



Fig. 1: Cartonnage case of Ta-reti, inv. no. ÄS 8641, early 22nd dynasty, front.



Fig. 2: Cartonnage case of Pakharkhonsu, inv. no. ÄS 5155 b, early 25th dynasty, front.

Cartonnages from Mummies in the Egyptian and Near Eastern Collection of the Kunsthistorisches Museum Vienna

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1. ACQUISITION

In the Egyptian and Near Eastern Collection of the Kunsthistorisches Museum Vienna are five mummies in linen cartonnage cases, and another empty case. Their exteriors are each richly decorated with depictions and texts. The cartonnages can be dated to the Third Intermediate Period, from the late-tenth to the eighth centuries BCE. Five of these certainly come from Upper Egypt/Thebes, as the titles referenced on them relate to the Amun temple: Padiese, inv. no. ÄS 3940 b (*fig. 3*), was gatekeeper of the Amun Temple, Pakharkhonsu, inv. no. ÄS 5155 b (*fig. 2*), was barber of the Amun Temple. Ta-mit, inv. no. ÄS 3942 (*fig. 4*), Ta-reti, inv. no. ÄS 8641 (*fig. 1*), and Her, inv. no. ÄS 225 (*fig. 5*), were singers of Amun. The cartonnage case of a woman, inv. no. ÄS 233 (*fig. 6*), of whose name only the first part, ‘Ta-’, is preserved, can likewise be assigned to the findspot Thebes through the type of depictions.

Only on the cartonnage of Ta-reti is, for the name of her father Ankhpakhered, the title ‘Gatekeeper of the Amun Temple’ preserved. Her mother Neskhnosupakhered was likewise a singer of Amun. Within families of priests, descendants and relatives also stood in the service of temples, not only that of the god Amun, but also of Mut and Khonsu in Thebes. This becomes clear in the naming of children when a combination with the name of a deity is employed, as e.g. in the name Pakharkhonsu. The name of his father Djedmutiufankh contains the name of the goddess Mut, consort of Amun. Together with her child Khonsu, they formed the triad of Theban gods. The acquisition of the cartonnages dates from the nineteenth century. In 1821, the unwrapped mummy of Her in its opened cartonnage (*see fig. 5*), was consigned to the imperial collection as a gift from Carlo d’Ottavio Fontana, a merchant in Trieste.¹ The case of a woman whose name is partially

¹ Inv. no. ÄS 225 (inv. 1824: no. 545): corresponding mummy inv. no. ÄS 251 (inv. 1824: no. 520); L. 169 cm, W. 40 cm, W. head 25 cm, W. foot end 22 cm, D. foot end 29.5 cm; late 22nd to 23rd dynasty, ca. 800 BCE. Ex. cat. Wilfried Seipel (ed.), *Mumien aus dem Alten Ägypten. Zur Mumienforschung im Kunsthistorischen Museum*, Vienna (Kunsthistorisches Museum) 1998, 12; ex. cat. *Ägypten. Im Reich der Pharaonen*, Leoben (Kunsthalle) 2001, 99, cat. no. 73; Elfriede Haslauer, *Neuzeitlicher Schmuck an einer altägyptischen Mumie in der Ägyptischen Sammlung des Kunsthistorischen Museums Wien*, in: Monika R. M. Hasitzka – Johannes Diethart – Günther Dembski (eds.), *Das alte Ägypten und seine Nachbarn. Festschrift zum 65. Geburtstag von Helmut Satzinger*, Krems 2003, 69–76, pl. 29–38.



Fig. 3: Cartonnage case of Padiese, inv. no. ÄS 3940 b, front.



Fig. 4: Cartonnage case of Ta-mit, inv. no. ÄS 3942, blackened front.



Fig. 5: Cartonnage case of Her, inv. no. ÄS 225, front part.



Fig. 6: Cartonnage case of Ta-[...], inv. no. ÄS 233, front.

preserved (*see fig. 6*) is likewise already listed in the inventory from 1824.² The other cartonnages come from the Miramar collection, which was acquired by the Kunsthistorisches Museum in 1878.³

2. THE USE OF CARTONNAGE MUMMY CASES

With the start of the 22nd dynasty, under the reign of Osorkon I (924–899 BCE), a new burial practice emerged. Rather than in two or three nesting, mummy-shaped coffins, the mummy now lay in a cartonnage completely encasing the entire body.⁴ These richly decorated cases replaced the painted inner coffins. The depictions of protective gods for the afterlife were thus directly in contact with the mummy.

In this period, the wooden mummy-shaped outer coffins only are painted on the exterior with the essential attributes: the face with the three-part strand wig, the jewelled collar, and a column in the centre of the lid with an offering formula and the title and name of the dead. On the inside of the coffin bottom, Ra-Horakhty or the goddess of the west are shown in mummy form as protective deities for the afterlife. On their discovery these simple coffins were considered uninteresting, and thus usually only the splendid cartonnage mummies were removed. Padiese in the Vienna collection, whose coffin is preserved, is an exception.⁵

² Inv. no. ÄS 233 (inv. 1824: no. 544): L. 154.5 cm, W. 38 cm, W. head 24 cm, W. foot end 21 cm, D. foot end 31 cm; late 22nd dynasty, 8th century BCE. Anton von Steinbüchel, *Beschreibung der k. k. Sammlung aegyptischer Alterthümer*, Vienna 1826, 65; Anon., *Übersicht der kunsthistorischen Sammlungen*, Vienna 1927, 142, VI; ex. cat. Vienna 1998 (cit. n. 1), 32, 39 (Elfriede Haslauer and Karl Großschmidt); ex. cat. *Ägyptische Mumien. Unsterblichkeit im Land der Pharaonen*, Stuttgart (Landesmuseum Württemberg) 2007, 208 f., cat. no. 196; ex. cat. *Egypt, The Great Civilisation*, Seoul (National Museum of Korea) 2009, 178 f., cat. no. 131.

³ Inv. no. ÄS 3940 b Padiese: L. 181 cm, W. 44 cm, W. head 24 cm, W. foot end 20 cm, D. head 32 cm, D. foot end 29 cm; 22nd dynasty, reign of Osorkon I (924–899 BCE), ca. 900 BCE. Ex. cat. Vienna 1998 (cit. n. 1), 39 (Elfriede Haslauer and Karl Großschmidt), cover illus.; ex. cat. TBS Japan (ed.), *Egypt Collection Vienna*, Tokyo (Isetan Art Museum) 1999, 84 f., cat. no. 46; ex. cat. Seoul 2009 (cit. n. 2), 186, cat. no. 138.

Inv. no. ÄS 3942 Ta-mit: L. 170–171.5 cm, W. head 25 cm, W. chest 41.2 cm, W. foot end 18 cm, D. head 25.5 cm, D. chest 23.3 cm, D. foot end 31 cm; 22nd dynasty, reign of Osorkon I (924–899 BCE), ca. 900 BCE. Ex. cat. Vienna 1998 (cit. n. 1), 39 f. (Elfriede Haslauer and Karl Großschmidt); Elfriede Haslauer, *Die Kartonagehülle einer Mumie in der Ägyptischen Sammlung des Kunsthistorischen Museums Wien. Sichtbarmachen der durch Harze geschwärzten Darstellungen mittels Infrarotreflektografie*, in: *Technologische Studien. Kunsthistorisches Museum Wien. Konservierung – Restaurierung – Forschung – Technologie* 12, 2016, 124–141.

Inv. no. ÄS 8641 (inv. 1878: 3943) Ta-reti: L. 169.5 cm, W. 39.5 cm, D. 30 cm; late 22nd dynasty, ca. 2nd half of the 9th century BCE; the mummy was removed from this case. Ex. cat. Wilfried Seipel (ed.), *Ägypten. Götter, Gräber und die Kunst. 400 Jahre Jenseitsglaube*, Linz (Schlossmuseum) 1989, 299, cat. no. 471 (Elfriede Haslauer).

Inv. no. ÄS 5155 b Pakharkhonsu: L. 171 cm, W. 46.5 cm, W. head 34 cm, W. foot end 34 cm, D. head 30 cm, D. foot end 29 cm; late 22nd to 23rd dynasty, ca. 800 BCE. Simon Leo Reinisch, *Die aegyptischen Denkmäler in Miramar*, Vienna 1865, 95–97, no. 7, pl. V, wooden coffin; the description refers to the cartonnage case of the mummy, however.

⁴ John H. Taylor, *The Development of Cartonnage Cases*, in: ex. cat. *Mummies & Magic. The Funerary Arts of Ancient Egypt*, Boston (Museum of Fine Arts) 1988, 166–168, here: 166.

⁵ Inv. no. ÄS 3940 a: conifer wood, L. 196 cm, W. 58 cm, D. 67 cm; the face with the wig and jewelled collar are covered with linen, smoothed with white stucco as a ground layer, and painted.

On the inside of the coffin bottom, Nut, the goddess of the sky, is represented (fig. 7).

The cartonnage of Pakharkhonsu from the early 25th dynasty also had a mummy-shaped coffin, although only the coffin bottom was taken.⁶ The large standing figure of Ra-Horakhty (fig. 8) adorns the floor, text columns and crouching protective gods armed with knives are found on the exterior walls. Richly painted coffins with mummies in cartonnage cases are rarely preserved, as e.g. the coffin and cartonnage of Tahai in Basel,⁷ of Pasenenhor from Thebes in Trieste,⁸ and of Pabastet in Hamburg.⁹ The mummy of Penju from Akhmim in Hildesheim¹⁰ lay in a richly coloured inner coffin, and this in a simple, dark-coloured outer coffin.¹¹

3. GENERAL OBSERVATIONS ON THE PRODUCTION OF A FULL-BODY CASE FOR A MUMMY IN THE THIRD INTERMEDIATE PERIOD

If previously it was Egyptologists, who concerned themselves with the production of one-piece body coverings for mummies,¹² more recently it has been conservators who investigate this experimentally.¹³ Materials that were available in ancient Egypt are used.

3.1 FORMING THE CARTONNAGE

For the construction of a mummy-shaped core, straw was bound with strings around a wooden post anchored to a base plate. Through the application of clay mixed with sand and straw chaff, the final form with head and foot ends was created.¹⁴ The straw core of the mummy forms saves modelling material, reduces the weight, and later eases the removal from the finished cartonnage. Taylor considers a core made of reeds possible, as these were

⁶ Inv. no. ÄS 5155 a: sycamore wood, L. 201 cm, W. 71 cm, D. 30 cm.

⁷ Basel, Museum der Kulturen, inv. no. III 129. Ex. cat. *So lebten die alten Ägypter. Führer durch das Museum für Völkerkunde und Schweizerische Museum für Volkskunde Basel*, Basel (Museum für Völkerkunde) 1976, 25, 28, 32; Maya Müller, *Mumienhülle und Sarg der Tahai (Ägypten, 9./8. Jh. v. Chr.)*, Museum der Kulturen Basel, leaflet (4 pp.), June 1999.

⁸ Trieste, Civico Museo di Storia ed Arte, Collezione Egizia, inv. no. E 1. Franco Crevatin – Marzia Vidulli Torlo (eds.), *Collezione Egizia del Civico Museo di Storia ed Arte di Trieste*, Trieste 2013, 92–106, no. 4.4 (Susanna Moser and Silvano Iarini).

⁹ Hamburg, Museum am Rothenbaum, inv. nos. 4057 a and 4057 b. Christiane Altenmüller, *Außensarg und Mumienhülle des Pabastet im Museum für Völkerkunde Hamburg (inv. no. 4057 a und 4057 b)*, in: *Mitteilungen aus dem Museum für Völkerkunde Hamburg*, NF 30, 2000, 182–229.

¹⁰ Hildesheim, Pelizaeus-Museum, inv. no. 1902 c. Ex. cat. Arne Eggebrecht (ed.), *Suche nach Unsterblichkeit. Totenkult und Jenseitsglaube im Alten Ägypten*, Hildesheim (Roemer- und Pelizaeus-Museum) 1990, 62–65.

¹¹ *Ibid.*, 62, pl. 18; inner coffin: 78–80, pl. 26.

¹² Taylor 1988 (cit. n. 4), 166 f.; Hartwig Altenmüller, *Die Mumie des Chonsu-maacheru*, in: *Mitteilungen aus dem Museum für Völkerkunde Hamburg*, NF 30, 2000, 28–30.

¹³ Anna Krekeler, *Zur Herstellungstechnik einteiliger ägyptischer Kartonagesärge aus der Zeit um 800–750 v. Chr.*, in: *Zeitschrift für Kunsttechnologie und Konservierung* 21/1, 2007, 13–32; Annemarie Huhn, *Die Konservierung eines einteiligen ägyptischen Kartonagesarges um 945–900 v. Chr.*, in: *Zeitschrift für Kunsttechnologie und Konservierung* 23/2, 2009, 285–296, here: 285–288.

¹⁴ In ancient Egypt, air-dried bricks were made of clay mixed with straw chaff, also with sand. The tradition can still be found today in the country.



Fig. 7a: Cover of the coffin inv. no. ÄS 3940 a, exterior.



Fig. 7b: Coffin bottom inv. no. ÄS 3940 a, interior of the floor.



Fig. 8: Coffin bottom inv. no. ÄS 5155 a, interior of the floor.

always available in Egypt and are also more stable and longer than straw.¹⁵ A ground of gypsum, animal glue, and sand was mixed to smooth the surface.¹⁶ The material used for the reconstruction corresponds to findings on the insides of ancient Egyptian cartonnages where components of the form are still attached.¹⁷ On the interior of the cartonnage of Her, Vienna inv. no. ÄS 225, mud, fine sand, and chaff still adhere (fig. 9).

For the reconstruction of the cartonnage, a linen-cotton blend textile was used. Torn into pieces of varying size, it was fitted to the mummy form. The shaping of details in the face, wig, and feet was achieved through stretching and cutting the fabric. This was saturated with an adhesive of animal glue and gum arabic.¹⁸ Repetition of this procedure resulted in multiple layers for the stability of the linen cartonnage. The vertical production left the foot end open.¹⁹

The cartonnage of a woman in Heidelberg²⁰ consists of up to seventeen layers of linen textile, for which old, used fabrics were also employed. The lowest layers from coarsely woven textiles give the thickness and stability of the cartonnage, fine fabrics above model details and are simultaneously the preparation for painting.²¹

Different phases of work can also be determined. For Ta-mit, Vienna inv. no. ÄS 3942, a clear division of the linen layers can be observed that suggests two phases of work at different times. For the lower innermost layer, the linen along the back slit is protruding and bent inward (fig. 10). The subsequent layers cover the middle. This technique can perhaps be explained in that it made cutting open the cartonnage easier. The entire thickness need not be cut through, as the innermost layers were left open for the back slit. The cartonnage is 0.66 cm thick on the side, 0.6 cm at the crown of the head.

¹⁵ John H. Taylor, *Mummy: the inside story*, London 2004, 42. Another reconstruction of the production of a cartonnage mummy case was proposed in Trieste, see Susanna Moser – Gian Luigi Nicola, *Sharing knowledge for restoring coffins: The case of the Civico Museo di Storia e Arte of Trieste*, in: Alessia Amenta – Hélène Guichard (eds.), *Proceedings First Vatican Coffin Conference, 19–22 June 2013*, Città del Vaticano 2017, vol. I, 317–326, here: 323 f., fig. 7, 1–11: The bandaged mummy was bound to a wooden post anchored vertically to the floor, over which the form was created from mud and straw. That mummies are heavy refutes this; additionally, the bandages would be dampened during the application of wet material during the long working process, from forming the cartonnage to painting (fig. 7, 1–7). Furthermore, the face with the strand wig could not be formed from cartonnage directly on the mummy. When the mummy with its cartonnage was freed from the post and the back slit tied and covered with a linen strip, form material would likewise remain within. This must thus still be present on removal of the mummy in the modern period. And, the linen on the mummy would have to show traces of this treatment. That the horizontal imprint of a cord is present on the inside of the cartonnage of Pasenenhör does not prove that the mummy was attached, rather that the form material was. On separation from the post, the mummy would tip due to its high centre of gravity, hence the lacing and further treatment of the back could not take place upright, as figs. 7, 8–11 depict. This is only possible in illustration.

¹⁶ Krekeler 2007 (cit. n. 13), 18 f., figs. 12–15.

¹⁷ *Ibid.*, 17; c.f. Anthony Adams, *The manufacture of ancient Egyptian cartonnage cases*, in: *Smithsonian Journal of History* 1/3, Fall 1966, 55–66, here: 58, 63. On the inside of the cartonnage of Khonspakhered, Graz, Universalmuseum Joanneum, Archaeology Museum Schloss Eggenberg, inv. no. 25000, grey Nile mud mixed with chaff is attached; see Elfriede Haslauer, *Aegyptiaca im Archäologiemuseum Schloss Eggenberg. Teil II: Die Mumie des Amun-Priesters Anch-pa-chrad in Kartonagehülle*, in: Schild von Steier 26, 2013/2014, 392–413, here: 405.

¹⁸ Krekeler 2007 (cit. n. 13), 20, fig. 17.

¹⁹ *Ibid.*, 17.

²⁰ Heidelberg, Ruprecht-Karl-Universität, Collection of the Ägyptologisches Institut, inv. no. 1014.

²¹ Huhn 2009 (cit. n. 13), 285 f.



Fig. 9: Cartonnage of Her, inv. no. ÄS 225, back part with material attached to the interior at the head end.



Fig. 10: Inv. no. ÄS 3942, multiple layers of cartonnage, overlapping of the fabric at the crown of the head.



Fig. 11: Inv. no. ÄS 225, back part with separation of the cartonnage at the foot end.

At the open foot end of Pakharkhonsu, Vienna inv. no. ÄS 5155 b, the 0.4–0.65 cm thick cartonnage is separated in parts and consists of an inner and an outer layer. For the incompletely preserved foot end of Her, Vienna inv. no. ÄS 225, the separation is likewise visible (*fig. 11*).

3.2 THE BACK SLIT

After drying, the middle line for the slit was marked on the back, the holes for later lacing were pierced on both sides and at the foot end using a pointed metal tool.²² With a knife, the back was cut open and the cartonnage bent to remove it from the mould core. As the cartonnage was still relatively damp, the mould core could be removed from the back in pieces down to the inner straw. The supporting wooden post with the rest was then drawn out.²³

For the reconstruction, initially only the upward-facing reverse of the horizontal cartonnage was prepared with a mixture of chalk and animal glue, which makes the cartonnage flexible for inserting the mummy.

To close the back slit, on both sides starting from the head a string was drawn through the punched holes in a running stitch. A styrofoam mummy form was covered on the surface with paper and paste and inserted into the cartonnage case. The slit was then closed using string, drawn in a zigzag through the holes on both sides, and the base plate attached.²⁴

After the ground layer was complete, painting took place. Linen strips were adhered over the lacing of the back slit and the edges of the foot end. On the Heidelberg cartonnage, the foot panel is not preserved, but four-sided holes on the front of the foot suggest the use of wooden nails.²⁵

²² Krekeler 2007 (cit. n. 13), 25, figs. 29, 30.

²³ *Ibid.*, 21 f., fig. 20.

²⁴ *Ibid.*, 22–24, figs. 22, 25–27.

²⁵ Huhn 2009 (cit. n. 13), 287.



Fig. 12: Inv. no. ÄS 3942, detail of the left eye.

4. ADDITIONAL OBSERVATIONS ON THE CONSTRUCTION

In the course of the restoration of the Vienna cartonnages,²⁶ various details on the production of this type of mummy case could be determined that are not mentioned in the earlier literature.

In order to preserve the form for further use, it would also be conceivable to remove the still flexible cartonnage from the upright form. Faces modelled in clay could be repaired if damaged and face masks made from wood substituted to allow a serial production of full-body cases. Taylor considers i.a. this type of production.²⁷

This may have been the case for Ta-mit, Vienna inv. no. ÄS 3942, to achieve the fine facial features despite multiple layers of linen. The area of the eyes saw special treatment.²⁸ In the delicately formed face, the cartonnage of the eye area is particularly thin, in contrast to the multiple layers of cartonnage in the face, thus also around the eyes. For the insertion of the eyes and eyebrows from a different material, presumably glass, hollows were cut out following the contours.²⁹ In the current condition the rims of the eyes are partially torn, and the left eye also dented and deformed. This could have already occurred in antiquity during the insertion of the eye inlays, as the area below is hollow (*fig. 12*). Fine linen was then presumably pressed into the eye sockets to support the eyes. The sharp contours of the rims of the eyes thus remained preserved. In the cavities, the eyeball and pupil/iris could be attached. The underlayer is coloured light blue. The flat hollows of the brows were filled with a blue paste.

²⁶ Conservation from 1998 by Irene Engelhardt, Vienna, Kunsthistorisches Museum, Conservation Department of the Egyptian and Near Eastern Collection.

²⁷ Taylor 1988 (cit. n. 4), 166.

²⁸ A possible method of production was reconstructed in consultation with the conservator Irene Engelhardt.

²⁹ Compare the cartonnage in Louvre N 2617; Frédéric Payraudeau, *Ioufâa, un gouverneur de Thèbes sous la XXIIe dynastie*, in: *Bulletin de l'Institut Français d'Archéologie Orientale* 105, 2005, 197–210, here: 210, fig. 3.C. There the eyes were likewise cut out of the cartonnage but are lost.



Fig. 13: Inv. no. ÄS 233, view from above of the crown of the head with secondary perforations from modern attachment.

4.1 THE BACK SLIT

The way in which the cartonnage is removed from the form and the mummy inserted thereafter depends on the type of back slit, how easily and how far this can be flexed open.

4.1.1 STARTING FROM THE BACK OF THE HEAD

This is the most commonly practiced type. On the Vienna cartonnages of Her, inv. no. ÄS 225, Ta-[...], inv. no. ÄS 233 (fig. 13),³⁰ and Padiese, inv. no. ÄS 3940 b, the back slit begins at the back of the head at the level of the headband. For Padiese the knotted string forms a clearly raised area there. The same can be observed in London on the cartonnages of Djedameniufankh³¹ and Peftaemawykons,³² likewise in the cartonnage of Pabastet in Hamburg.³³

³⁰ The numerous holes at the crown of the head of ÄS 233 come from an attachment when the mummy was upright. A number of later holes are also present in the wooden foot panel.

³¹ London, The British Museum, inv. no. EA 29577; Abeer H. Eladany, *A Study of a Selected Group of Third Intermediate Period Mummies in the British Museum*, dissertation University of Manchester 2011, 241, fig. 5.84; Carol Andrews, *Egyptian Mummies*, London 1984, 47, fig. 54.

³² London, The British Museum, inv. no. EA 6681; Eladany 2011 (cit. n. 31), 405, detail of the crown of the head.

³³ Hamburg, Museum am Rothenbaum, inv. no. 4057 b; Altenmüller 2000 (cit. n. 9), 216, pl. 5.

When mummies were removed from their cases in the modern era, the lacing was usually cut open and the closure at the foot end removed. As in the course of centuries the cartonnage was totally hardened and thus fragile, it could occur that the slit tore at the top of the head. Cartonnages in Berlin³⁴ and Greenock³⁵ are examples of this.

To remove the mummy from its case without cutting open the lacing on the back, which was potentially covered by a strip of linen, the cartonnage was cut open around its length so that the front could be removed like the lid of a coffin. This is the case for Her, Vienna inv. no. ÄS 225 (*see fig. 5*). The closure of the foot end was removed and is not preserved. The same occurred with the cartonnage of Isiuert in Como.³⁶ The cartonnage of Pasenenhör in Trieste³⁷ is also in two pieces, as the reverse was sawed along the lateral coloured strip to remove the mummy in the nineteenth century. The flat reverse is uniformly white.³⁸ The gap between the two parts is clearly visible in photographs.

4.1.2 BACK SLIT FROM THE CROWN OF THE HEAD

There are cartonnages for which the back slit already starts at the crown of the head. This can be in the rear area, as in the cartonnages of a priestess in London,³⁹ of the singer of Amun Kaipamaw in Zagreb,⁴⁰ and of a woman in Berlin.⁴¹ The slit tore further and diagonally on removal of the mummy.⁴² The case is similar for the cartonnage of Djedmutiusankh in Berlin.⁴³

³⁴ Berlin, Egyptian Museum, inv. no. 8284 Neskhonspekhered; Renate Germer – Hannelore Kischkewitz – Meinhard Lüning, *Berliner Mumiengeschichten. Ergebnisse eines multidisziplinären Forschungsprojektes*, Regensburg 2009, 110 f., fig. 159 front view; the photo of the back shows that the cartonnage suffered tears and breaks, nothing remains of the lacing.

³⁵ Greenock, McLean Museum and Art Gallery, inv. no. 1987.395; John H. Taylor, *Coffins as Evidence for a 'North-South-Divide' in the 22nd–25th Dynasties*, in: Gerard P. F. Broekman – Robert J. Demarée – Olaf E. Kaper (eds.), *The Libyan Period in Egypt. Historical and Cultural Studies into the 21st–24th Dynasties: Proceedings of a Conference at Leiden University, 25–27 October 2007* (Egyptologische uitgaven XXIII), Leuven 2009, 375–415, here: 408, pl. VII; the lacing is completely removed, the slit opened to the forehead, the back of the head torn crosswise at the right.

³⁶ Maria Cristina Guidotti – Enrica Leospo (eds.), *La Collezione Egizia del Civico Museo Archeologico di Como*, Como 1994, figs. I–IV; here the closure of the foot end is likewise missing.

³⁷ Trieste, Civico Museo di Storia ed Arte, inv. no. E 1; Moser – Iarini 2013 (cit. n. 8), 101, 106, photo of the back; Moser – Nicola 2017 (cit. n. 15), 321, fig. 5.

³⁸ Claudia Dolzani, *Sacofago Egiziano con mummia del Civico Museo di Storia Naturale di Trieste*, in: *Atti del Museo Civico di Storia Naturale Trieste XXVI/7*, 1969, N. 9, 249–275, here: 259, 261, fig. 11 front and back of the cartonnage; 263, fig. 13 left and right sides of the cartonnage.

³⁹ London, The British Museum, inv. no. EA 25258; Eladany 2011 (cit. n. 31), 233, fig. 5.72; the perforations on both sides for the lacing also begin there.

⁴⁰ Zagreb, Archaeological Museum, inv. no. 687; Igor Uranić, *Aegyptiaca Zagrebiensia. Egyptian Collection of the Archaeological Museum in Zagreb* (Catalogues and Monographs of the Archaeological Museum in Zagreb/Arheološki muzej u Zagrebu, vol. IV), Zagreb 2007, photos on pp. 20 and 98; the broad covering linen strip is visible, painted the same dark blue colour as the crown of the head.

⁴¹ Berlin, Egyptian Museum, inv. no. 31297; Germer – Kischkewitz – Lüning 2009 (cit. n. 34), 201, fig. 314 front view.

⁴² Assessment from photos in Berlin.

⁴³ Berlin, Egyptian Museum, inv. no. 32; Germer – Kischkewitz – Lüning 2009 (cit. n. 34), 80, fig. 108 front view; assessment from personal inspection and photos in Berlin.

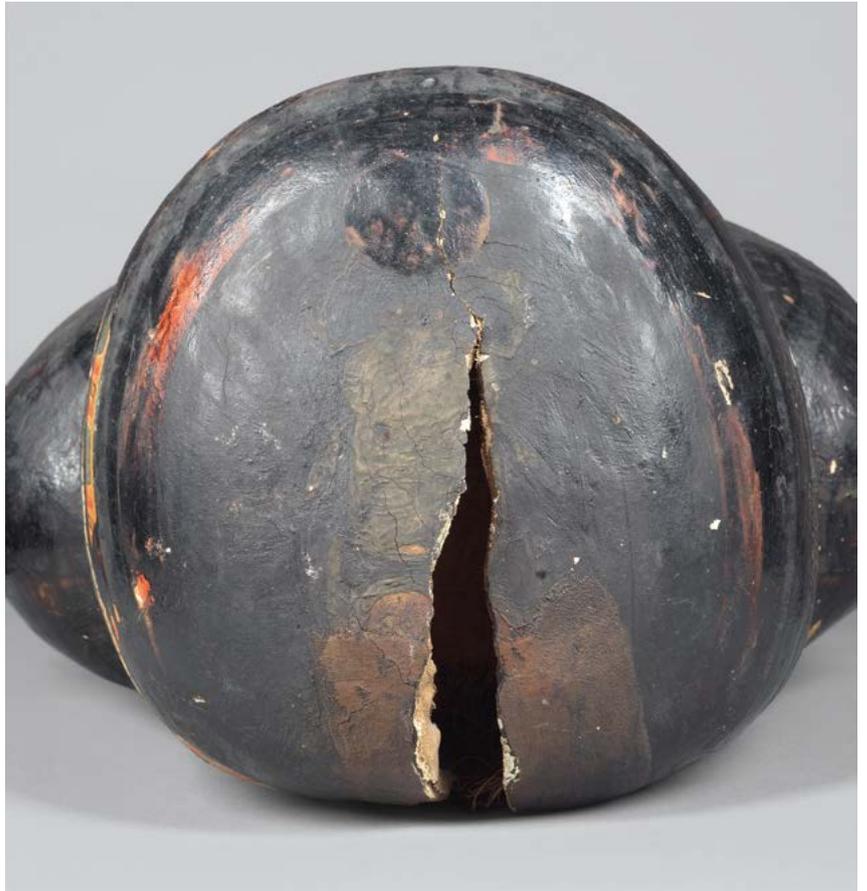


Fig. 14: Inv. no. ÄS 3942, detail of the crown of the head and beginning of the back slit.

For some cartonnages, the cut begins in the middle of the crown of the head, as for Tjayasetimu in London,⁴⁴ Nespakashuti in Athens,⁴⁵ and the Vienna cartonnages of Ta-mit, inv. no. ÄS 3942 (fig. 14), Ta-reti, inv. no. ÄS 8641, and Pakharkhonsu, inv. no. ÄS 5155 b.

For Tahai in Basel, whose reverse is painted with figures,⁴⁶ the red-painted stripe of the back slit ends at the headband of lotus leaves. The holes for the lacing are regularly spaced to the crown of the head.

Photos of mummies in cartonnage cases that were made at their findspots clearly show the start of the slit at the crown of the head.⁴⁷

⁴⁴ London, The British Museum, inv. no. EA 20744; Eladany 2011 (cit. n. 31), 221, fig. 5.58; ex. cat. John H. Taylor – Daniel Antoine, *Ancient lives. New discoveries. Eight mummies, eight stories*, London (The British Museum) 2014, 125, fig. 125; inv. no. EA 22939; *ibid.*, 68 photograph and 70, fig. 57 CT scan.

⁴⁵ Athens, National Archaeological Museum, inv. no. ANE 3412; Vassilis Chrysiopoulos, *Nespaqashouty, musicien égyptien de la Troisième Période intermédiaire (cartonnage ANE 3412)*, in: Sibylle Emerit (ed.), *Le statut du musicien dans la Méditerranée ancienne. Égypte, Mésopotamie, Grèce, Rome. Actes de la table ronde internationale tenue à Lyon, Maison, de l'Orient et de la Méditerranée (université Lumière Lyon 2) les 4 e 5 juillet 2008, Lyon* (Bibliothèque d'Étude, vol. 159/2013), Cairo 2013, 125–137, here: 134, fig. 1 front view; 137, fig. 4 back of the cartonnage. The holes for the lacing are spaced far apart, especially in the wig.

⁴⁶ Müller 1999 (cit. n. 7), photograph of the back on the first page.

⁴⁷ Taylor 2009 (cit. n. 35), 410, pl. IX.1; 411, pl. X.2, presumably found in Kafr Ammar.



Fig. 15: Cartonnage case in Berlin, Egyptian Museum, inv. no. 17074, detail of the head end with the back slit beginning above the forehead and lacing at the crown of the head.

4.1.3 ABOVE THE FOREHEAD

The cartonnage of Pabastet in Hamburg⁴⁸ is also painted on the reverse with registers of depictions. A wide zone in the middle is left free for the reverse slit. This is red with narrow yellow lateral stripes, extends over the entire crown of the head, and thereby interrupts the painting of the wig and headband. In areas of abrasion, the zigzag lacing can be recognized.⁴⁹

On a cartonnage case from Meidum in New York,⁵⁰ a wide coloured stripe with a fine crack in the middle extends forward to the forehead. On a cartonnage case in Berlin, the back slit already starts above the forehead and the lacing at the crown (*fig. 15*).⁵¹ As this is torn, the slit has spread wide apart at the head.

⁴⁸ Hamburg, Museum am Rothenbaum, inv. no. 4057 b.

⁴⁹ After a photograph of the crown of the head provided by Renate Germer.

⁵⁰ New York, The Metropolitan Museum of Art, inv. no. 06.1232.1; Taylor 2009 (cit. n. 35), 409, pl. VIII.2.

⁵¹ Berlin, Egyptian Museum, inv. no. 17074, unpublished, assessment of photographs in Berlin and personal inspection.

4.1.4 T-SHAPED CUT

The demonstration of a T-shaped cut is problematic. The extent to which this was already applied in antiquity is difficult to demonstrate due to a lack of adequate examples. In the modern period, a secondary perpendicular cut was sometimes made to the back of the head to remove the mummy from the case. One is certainly present on the cartonnage of a woman in Heidelberg.⁵² The length of the perpendicular cut is 14 cm. This type has not been previously mentioned in the literature.⁵³ Pieces of the original string remain in the holes. To remove the mummy, the cut was extended in a semicircle on both sides.⁵⁴

Whether the T-shaped cut on the cartonnage of the priest Ankhpakhrad in Graz⁵⁵ is also original can no longer be proven. The mummy remains in the cartonnage, but the back slit and perpendicular cut on the back of the head were covered with new strips of textile, probably during a restoration in the twentieth century. The cartonnage was damaged at the foot end – compressed through vertical exhibition over many decades.⁵⁶ The mummy thereby slid into the foot end, and its weight crushed the standing surface. It is assumed that the mummy was then removed, and that the perpendicular cut on the back of the head occurred for this purpose.⁵⁷

4.1.5 SECONDARY T-CUT

A secondary T-cut was applied in the modern period to enable removal of the mummy from the case. This was the case for the priest Khonsumaakheru in Hamburg, whose mummy was removed in 1903.⁵⁸ From the protocol prepared at the time, it emerges that all old seams were opened – both those holding the foot plate and that along the reverse. The material of the case proved to be so hard and stiff, however, that it was not possible to bend the cartonnage open. Sideward cuts were thus made on the back of the head.⁵⁹ Similar can be asserted for the cartonnage of Nakhtbastetiru in Bologna.⁶⁰ Here too, the mummy was removed in the modern period, evidenced by a perpendicular cut on the back of the head reaching far toward the front.

⁵² Heidelberg University, Collection of the Institute of Egyptology, inv. no. 1014, presumably from Thebes, dated to the 22nd dynasty.

⁵³ Huhn 2009 (cit. n. 13), 286, fig. 2; 287, fig. 8 detail.

⁵⁴ *Ibid.*, 288, fig. 10; 289.

⁵⁵ Graz, Universalmuseum Joanneum, Archaeology Museum Schloss Eggenberg, inv. no. 25200; Haslauer 2014 (cit. n. 17), 396, fig. 8; 405.

⁵⁶ *Ibid.*, 408, n. 3 and 4; it was first installed in the study of Prokesch von Osten, from 1834 in the Joanneum.

⁵⁷ The mummy was inserted as far as possible into the cartonnage, the foot end of the cartonnage repaired, the hollow area down to the mummy's feet filled with a cushion and, instead of the original cartonnage panel, a replacement panel affixed.

⁵⁸ Hamburg, Museum am Rothenbaum, inv. no. C 3834; is not mentioned in the publication. Altenmüller 2000 (cit. n. 12), 28–30, reign of Osorkon I (924–899 BCE).

⁵⁹ Copies of the protocol and a colour photograph of the back of the cartonnage were provided by Renate Germer.

⁶⁰ Bologna, Museo Civico Archeologico, inv. no. KS 1972, 22nd–23rd dynasty, from Thebes; author's observation in the museum: a wide perpendicular cut at the back of the head, and information from Daniela Picchi. In the illustration in Sergio Pernigotti (ed.), *La Collezione Egiziana. Museo Civico Archeologico di Bologna*, Bologna 1994, 93, the opening can be seen on the side.



Fig. 16: Inv. no. ÄS 233, back of the cartonnage with lacing visible.

4.2 THE LACING OF THE BACK SLIT

4.2.1 VISIBLE

The lacing for Ta- [...], Vienna inv. no. ÄS 233, is only partially preserved. The strings, drawn on both sides with a spacing of ca. 4–5 cm, are generally not directly aligned (fig. 16). The reverse of this cartonnage is white. Likewise uniformly white is the cartonnage of Pasenenhor in Trieste. Here too, traces of the lacing are preserved.⁶¹

If the reverse was painted with depictions, care was taken not to interrupt these with the lacing or the covering with a linen strip. A correspondingly wide strip was left free in the middle, which was usually painted red.⁶² John H. Taylor indicated the magical significance of the colour red for defence against evil and protection of the mummy when the edges of coffin bottoms and lids are painted red.⁶³ The same is true for the opening on the back of the cartonnage.

⁶¹ Trieste, Civico Museo di Storia ed Arte, inv. no. E 1; Dolzani 1969 (cit. n. 38), 259, 261, fig. 11; Moser – Iarini 2013 (cit. n. 8), 106.

⁶² Cartonnage of Tashet from Thebes; Labib Habachi, *Clearance of the Tomb of Kheruef at Thebes (1957–1958)*, in: *Annales du Service des Antiquités de l'Égypte* 55, 1958, 325–350, pl. XVII a. Athens, National Museum, inv. no. ANE 3412 Nespaqashouty; Chrysikopoulos 2013 (cit. n. 45), 137, fig. 4; the spacing of the holes is far apart starting from the back of the head, the lacing is not original. Basel, Museum der Kulturen, inv. no. III 00129 a Tahai; Müller 1999 (cit. n. 7), 1. Darmstadt, Hessisches Landesmuseum, inv. no. A 2013:29; Annika Potzgalski, *Die leere Mumienkartonage einer Frau ohne Namensbezeichnung im Hessischen Landesmuseum Darmstadt*, in: *Kunst in Hessen und am Mittelrhein*, NF 8, 2015, 7–24, here: 8, fig. 2. Greenock, McLean Museum and Art Gallery, inv. no. 1987.395; Taylor 2009 (cit. n. 35), 408, pl. VII, 2. Hamburg, Museum am Rothenbaum, inv. no. 4057 b Pabastet; Altenmüller 2000 (cit. n. 9), 216, pl. 5. Havana, Museo Nacional, inv. no. 524; Jadviga Lipińska, *Monuments de l'Égypte ancienne au Palacio de Bellas Artes à La Havane et du Museo Bacardí à Santiago de Cuba* (Corpus Antiquitatum Aegyptiacarum, Cuba, vol. 1), Mainz 1982, 1, 136 photo 7. London, The British Museum, inv. no. EA 29577 Djedameniufankh; Eladany 2011 (cit. n. 31), 241, fig. 5.8. London, The British Museum, inv. no. EA 20744 Tjayasetimu; ex. cat. London 2014 (cit. n. 44), 125, fig. 125.

⁶³ Éva Liptay, *The ancient Egyptian coffin as sacred space: Changes of the sacred space during the Third Intermediate Period*, in: Alessia Amenta – Hélène Guichard (eds.), *Proceedings First Vatican Coffin Conference, 19–22 June 2013*, Città del Vaticano 2017, vol. I, 259–270, here: 268.



Fig. 17: Inv. no. ÄS 3940 b, back of the cartonnage with the lacing covered by a linen strip.



Fig. 18: Inv. no. ÄS 3942, view of the back. The lacing and covering strip are torn.

4.2.2 COVERED WITH STUCCO

If the reverse was also painted in the centre, as for the cartonnage of Panesy in Leiden,⁶⁴ with an Osiris pillar over the entire length as for Nebnetjeru in Philadelphia⁶⁵ and Khonsumaakheru in Hamburg⁶⁶, then the holes for the lacing were pierced very close together and close to the edge, and covered with stucco after the lacing to form a continuous painting surface. This part of the painting, however, was damaged in the modern period during the removal of the mummy. The same can also be observed on the cartonnage of a woman in Heidelberg.⁶⁷

The lacing of the back slit with its covering of stucco and painting is very well preserved on the cartonnage case of Isiuret in Como.⁶⁸ In 1887, this case was cut open along the side text columns to get to the mummy. The reverse is dominated by Osiris as a *djed*-pillar.

⁶⁴ Leiden, Rijksmuseum van Oudheden, inv. no. L.XII.3 (M 36); John H. Taylor, *Theban coffins from the Twenty-second to the Twenty-sixth Dynasty: dating and synthesis of development*, in: Nigel Strudwick – John H. Taylor (eds.), *The Theban Necropolis. Past, Present and Future*, London 2003, fig. 51.

⁶⁵ Philadelphia, University of Pennsylvania, Museum of Archaeology and Anthropology, inv. no. E 14344 b, c; Taylor 2003 (cit. n. 64), fig. 50.

⁶⁶ Hamburg, Museum am Rothenbaum, inv. no. C 3834; Altenmüller 2000 (cit. n. 12), 59, pl. 4 back view.

⁶⁷ Heidelberg University, Collection of the Institute of Egyptology, inv. no. 1014; ex. cat. Stuttgart 2007 (cit. n. 2), 215; Huhn 2009 (cit. n. 13), 285 f., fig. 2, the cartonnage case was cut open at the sides.

⁶⁸ Como, Civico Museo Archeologico, inv. no. ED 1; Guidotti – Leospo 1994 (cit. n. 36), 7 f., fig.: the two halves of the cartonnage with the unwrapped mummy in the back half are in a vitrine; colour plates I–IV.



Fig. 19: Inv. no. ÄS 5155 b, back. The head end with remains of the lacing and covering strip.

4.2.3 COVERING WITH A LINEN STRIP

On the cartonnage of Padiese, Vienna inv. no. ÄS 3940 b, the lacing of the back slit is completely preserved. The distance between the holes on both sides is 10–11 cm. The beginning of the connecting string is knotted at the back of the head. The reverse is uniformly white and separated on the sides from the front depictions by a coloured band. The lacing was covered with a 16 cm wide strip of densely woven linen and coated with a thin layer of stucco to match the white paint of the cartonnage. At the foot end, the lateral border stripes were also covered. This covering strip is torn and lifting in multiple places (*fig. 17*).

For Ta-mit, Vienna inv. no. ÄS 3942, the lacing and thereby also the linen strip adhered above is torn (*fig. 18*). The back slit is somewhat open, especially at the head, as the slit was only threaded from the back of the head (*see figs. 10 and 14*).⁶⁹ During the burial ritual, resin was poured over the cartonnage, and the liquid collected on the back to a thick crust.⁷⁰ Through blackening, the linen strip can only clearly be seen on the rear crown of the head. It is 4.5 cm wide.

Of the zigzag lacing of Pakharkhonsu, Vienna inv. no. ÄS 5155 b, only traces at the head and foot ends are preserved. It extends from the back of the head, beginning at the flat crown (*fig. 19*). A few fragments of the linen strip glued over the lacing are adhered. The strip was 8 cm wide – i.e. so narrow that it did not encroach on the painting of representative fields on the reverse. This

⁶⁹ The tear – it is not a straight cut – presumably first occurred at the top of the head as the back slit ripped open. As the body of the bandaged mummy completely filled the cartonnage, it is possible that the back of the case split from repeated handling.

⁷⁰ Haslauer 2016 (cit. n. 3), 124, fig. 1; 127, fig. 3.



Fig. 20: Inv. no. ÄS 5155 b, reverse with open back slit.



Fig. 21: Inv. no. ÄS 8641, reverse, covering of the back slit.

middle part of the back was white. As the lacing and thus also the linen strip is torn, the back slit has opened (*fig. 20*).

The lacing of Her, Vienna inv. no. ÄS 225, is no longer completely preserved in its lower part. The spacing of the holes is 5 cm; at the head end the covering linen strip, 9 cm wide, is still preserved.

On Ta-reti, Vienna inv. no. ÄS 8641, the original closure of the back is not preserved as the mummy was removed from the cartonnage. The back slit was afterward laced again and covered with a wide strip of textile. It was very broadly overpainted, whereby parts of the depictions in the lower half were rendered totally unrecognizable (*fig. 21*). In the area of the legs, the later lacing is also torn.



Fig. 22: Inv. no. ÄS 225, foot end with string and covering strip preserved.

5. THE CLOSING PANEL AT THE FOOT END

The closing panel can be made of various materials and connected to the foot end of the cartonnage in different ways.

5.1 CUT FROM WOOD

5.1.1 CONNECTED TO THE CARTONNAGE

On the cartonnage of Her, Vienna inv. no. ÄS 225, the closing panel is not preserved, but conclusions can be drawn from the remaining traces. Along the edge of the foot end, in large running stitches, a thick string (twisted from numerous linen threads) is drawn. There is additionally one hole on each side, perhaps to secure the plank in position for lacing. Apparently, the closing wooden panel was connected by a string threaded in a zigzag through both the cartonnage and the wooden plank, similar to the lacing of the back slit. On the preserved sides of the cartonnage, strings are present below the linen strip adhered above, which was glued over the edge (*fig. 22*). This type of attachment is documented on the cartonnage of Nesperennub in London.⁷¹ Such was also reconstructed for Neskhnosupakhered

⁷¹ London, The British Museum, inv. no. EA 30720; Salima Ikram – Aidan Dodson, *The Mummy in Ancient Egypt. Equipping the Dead for Eternity*, London 1998, 176, fig. 211.

in Dresden. There the foot panel is lost, but remains of the original string from attaching the foot panel are present on the cartonnage.⁷²

At the edges of the foot end of the cartonnage case of Isiuret in Como, regularly spaced holes are present, in a number of which loops of string from securing the foot panel still cling.⁷³

The foot plate of Tahai in Basel was likewise connected by lacing, evidenced by the numerous holes along the edge of the foot end of the cartonnage – now however no longer in their original form.⁷⁴

Similar can be found on the cartonnage of Nakhtbastetiru in Bologna.⁷⁵ The foot end was closed and tied to a new wooden panel – not in an ancient Egyptian manner, but rather with vertical connections. The numerous holes at the foot end of the cartonnage, however, come from the original lacing. The closing plate of the cartonnage of Pasenenhör in Trieste was likewise tied on. On both sides, five holes are visible, and six on the front. The original closing panel was lost, presumably in the course of opening the cartonnage.⁷⁶

5.1.2 SECURED WITH WOODEN PEGS, NOT COVERED

The most common type of closure is that employing a wooden panel cut to fit and secured with wooden nails, which are driven through pre-punched holes above the edge of the cartonnage, diagonally or horizontally into the panel.⁷⁷

One example of this is the cartonnage of Ta-[], Vienna inv. no. ÄS 233. Here dowels are placed from the toes, the heels, and the two sides (*see figs. 6 and 16*), the tapered ends of which are visible in the bottom panel. Sawmarks are recognizable on the panel. This was coated with an extremely thin stucco layer and painted a pale yellow (*fig. 23*). The edges were not covered with a linen strip. The foot panel of the cartonnage of Penju in Hildesheim, painted with the Apis bull, is secured in the same way.⁷⁸

Sometimes, the panel is only attached to the cartonnage with wooden nails on two sides. Two wooden pegs are inserted through both the toe and heel ends of the cartonnage, diagonally through the wooden board, as in the cartonnage of Tjayasetimu in London.⁷⁹ The fastening at the front and back is also preserved for the cartonnage of Panesy in Leiden. There, two dowel holes are visible at the front.⁸⁰

⁷² Krekeler 2007 (cit. n. 13), 26.

⁷³ Como, Civico Museo Archeologico, inv. no. ED 1; Guidotti – Leospo 1994 (cit. n. 36), pl. IV 10–13; that the foot panel is missing is not mentioned.

⁷⁴ Basel, Museum der Kulturen, inv. no. III 129; ex. cat. Basel 1976 (cit. n. 7), 28, fig. 9 a, b, c.

⁷⁵ Bologna, Museo Civico Archeologico, inv. no. KS 1972, 22nd–23rd dynasty, information from Daniela Picchi.

⁷⁶ Trieste, Civico Museo di Storia ed Arte, inv. no. E1; Moser – Iarini 2013 (cit. n. 8), 106.

⁷⁷ Krekeler 2007 (cit. n. 13), 26.

⁷⁸ Ex. cat. Hildesheim 1990 (cit. n. 10), 62 f., pl. 18 (Rainer Hannig).

⁷⁹ London, The British Museum, inv. no. EA 20744; Ikram – Dodson 1998 (cit. n. 71), 176, fig. 210.

⁸⁰ Leiden, Rijksmuseum van Oudheden, inv. no. L.XII.3 (M 36); Maarten J. Raven, *De dodencultus van het Oude Egypte*, Amsterdam 1992, 52, no. 19.



Fig. 23: Inv. no. ÄS 233, view of the foot plate, attached with eight pegs.



Fig. 24: Inv. no. ÄS 5155 b, right side of the foot end with a dowel hole preserved.

Further examples are the mummy cases of Ankhpefhor in Boston⁸¹ and the cartonnage of Nespanetjerenre in the Brooklyn Museum⁸², each with one dowel hole in both the front and back. For Djedameniufankh in London, the wooden pegs are inserted horizontally through the cartonnage into the side edge of the board.⁸³

5.1.3 THE EDGES COVERED WITH LINEN STRIPS⁸⁴

On the cartonnage case of Pakharkhonsu, Vienna inv. no. ÄS 5155 b, the front of the foot end is missing and thus also the closing plate. From the existing diagonal holes, two on the back (*see fig. 20*) and one on each side by the heels (*fig. 24*), one can conclude that this wooden plate was also secured all around, presumably with eight wooden nails. The distance to the lower edge of the cartonnage is 1.8 cm. A folded, 5 cm wide linen strip was glued over the edges, traces of which still adhere. The seam and attachment were thus covered and given additional strength.

⁸¹ Boston, Museum of Fine Arts, Hay Collection, Gift of C. Granville Way, inv. no. 1872 (72.4837); Taylor 1988 (cit. n. 4), 170 f., no. 122, a dowel hole is clearly visible at the front of the foot end.

⁸² New York, Brooklyn Museum, Charles Edwin Wilbour Fund, inv. no. 361265; Richard A. Fazzini et al. (eds.), *Ancient Egyptian Art in the Brooklyn Museum*, New York 1989, no. 67.

⁸³ London, The British Museum, inv. no. EA 29577; Eladany 2011 (cit. n. 31), 239, fig. 5.79.

⁸⁴ Krekeler 2007 (cit. n. 13), 26.



Fig. 25: Inv. no ÄS 8641, wood foot panel, coated with stucco and painted with ochre colours.

Likewise for Ta-reti, Vienna inv. no. ÄS 8641: the board is covered with stucco on the exterior side. It was attached to the cartonnage from both sides with diagonally set wooden dowels. A strip of linen is glued to the edges on all sides (*fig. 25*). Thereafter, everything was overpainted an ochre colour, as was the ground layer of the pedestal. The attachment and the lacing and covering of the back slit are later, however, as the mummy was removed.

5.1.4 JOINING WITH STUCCO⁸⁵

The wooden panel on Padiese, Vienna inv. no. ÄS 3940 b, is covered on the exterior with thin linen, over which an irregularly thick stucco layer was applied. The attachment was achieved through two diagonally set wooden nails from both respective sides (*fig. 26*). The distance to the lower edge of the cartonnage is 2 cm. The edges are spackled with plaster to the cartonnage.

⁸⁵ *Ibid.*, 26.



Fig. 26: Inv. no. ÄS 3940 b, foot end of the cartonnage, right side with the attachment of the wood panel with wooden nails.

Remains of a join using gesso are preserved on the foot panel of the cartonnage coffin of Ken-hor in Berlin.⁸⁶ This cartonnage is fashioned as the lid and bottom of the coffin, which were connected with wooden nails. The foot end is closed with a wooden plate, the outside of which is painted with the Apis bull and inscription.⁸⁷

5.1.5 WITHOUT FIXED CONNECTION

Closure without a fixed connection to the cartonnage case is also possible. The wooden panel was thereby only wedged into place. On an example in Berlin, inv. no. ÄM 17074,⁸⁸ no traces of securing can be seen on either the cartonnage or the foot panel.

For Ta-mit, Vienna inv. no. ÄS 3942, the foot end is closed with a wooden panel, the exterior of which is covered with two layers of linen and a thin stucco layer. The attachment is not evident, as the edges to the cartonnage are thickly pasted over with linen strips. The covering is broken through at

⁸⁶ Berlin, Egyptian Museum, inv. no. 8500; Germer – Kischkewitz – Lüning 2009 (cit. n. 34), 129, fig. 184.

⁸⁷ *Ibid.*, 128 f., fig. 123.

⁸⁸ Berlin, Egyptian Museum, unpublished; viewed in storage.

the toe end and right side, however. There are no dowels or dowel holes in the wood, although at least one perforation is evident at the edge of the cartonnage. Possibly the holes were intended for an attachment using dowels, but then not used. The foot panel was only joined with the cartonnage through the linen strips glued in multiple layers over the edges (*fig. 27*). The linen strip on the back slit extends 5 cm up the foot plate.

5.2 FROM LINEN CARTONNAGE

There are examples of panels for closing the foot end made from linen cartonnage. The foot panel of the cartonnage of the priest Ankhpakhrad in Graz consisted of cartonnage that is prepared inside and outside with a white ground.⁸⁹ On the heel side, the end piece from the coarse fabric of the original linen strip of the back slit is extant (*fig. 28*).

From a cartonnage case in Berlin is a closing plate made from cartonnage, coated on both sides with a thin stucco layer, which on one side in the middle bears a black ink notation in hieroglyphics with the indication 'inner, inside'.⁹⁰ This panel was either used later or added secondarily for greater stability. It consists of two cartonnage layers. In that used as the inside, there are small holes 2 cm apart along the edge. A thin string running over these perforations is held to the underside by small loops of string in the holes, apparently in this way sewn to an additional linen layer. Further layers of linen were adhered thereafter. Later larger holes, ca. 10 cm apart and three each on the long sides, extend through all of the layers.

In a detached closing panel in Berlin with a thin stucco layer on both sides and holes along the edge, two loops of string remain from the usual zigzag connection with the cartonnage.⁹¹ Along the edge, remains of mud are preserved over the lacing, which were to cover both the lacing and the edges to the foot end of the cartonnage case.

5.3 FROM LEATHER

A closing panel made from leather was found in Thebes, in the Hatshepsut temple of Deir el-Bahari. It was connected all around, a number of string remains are still present. The leather is stuccoed on both sides, and additionally adhered with linen on the exterior.⁹²

⁸⁹ Graz, Universalmuseum Joanneum, Archaeology Museum Schloss Eggenberg, inv. no. 25200; Haslauer 2014 (cit. n. 17), 392, 405. During an early restoration of the cartonnage and particularly of the crushed foot end, the cartonnage panel, broken in four parts, was placed at the foot end of the mummy and the foot end closed with a fitted soft fibreboard plate.

⁹⁰ Berlin, Egyptian Museum, inv. no. ÄM 31297; unpublished; viewed in storage.

⁹¹ Berlin, Egyptian Museum, inv. no. Z 4825, spacing of the holes ca. 3.5 cm.

⁹² Mirosław Barwik, *New data concerning the Third Intermediate Period cemetery in the Hatshepsut temple at Deir el-Bahari*, in: Nigel Strudwick – John H. Taylor (eds.), *The Theban Necropolis. Past, Present and Future*, London 2003, 122–130, here: 126 and pl. 90.



Fig. 27: Inv. no. ÄS 3942, diagonal view of the foot end, wood panel with linen strip attached along the edge.



Fig. 28: Cartonnage of Ankhpakhrad in Graz, Universal-museum Joanneum, Archaeology Museum Schloss Eggenberg, inv. no. 25200, lashed foot panel of linen cartonnage.

6. FABRICATION IN ADVANCE

In general, the cases are larger and especially longer than the mummies. This can be seen through x-radiography. The head lies not in the head area of the case but usually lower, even considerably so.⁹³ The feet stand at the foot end, caused in part through the transport and vertical positioning of the mummy. During the burial ritual, mummies were stood upright to perform the opening of the mouth ritual on them.⁹⁴

This also means that the mummy with its bandages is somewhat thinner, as it can only slide due to its slightly conical body form, proving that the cartonnage cannot have been formed on the prepared mummy. After the closing of the back and the foot end, the painting was completed in these areas.

⁹³ E.g. the cartonnage case of a woman, 2nd half of the 22nd to 23rd dynasty (850–750 BCE); Baltimore, Walters Art Museum, inv. no. 79.1, ex New York, The Metropolitan Museum of Art; Regine Schulz – Matthias Seidel, *Egyptian Art. The Walters Art Museum*, Baltimore 2009, 103, no. 41. London, The British Museum, inv. no. EA 20744; Eladany 2011 (cit. n. 31), 434; Warren R. Dawson – Peter H. K. Gray, *Catalogue of Egyptian Antiquities in the British Museum I. Mummies and Human Remains*, London 1968, frontispiece b. 35. *Ibid.*, inv. no. EA 22393; Eladany 2011 (cit. n. 31), 298, fig. 7.12. *Ibid.*, inv. no. EA 22939; Eladany 2011 (cit. n. 31), 446; ex. cat. London 2014 (cit. n. 44), 70, fig. 57 CT scan; 72, fig. 60. Vienna, Kunsthistorisches Museum, inv. no. ÄS 3942; Haslauer 2016 (cit. n. 3), 140, fig. 18.

⁹⁴ Taylor 2003 (cit. n. 64), 104 f.

The cartonnage case of a grown woman was even used for the mummy of a girl.⁹⁵ The difference in length between cartonnage and mummy in London is ca. 25 cm. A similar situation was found in Brooklyn. The body rests in the lower half of the case, the empty space above is filled with linen.⁹⁶

The cartonnage case could also be too small, that is, too narrow for the mummy. On the case of a woman in Berlin,⁹⁷ the back slit is wide apart from about the middle of the body to the foot end. Possibly, the mummy was taken out of the cartonnage in Egypt by antiquities dealers looking for amulets and papyri and then could not be returned to its original place.⁹⁸ The foot panel was later subsequently secured with a linen strip.

In another instance, the cartonnage was too short. The mummy of Padiamenet in London was considerably longer than the case, hence the feet extended beyond the foot end and were thickly padded there with linen to extend the cartonnage.⁹⁹

As the cartonnage was still elastic at the time the mummy was inserted, it is also conceivable that it was not necessary to destroy the mummy form each time to remove the opened cartonnage. The similarity in the dimensions of length and width for identical origins is notable. In preserving the form, one could work more efficiently and also achieve uniformity of appearance, using it for all mummies that would fit inside with their bandages.

Fabrication in advance is also confirmed in that fields for later inscription were left empty. This can be recognized in the differing types of script.¹⁰⁰ Blank spaces could be left where the name and title of the deceased were to be.¹⁰¹ On the cartonnage of a woman in Darmstadt, no column for the name was even provided.¹⁰²

⁹⁵ London, The British Museum, inv. no. EA 20744; ex. cat. London 2014 (cit. n. 44), 114, fig. 107 CT scan; 116, fig. 109.

⁹⁶ New York, Brooklyn Museum, inv. no. 34.1223; Mildred M. Pace, *Wrapped for Eternity. The Story of the Egyptian Mummy*, New York 1974, 112.

⁹⁷ Berlin, Egyptian Museum, inv. no. 40, 22nd dynasty; Germer – Kischkewitz – Lüning 2009 (cit. n. 34), 36, figs. 31, 32, 33.

⁹⁸ *Ibid.*, 38.

⁹⁹ London, The British Museum, inv. no. EA 6682; Eladany 2011 (cit. n. 31), 418; ex. cat. London 2014 (cit. n. 44), 94, fig. 85 CT scan; 96, figs. 87, 99; 109, fig. 104.

¹⁰⁰ Altenmüller 2000 (cit. n. 12), 30.

¹⁰¹ Berlin, Egyptian Museum, inv. no. 40; Germer – Kischkewitz – Lüning 2009 (cit. n. 34), 36, after the title 'lady of the house', the name is missing.

¹⁰² Darmstadt, Hessisches Landesmuseum, inv. no. A 2013:29; Potzgalski 2015 (cit. n. 62), 16.

SUMMARY

From the beginning of the 22nd dynasty, mummies were wrapped in a linen cartonnage that was painted like an inner sarcophagus. The outer sarcophagus continued to be constructed from wood but was only simply painted: with the face and large wig, the jewelled collar, and a vertical text column with the name of the deceased.

Although there are several publications on the production of these cartonnages and even on their replication over a mould core using materials available in ancient Egypt, additional details could be observed from the six mummy cases in the Egyptian and Near Eastern Collection of the Kunsthistorisches Museum Vienna, which in

comparison with similar objects from other collections revealed variations especially in the back slit and the closure of the foot end. For the latter, different materials and variations of attachment were employed.

ZUSAMMENFASSUNG

Mit dem Beginn der 22. Dynastie wurden Mumien mit einer Leinen-Kartonnage umhüllt, die wie ein Innensarg bemalt wurde. Der Außensarg war weiterhin aus Holz konstruiert, jedoch nur einfach bemalt: mit dem Gesicht mit der großen Perücke, dem Schmuckkragen und einer vertikalen Spalten mit dem Namen des/der Verstorbenen.

Zur Herstellung dieser Kartonnagen gibt es zwar verschiedene Publikationen und sogar den Nachbau über einem Formkern unter Verwendung von Materialien, die auch im Alten Ägypten vorhanden waren, doch können an den sechs Mumienhüllen der Ägyptisch-Orientalischen Sammlung des Kunsthistorischen Museums Wien zusätzliche Details festgestellt

werden, die im Vergleich mit derartigen Objekten aus anderen Sammlungen Variationen vor allem beim Rückenschlitz und dem Verschluss des Fußendes ergeben. Für letzteren wurden verschiedene Materialien verwendet, so wie auch die Befestigung unterschiedlich war.