65). Thus, the linen bundles in the shape of braids (Inv. 1982) found in the present deposit probably had the same function. Also among the finds were pieces with remnants of cartonnage attached (Inv. 2035 [*Fig. 13*]).

A significant quantity of small linen bags was also found in the assemblage (Inv. 2132, 2135, 2148, 2197, and 2160) [*Fig. 15*]. The bags that remarkably resemble the hieroglyph  $\delta$  (Gardiner sign V 33) were most likely filled with leftover substances such as, for example, natron, used during the process of mummification.<sup>12</sup> As far as it could be judged, the linen for the bags was a tabby weave.



*Fig. 15. Linen bags*

<sup>12</sup> Alfred Lucas gave ample examples of natron, sometimes mixed with other substances, and kept in small bags. He discussed its use during the mummification process as well as its disposal afterwards (Lucas 1932: *passim*; Lucas and Harris 1999: 278–280). Additionally, Jadwiga Lipińska cited fragments of Alfred Lucas's unpublished field report from 1928 kept

Two double-stranded self-bands and a six-stranded starting border were observed on some, indicating that they were made of linen similar to the examined mummy wrappings (see Inv. 2033/2 (detail) [Fig. 6]).

Similar bags, as well as other linen items, were found inside three coffins which belonged to *Ir-ty-rw-t3w* (Inv. F.4032), and the women *Ns-hnsw* (Inv. F.5592) and *Wd3-rn=s* (Inv. F.5593) and which were excavated from the debris in the ruins of the temple of Tuthmosis III by the Polish Mission in the 1963/1964 season (Dąbrowska-Smektała 1968: 171–181, Pls XXXII–XLIV). The coffin of *Ir-ty-rw-t3w* contained a “body”, which was formed of linen bags and wrapped in bandages. In the women’s coffins, linen bags were placed directly inside the coffins. The so-called “false mummy” or “embalmer cachette” which should be included in Aston’s embalming caches Type A (Aston 2003: 153), were not isolated examples in Deir el-Bahari and its vicinity (Lipińska 1971; Budka 2010: 433–470). Thus, some of the natron bags in the deposit from Tomb II could have initially belonged to one of the burials.

Despite the fact that it is impossible to say how most of the discovered pieces were used exactly, and whether they belonged to the inner or outer wrappings, it is still possible to put forward some ideas.

### BANDAGES

Besides wider pieces of linen used to cover the face, for example, long and narrow

pieces of linen were used mainly during the embalming process. A thorough study of the mummy of Horemkenesi from the Twenty-first Dynasty illustrates each step during its unwrapping, and then the hypothetical reconstruction of its wrapping in 10 phases and 105 steps (Dawson 2002a; 2002b; for a summarized version of the process, see Taylor 1996: 76–96). It is useful for comparative studies with regard to the deposit of linen from Tomb II because of its provenance and similar dating. The mummy is stored in the Bristol Museum, and was found as one of the intrusive burials in the Eleventh Dynasty tomb of Queen Sadeh in the area of the temple of Mentuhotep in Deir el-Bahari.

Many long and considerably narrow pieces of linen from the deposit from Tomb II (e.g., Inv. 2032/1–6 [see Fig. 7], 2033/1–5 [see Fig. 6], 2040/1–15 [see Fig. 16]) were once used most probably as mummy bandages. Their width is usually around 10–15 cm, whereas the length varies from 30 to 180 cm, but none of them were preserved in their full length.<sup>13</sup> They all have torn edges usually along the selvages, which indicates that they came from a large piece of fabric and were not woven separately. Moreover, these particular torn bandages frequently have only one diagnostic feature of Egyptian textiles, which also shows that they belonged to a larger textile. Some of them have a well visible starting-border (Inv. 2033/1–5 [see Fig. 6]), while others have a self-band and warp-fringes (Inv. 2032/1–6 [see Fig. 7]),

in the archive of the Metropolitan Museum Egyptian Department where the contents of similar bags was described. Apart from the natron the bags contained “ashes, dirt, charcoal, fragments of rags, potsherds, slivers of wood, bits of straw, gravel, sawdust and mud”, see Lipińska 1971: 65, note 62.

<sup>13</sup> The bandages from the ROM collections were about 10 cm in width, see van’t Hooft et al. 1994: 25. Bandages used in the mummy of Horemkenesi from the Twenty-first Dynasty were approximately 10 cm to 16 cm wide and up to 2–3 m long (Dawson 2002a; Taylor 1996: 76).

and those lacking any characteristic features come from the middle of a piece of linen (Inv. 2040/1–15 [see *Fig. 16*]). It is highly probable that some of these torn pieces of linen were once long bandages.

#### HOLDING STRIPS

Twenty fragments of linen with a blue striped pattern along a plain selvedge (Inv. 2031/1–15 [see *Fig. 10*] and 2400/1–5 [see *Fig. 11*]) were found. They are all approximately the same width, around 7 cm. As said above, most likely they initially belonged to a larger piece of cloth,

as one side of each fragment is always torn, and the other reveals remains of a plain selvedge. They were torn intentionally in order to ensure that the long piece contained the blue stripe. It is possible that at least some of them were used as binding tapes holding the outermost cloth, the mummy shroud, in place. The colored narrow strips together with natural colored linen used to wrap the mummy created a pattern which can be observed both on mummies (Germer 1992: 75)<sup>14</sup> as well as on depictions of lying mummies represented on some coffins.<sup>15</sup> The strips which were bound over the mummy and formed a kind



*Fig. 16. Linen Inv. 2040: torn bandage strips*

<sup>14</sup> Mummies with these kind of strips bound around them were found also in Deir el-Bahari by Carter (1912: Pl. XVI, coffin 3B). For other examples, see a mummy from the Bass Museum in Miami Beach. For an example of the shroud kept in place by strips, see the mummy of Irtyru (TG 896) dated to 730–680 BC and found by Carter (1912: 25; Aston 2009: 218).

<sup>15</sup> See, e.g., coffins Wien, KHM 8902 and KHM 228. For photos, see *Ägyptische Mumien* 2007: 79, 197.



of pattern could have had possibly the same apotropaic function as a bead net (Silvano 1980: 83–97).

### SHROUDS

A larger piece of linen was commonly used as a shroud for funerary purposes being placed over the mummy to tightly cover the body from head to foot. A shroud could be a simple rectangular piece of cloth without any decoration, or it could be painted with a figure of Osiris (“Osiris cloth”) or on rare occasions Re-Horakhte (Abdalla 1988; Aston 2009: 381–382). The purpose of such a shroud, which was tied by special binding cords, was possibly amuletic (Aston 2009: 381).

The only piece from the deposit from Tomb II to be identified with certainty as a shroud is a large brownish-red piece of cloth (Inv. 2021 [see *Fig. 8*]) which was preserved in a few fragments (the largest being approximately 200 cm long and 70 cm wide). Judging by the description, a very similar shroud was found by Carter on the mummy of Irtyru.<sup>16</sup> The vivid color of the shroud is difficult to match with any of the shrouds placed over mummies stored in different museums. Even though they are sometimes described as red, it is today a very faded red that looks more like pink, frequently very pale pink. Moreover, in many cases even the faded color is preserved only on small sections of the linen. This is, for instance, the case with shrouds preserved on a few mummies, dated to the Twenty-fifth–Twenty-sixth Dynasty, from the Leiden Museum of Antiquities (Inv. AMM 3, 6, 14, 15, 16) which were supposed to be red, but the

color had faded and is often almost invisible in some areas (Raven and Taconis 2005: 120–131, 134–145, Cat. 110–112, 114–116).

Included in the corpus were also fragments of linen (e.g., Inv. 2037, 2038/1–2 [see *Fig. 14*]) which did not survive in full length but their size excludes them from the category of narrow bandages. They measure approximately 136 x 27 cm and 70 x 40 cm. They must have been used to wrap the body but the exact way in which they were used is impossible to determine. One of the possibilities was to cover the head, chest, abdomen or other part of the body during one of the stages of wrapping (Dawson 2002a: especially 88–89, 97–99, 103–105, 120). They may have even been used as an inner shroud similar to that found on the Mummy of Horemkenesi, which was made of a few smaller fragments of linen, and which marked two layers of binding along with the inner and outer wrappings (Dawson 2002b: 58–62; Taylor 1996: 79).

### EX-VOTIVE CLOTHS

It is unfortunately unknown from where embalmers acquired their linen, and it is only possible to form a hypothesis in this regard (Taylor 1996: 93; Eastwood 2002: 130–131). They could have been supplied by the family of the deceased, and some of them could have belonged to the deceased himself. Some of them could have already been in the possession of the embalmers who would have been supplied directly from a workshop. Moreover, among the pieces used during mummification, some of the textiles could be ex-votive cloths,

<sup>16</sup> “The mummy was enveloped in a well-preserved dark terra-cotta coloured linen shroud, tied underneath and held in position by several narrow bands of brown and yellow linen ...” (Carter 1912: 25).



Fig. 17. Linen Inv. 2036: inscription with partly preserved name of Taharqo

once used in the temple and probably produced in temple-workshops. This practice is explicitly mentioned in the Ritual of Embalming that survived on P. Boulaq 3 (Smith 2009: 230, 242). It is not certain, however, how the embalmers came into the possession of these cloths, and if they were supplied directly by the temple or by the priests themselves, being, for instance, members of the family of the deceased (Taylor 1995).

During the unwrapping of mummies and examination of textiles, those with inscription catch obviously the most attention. It was proposed that some pieces, which survived with the name of a reigning king and sometimes with the name of one of his high dignitaries, were used initially as votive cloths and only later reused as mummy wrappings (Yoyotte and Monier 2011: 113–118). One of the examples, which was included in this category, is the linen from the Pushkin Museum of Fine Arts (Inv. I.A.a.6496), containing the complete titulature of Taharqo with the date year 17 of his reign, as well as the name and titles of Montuemhat, owner of TT 34 (Hodjash and Berlev 1988).

Among the inscribed linens from Tomb II, there is one piece with a partially preserved cartouche (Inv. 2026 [Fig. 17]), most probably that of king Taharqo, which supposedly could be treated as an ex-votive cloth (Hallmann 2015a).

## CONCLUSIONS

Numerous burials dated to the Third Intermediate and Late Period were found over the centuries in the area of the temple of Hatshepsut and in its vicinity (Sheikholeslami 2003; Aston 2009: 164–

237). Yet only the coffins and some other elements of funerary equipment were recorded, whereas the textiles were seldom published even though they constitute a significant part of the burial equipment

(Aston 2009: 381–382). When they were, however, the description was scant to say the least and not illustrated with photographs, making it difficult today to trace where these pieces were stored.<sup>17</sup> In the best case scenario, they ended up in a museum where they were not always properly conserved or sometimes not even recorded, or they could also have been stored in one of the many storage rooms in the vicinity. Unfortunately, it could possibly be that they disappeared or were simply reburied as clearly happened with the textiles deposited in Tomb II. The unlucky fate of funerary cloths is a great loss for studies which focus on textiles, as well as on the embalming process.

The same fate was frequently shared by funerary linen from the early unwrappings of Egyptian mummies which were rarely properly recorded.<sup>18</sup> Often samples were distributed among people present during the process or among different museums or even destroyed (Yoyotte and Monier 2011: 102–103). Only recent studies concerning the unwrapping of mummies are more complex and take textiles into consideration (Szymańska and Babraj 2001: 53–62; Eastwood 2002; Raven and Taconis 2005: *passim*).

Judging by the striking resemblance of the description of textiles found with mummies of Padiamun (TG 895), Irtyru (TG 896) and Padikhonsu (TG 897), excavated by Howard Carter in Deir el-Bahari, the textiles from Tomb II seem to be remarkably similar, if not almost identical (Carter 1912: 24–26). The already mentioned family group (TGs 895–897)

is dated between 730–670 BC (Aston 2009: 217–218). The other group of textiles which can be consulted by color photos and which is dated to a similar time is the one found in the intrusive burials in TT 99 (Strudwick 1997). Thus, it seems to be possible that at least some of the textiles from the deposit in Tomb II can be tentatively dated to a similar time span, even though it is impossible to date definitely individual fragments of textiles due to their disturbed archaeological context. Moreover, a similar time span can also be confirmed for the fragment with Taharqo's cartouche (Hallmann 2015a).

The later dating of the brownish-red and pinkish-colored textiles is also proven by the chemical analysis of textiles by Germer who claims that after the Twenty-first–Twenty-second Dynasties when red and red-orange linen were popular, brownish-red and pink textiles took their place (Germer 1992: 90). The earlier brownish-red sample analyzed by Germer came from the Twenty-third/Twenty-fourth Dynasty, while the latest was from the Twenty-sixth.

It should be stressed, however, that even when the archaeological context is undisturbed, establishing a date for a textile is a tricky task. First of all, as said above, the problem of reusing textiles implicates the earlier date of the fabric's construction than the burial context, and already predates it. The question about the span of time between the production and their final destination, namely the spot where they were found, is unfortunately also difficult to answer. The long

<sup>17</sup> Only very rarely is it possible to consult photos, even from recent excavations, and the initiative of Nigel Strudwick who made available photos from his excavations in TT 99 on an open-access website is exemplary (Strudwick 1997).

<sup>18</sup> Yoyotte and Monier 2011: 98–115. For the history of the investigation of Egyptian Mummy, see Taconis 2005: 40–51.



history of reuse of numerous materials in Egypt is well known and the practice surely encompasses textiles. Thus, it is even more impossible to answer whether a piece was reused only once or several times. The radiocarbon dating of samples taken from the wrappings of some animal mummies in the Brooklyn Museum revealed that they are much older than was expected. The sample taken from the linen of the ibis mummy (Brooklyn No. x1179.4) points to the date of 400–110 BC whereas the mummy itself was stylistically dated to 30 BC–395 AD (Bruno 2013: 125–126).<sup>19</sup> Even though radiocarbon dating does not give the specific date of an object, it helps to establish the chronological criteria of the time of its production. Thus, it seems that for textiles two dates should be taken into consideration, the time of their production and the date of their use, the former unfortunately impossible to establish without applying radiocarbon dating.

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