

Article

It's a Wrap! Bandaging Patterns on Animal Mummies from Ancient Egypt

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Abstract

The ancient Egyptians not only mummified humans, but also a large variety of other species. These animal mummies, given as votive offerings to the gods, are now found in museums throughout the world. Often collected as curiosities, they were also valued for their elaborate bandaging. While the past two decades have seen an increase of interest in studying these mummies' production and role in Egyptian culture, economy and religion, there is no standard way of describing them. This article, based on research carried out in several museums and archaeological sites, is an initial step in addressing this issue and aims to lay the foundations of a typology to be adopted by other scholars in the field. This will facilitate comparisons in bandage descriptions, which in turn will contribute to an understanding of diachronic change in styles, if any, and to the identification of specific ateliers or geographic variations, as well as establishing whether specific styles of wrapping were favoured for particular species.

ملخص

لم يَقم المصريون القدماء بتحنيط الأشخاص بعد وفاتهم فحسب، بل قاموا أيضاً بتحنيط مجموعة كبيرة ومتنوعة من كائنات حية أخرى. حالياً توجد هذه المومياوات الحيوانية، التي كانت تُقدّم كقرابين للآلهة، في العديد من المتاحف حول العالم. غالباً ما كانت تُجمع كأشياء غريبة وللفضول، كما كانت تُقدّر لطريقة تضميدها المتقنة. وعلى الرغم من ازدياد الاهتمام خلال العقدين الماضيين بدراسة هذه المومياوات ودورها في الثقافة والاقتصاد والدين لدى المصريين القدماء، إلا أنه لا توجد صفة موحدة لوصفها. تستند هذه المقالة إلى أبحاث أجريت في عدة متاحف ومواقع أثرية، وتعد خطوة أولى في معالجة هذه المسألة، وتهدف إلى إرساء أسس تصنيف يمكن أن يتبنّاها باحثون آخرون في هذا المجال. سيسهّل ذلك إجراء مقارنات بين أنواع الضمادات، مما سيساهم بدوره في فهم التغيرات الزمنية في أساليب الصناعة، إن وجدت، وتحديد ورش عمل معينة أو الاختلافات الجغرافية، فضلاً عن تحديد ما إذا كانت كانت طريقة لف شرائط الكتان مفضلة لأنواع معينة غير أنواع أخرى.

The ancient Egyptians are renowned for mummification, both of humans and animals. Examples of the latter proliferated particularly from the Late Period through the Roman era (c. 664 BC – late fourth century AD).¹ In general, attention has been paid more consistently to mummies of humans than to those of other species. Initially animal mummies were viewed as curiosities and acquired as such, with elaborately wrapped examples being favoured by collectors.² However, the naturalists participating in Napoleon Bonaparte's 1798 expedition to Egypt

initiated scientific studies based on these mummies, notably Étienne Geoffroy Saint Hilaire, who tried to reconstruct the ancient fauna of Egypt and document its changes. Ultimately Saint-Hilaire identified two different species of crocodiles as having been present in Egypt. This identification, which was based on their mummified remains,³ was not universally accepted at the time, but has since been confirmed by Evon Hekkala and her team.⁴ After a hiatus of nearly 100 years, it was a pair of French naturalists and scholars, Louis Lortet and Claude Gaillard, who

carried out a thorough study of animal mummies, collecting a large number of specimens that are now housed in the Egyptian Museum in Cairo (as well as in other museums in Egypt) and in Lyon, in what is now the Musée des Confluences. This work resulted in a monumental series of publications that remain the foundation of Egyptian animal mummy studies, as well as animal studies, to this day.⁵

Subsequent attention to animal mummies was incidental, save for work carried out at Tuna el-Gebel, starting in the 1980s, under the direction of Dieter Kessler, later joined by Abdel Halim Nur-el-Din. This project focussed on the study of animal cults at that site and involved archaeologists, epigraphers, and archaeozoologists, resulting in a series of publications.⁶ Although attempts were made to adopt a similar holistic approach at the Sacred Animal Necropolis at Saqqara – excavated initially under the direction of Walter B. Emery,⁷ and subsequently by Harry Smith⁸ – the archaeozoological component was not comprehensive. Recently, sizeable volumes containing a wealth of textual and archaeological information from the work at North Saqqara have been published,⁹ but the materials presented on the animal remains are few, with the bulk still pending. After a significant hiatus in time, the 1990s brought an upsurge in interest in animal mummies due to the work of Alain Charron¹⁰ in France and Salima Ikram¹¹ in Egypt. This was enhanced by the reinstallation of the Animal Mummy Room in the Egyptian Museum and attendant publicity in the press.¹² In the last two decades there has been a marked increase of scholarly attention to animal mummies, including in museum catalogues, excavation reports, and articles on individual case studies or groups of mummies.¹³

Publications of animal mummies, particularly museum catalogues that contain examples of the most beautifully wrapped and well-preserved mummies, have clearly shown that there is a need for some degree of standardisation in animal mummy studies, most notably in the description of their wrappings, as the terms used to describe these vary considerably (diamond/lozenge; check/basket, etc.), making it difficult to make comparisons, particularly without a photograph. Animal mummies display an unparalleled wealth of wrapping styles, going from simple spiral bandaging to intricate polychrome bas-

ketry-weave patterns. A close study of these might allow for their dating and for the identification of ateliers or geographic origins. If any patterns can be established, this would be particularly useful for museums, as so many animal mummies in museum collections are unprovenanced. A large-scale examination of animal mummies from known as well as unknown sites might not only provide provenance, but also shed light on patterns of production. Thus, this article is an initial step in addressing the issue of bandaging nomenclature. It aims at laying the foundations of a typology that may be adopted by other scholars in the field and at facilitating comparisons in bandage descriptions that will contribute to our understanding of diachronic change in styles, if any.¹⁴ In addition to the identification of specific ateliers or geographic variations, this work will possibly help recognize whether specific styles of wrapping were favoured for particular species. For example, it appears thus far that the polychrome bandaging of cats with painted-on facial details, including mask-like eyes, originates from Stabl Antar, near Beni Hasan (see Subtype B1), while cats wrapped as if they were standing or walking originate from the Bubasteion at Saqqara (see Subtype A6),¹⁵ and mummiform or teardrop-shaped ibises with modelled heads tend to originate from Abydos (see Fig. 50). There is also a preponderance of appliqués on the bird mummies from Saqqara (see Subtype A8). The identification of the patterns and their nomenclature presented here is the result of the work of a group of scholars with different specialties (Egyptology, archaeology, museology, archaeozoology, textiles, and conservation) who have examined large collections of animal mummies from excavations in Egypt and from museum collections in Egypt, the United States, Europe and the United Kingdom. This study emphasises the importance of museum collections and collaborative work.

1. Methodology and basis of our typology

Our typology was created based on a survey of the wrappings on animal mummies in a number of museum collections, including the Museo Egizio (Turin), the Egyptian Museum (Cairo), the British Museum (London), the Louvre (Paris), the Natural History Museum of the Smithsonian Institution



Fig. 1: Mummy of a crocodile (Cairo CG 29816). L. 26.6 cm, W. 5.75 cm. Photo: ©Egyptian Museum, Cairo, Animal Mummy Project. Photo by Anna-Marie Kellen.

(Washington, DC), the Metropolitan Museum of Art (New York), and the Medelhavsmuseet (Stockholm), as well as from excavations throughout Egypt. This typology is divided into five categories: plain fabric, overlapping fabrics, interweaving fabrics, coffer motifs, and hybrid techniques. In addition to the types of wrappings, a brief list of shapes that the mummies fall into will be found in Annex 1, and a short glossary of the main textile weaving techniques in Annex 2.

The criteria were selected on the basis of an analysis of the external appearance of the wrappings and the patterns, and the technology that was used to create them.¹⁶ It therefore leaves aside creatures completely encased in cartonnage, such as ibis mummy CG 29874 and baby crocodile CG 29816 bis (Fig. 1).

It should also be noted that the typology presented here does not focus particularly on specific variations on the faces of the mummies, as these tend to be painted, modelled or appliquéd, or a combination thereof, and are thus preferably described individually. The typology excludes the wrappings for victual food mummies as these are a different category of mummy from the votive animals that are the focus of this paper.¹⁷ Victual mummies, most commonly found in Dynasty 18, consist of cuts of meat and entire birds prepared and ready to be eaten, and are almost invariably spirally wrapped.



Fig. 2: Mummy of a cat (Cairo CG 29655). L. 30 cm, W. 7 cm. Photo: ©Egyptian Museum, Cairo, Animal Mummy Project. Photo by Anna-Marie Kellen.

2. Challenges

Clearly, such an undertaking is not without several basic problems and pitfalls. In many cases it is unclear if the surviving wrappings were originally the outermost. Sometimes what seems like a complete final wrapping might only be partial, with segments of bandages having crumbled away or becoming disengaged (Fig. 2), or might give only the appearance of being final.

For example, it is not totally clear if the subtype called here “Plain with Contrasting Coloured Bands”

(Subtype A7, Turin C. 2350/6) was originally thus, or if portions fell off in antiquity, leaving the current pattern. Often haphazard bandaging covered by a loose lashing of linen thread is a lower layer of bandaging and not meant to be the final product. Even spiral wrapping is not necessarily the final visible layer that was for show. It should therefore be remembered that there are often instances where the dyes of bandages have faded, or pieces of linen (particularly when dyed dark brown) have fallen off, thereby altering the wrapping pattern. In other cases,



Fig. 3: a. Mummy of a crocodile (British Museum EA 37347). L. 94 cm; b. Detail of the tail with spiral bandages. Photos: ©Trustees of the British Museum.

the external shroud could hide a more complex pattern (see Subtype A1, British Museum EA 13052, and as revealed in Subtype C3, for example, Cairo CG 29866). To compound the problem, the colour of the wrappings often fades and it is frequently unclear if patterns or shrouds that are now a uniform beige (undyed) were once bi- or polychrome (dyed).

Also, it should be noted that combinations of different styles, for example spirals and coffers, can be used on the same mummy bundle. This is particularly true when tails are involved. A few examples of such combinations can be seen in Subtype C3, with a polychrome chevron twill interweaving (CG 29866) and coffers over the body with spirals around the tail (Fig. 3).

Another even more extreme example is cat Louvre E 2811, with a spiral on the head, basket weave on the neck, a triangular motif on shoulder and base, and a mix of rectangular and diamond coffers on the body (Fig. 4).

In these instances, one can describe each pattern and identify where it is located on the animal's body. It should be remembered that in many cases, while the front of the mummy is well decorated, the back can be plain or cursorily wrapped, allowing us to learn how it was produced. In some instances, there are indications of re-wrapping of damaged



Fig. 4: Mummy of a cat (Louvre E 2811). L. 59 cm, W. 9 cm. Photo: ©2004 Musée du Louvre. Photo by Christian Décamps.



Fig. 5: Bottom view of the mummy of a cat (British Museum EA 55409). H. 42.8 cm. Photo: ©Trustees of the British Museum.



Fig. 6: Cat mummy (Turin, Museo Egizio, C. 2350/6). L. 27 cm. Provenance unknown. 400–50 BC (^{14}C of the textile). Photo: Museo Egizio, Turin.

mummies in antiquity, which further confuses the issue. Such cases were noted, for example, on bird mummies from Theban Tombs 11, 12, and 366.¹⁸

There are also unique examples of wrapping styles, which are not given a place in our typology proper as only single instances of these are attested – if other similar specimens come to light, they can be added at a later date. Examples of unique wrappings include an elaborately wrapped cat mummy in the British Museum (EA 55409), which is unusual in that it has a cloth rosette, consisting of concentric rings of textile, attached to its base (Fig. 5). At present, this refinement is only known from this mummy, although it was certainly used on others.

Another example is a cat mummy from Turin (Turin, Museo Egizio, C. 2350/6) whose head is covered with a plain piece of cloth, and the body with another such piece, with the two meeting at the neck. Two strips of bandage dyed a dark brown are tied around the head horizontally. Another similar pair of bandages are tied around the body at the

area where the forepaws would end. It is possible that originally more horizontal bandages existed, though no evidence for these were found on this mummy (Fig. 6).

In addition, a group of fish mummies should be noted here. These are unlike the other mummies as their outermost wrapping seems to consist of vegetal material, often strips of papyrus (Subtype A5),¹⁹ which are often observed on other mummies – most notably of gazelles – within layers that are usually not visible, and are most regularly covered with at least a piece of textile.²⁰ The fact that this does not seem to be the case for this group of fish stresses once more that the expected outer appearance of these mummies can vary greatly.

As already mentioned, there is no doubt that the typology presented here is not exhaustive, but it can always be edited or added to as new finds come to light. This typology should be a useful tool for scholars working on animal mummies as it will allow for easy comparison of different data sets, and thus contribute to a better understanding of whether certain styles of wrapping were reserved for particular creatures or groups of animals, associated with a particular deity, or could be ascribed to a certain time period or area. It is hoped that scholars working in animal mummy studies will adopt the terms laid out below.²¹

3. A typology of bandage patterns for animal mummies

3.1. Type A – Plain fabric

The fabric used is usually tabby weave (see glossary in Annex 2 for all textile terminology), with more or less dense weave reductions. It is generally undyed. Basket-weave fabrics are rarely found, and never as outer coverings, although sometimes as fragments used as filling or padding.

Both the outer fabric and/or decorative elements are frequently held in place by resinous dots, where necessary to maintain the correct mechanical tension. Stitches are not used.

The types present the different means by which the fabric is held in place, with bandages, wraps, linen threads or plant fibre strings, or/and is decorated in various ways with appliqués, dyed bandages, a net pattern, etc.

- Subtype A1: plain fabric
- Subtype A2: plain fabric with edging bandage
- Subtype A3: plain fabric with asterisk pattern
- Subtype A4: plain fabric kept in place by linen threads
- Subtype A5: plain fabric kept in place by vegetal strips
- Subtype A6: plain fabric with horizontal and/or vertical decorative bands
- Subtype A7: plain fabric with appliqué
- Subtype A8: plain fabric with painted decoration
- Subtype A9: plain fabric with criss-crossed bandages
- Subtype A10: plain fabric with a net pattern and horizontal bands
- Subtype A11: plain fabric with a net pattern reinforced by criss-crossed dyed bandages.

Subtype A1 – Plain fabric

The fabric used is plain, usually undyed and undecorated. More than one piece of fabric can be used to cover the external surface. Dots of resinous material are often used to secure the fabric to the surface (Fig. 7).

English: Plain fabric.

Italian: Tessuto a tela.

French: Tissu uni.



Fig. 7: Ibis mummy (London, British Museum, EA 13052). L. 36.7 cm. Provenance and date unknown. Photo: ©The Trustees of the British Museum.

Subtype A2 – Plain fabric with edging bandage

Plain fabric with edging bandage created by folding a strip of fabric (generally both sides are folded). The main area was either red/pink or yellow, and the surrounding bandage, depending on the central colour, was red or yellow, each evoking the sun. It is possible that some examples were not coloured, with both shroud and edging undyed.

The packages can be circular, rectangular, oval or square with an edging bandage. This pattern is usually found on shrews (Fig. 8) and snakes (Fig. 9).

English: Plain fabric with edging bandage.

Italian: Tessuto a tela con benda perimetrale di chiusura.

French: Tissu uni avec bandelette en bordure.



Fig. 8: Shrew mummy (Djehuty Project, no. 6492). L. 7 cm; a. Top view; b. Bottom view. TT11-TT12, Dra Abul Naga, Thebes. Ptolemaic period, possibly reign of Ptolemy V. Photo by Salima Ikram, courtesy Proyecto Djehuty.



Fig. 9: Snake mummy (Turin, Museo Egizio, P. 1515/2). L. 12 cm, W. 7.5 cm. Provenance unknown. 360-200 BC (¹⁴C of the textile). Photo: Museo Egizio, Turin.

Subtype A3 – Plain fabric with asterisk pattern

Plain fabric with an asterisk pattern made of bandages, folded on both sides, positioned and fastened by dots of resinous material.

This pattern is usually found on the top of small packages containing snakes, though it might be used for other reptiles (Fig. 10).

English: Plain fabric with asterisk pattern.

Italian: Tessuto a tela con decorazione ad asterisco.

French: Tissu uni avec motif en astérisque.



Fig. 10: Reptile mummy (London, British Museum, EA 52921). D. 8.5 cm. Abydos. Ptolemaic Period. Photo: ©The Trustees of the British Museum.

Subtype A4 – Plain fabric secured by linen threads

Plain fabric kept in place by threads usually made of linen. The fabric often consists of small fragments pieced together and overlapped. In this type of wrapping, fragments of basket-weave textiles are frequently found. The strings seem to be placed randomly, without following a distinct pattern. It is not always clear

if this was intended to be the outer, visible, wrapping.

This kind of wrapping is usually found on young crocodiles (Fig. 11).

English: Plain fabric kept in place by linen threads.

Italian: Tessuto a tela tenuto in posizione da fili di lino.

French: Tissu uni maintenu par des fils de lin.



Fig. 11: Crocodile mummy (Turin, Museo Egizio, P. 1458/12). L. 27.5 cm, W. 4.5 cm. Provenance unknown. 210-40 BC (¹⁴C of the textile). Photo: Museo Egizio, Turin.

Subtype A5 – Plain fabric secured by vegetal strips

Plain fabric kept in place by vegetal strips, often made from palm leaves or papyrus stems/pith. Wrapped around the mummy, they often seem to be placed randomly, without following a distinct pattern.

This mode of wrapping is usually found on fish (Fig. 12).

English: Plain fabric kept in place by vegetal strips.

Italian: Tessuto a tela tenuto in posizione da strighe vegetali.

French: Tissu uni avec fibres végétales.



Fig. 12: Fish mummy (Turin, Museo Egizio, S. 19691/3). L. 28 cm, W. 10 cm. Provenance and date unknown. Photo: Museo Egizio, Turin.

Subtype A6 – Plain fabric with horizontal and/or vertical bands

Plain fabric decorated with a series of horizontal bands that are overlapped by another set of vertical bands. The two series of bands are not intertwined with each other (like in Subtype C1).

This pattern is usually found on cats; several examples were discovered in 2019 amongst a large cache of mummified animals at the Bubasteion at Saqqara.²² The legs are often found spirally wrapped,

and in some cases the hindlegs and tail are then tied together, which can also be done with the forelegs (Fig. 13).

English: Plain fabric with horizontal and/or vertical decorative bands.

Italian: Tessuto a tela con decorazione a bande orizzontali e/o verticali.

French: Tissu uni décoré de bandes horizontales et/ou verticales.



Fig. 13: Cat mummy (Sharm el-Sheikh Museum, number pending). L. 36 cm. Bubasteion, Saqqara. Probably Ptolemaic Period. Photo: ©Ministry of Tourism and Antiquities' Press Office. Photo by Ayman Damarany.

Subtype A7 – Plain fabric with appliqué

The mummy bundle is covered with a plain cloth decorated with an appliqué made of textiles of different colours (Fig. 14).

English: Plain fabric with appliqué.

Italian: Tessuto a tela con motivo decorativo applicato.

French: Tissu uni avec appliqué.



Fig. 14: Mummy bundle from the Ibis Catacombs (Cairo, Egyptian Museum, CG 29692). L. 39 cm. Saqqara. Date unknown. Photo: ©Egyptian Museum, Cairo, Animal Mummy Project. Photo by Anna-Marie Kellen.

Subtype A8 – Plain fabric with painted decoration

The mummy bundle is covered with a plain piece of textile that is then enhanced with a painted decoration (Fig. 15).

English: Plain fabric with painted decoration.

Italian: Tessuto a tela con decorazione dipinta.

French: Linceul uni avec décoration peinte.



Fig. 15: Ibis mummy (New York, Metropolitan Museum of Art, 90.6.109). L. 40.5 cm. Saqqara. Date unknown. Photo: ©The Metropolitan Museum of Art, New York.

Subtype A9 – Plain fabric with criss-crossed bandages

Plain fabric kept in place by vertical, horizontal, and diagonal bands creating a criss-cross pattern. The bands are not intertwined with each other. The form resembles that of a human mummy.

This pattern is usually found on raptors (Fig. 16).

English: Plain fabric with vertical bands with superimposed diagonal and horizontal bandages.

Italian: Tessuto a tela decorato con bende verticali e bende diagonali e orizzontali sovrapposte.

French: Tissu uni décoré de bandelettes verticales surmontées de bandelettes diagonales et horizontales.



Fig. 16: Raptor mummy (Cairo, Egyptian Museum, CG 29682). L. 39.5 cm. Perhaps Saqqara. Date suggested: 2nd–4th century AD. Photo: ©Egyptian Museum, Cairo, Animal Mummy Project. Photo by Anna-Marie Kellen.

Subtype A10 – Plain fabric with a net pattern and horizontal bands

Plain fabric decorated with a net pattern, made from linen threads (sometimes dyed pink/red) juxtaposed and interlaced to form regular lozenges of different widths. The background fabric can be monochrome or can consist of alternating dyed and undyed bands. Corresponding to the edges of each band (dyed or not), the diagonal threads are held in place by bundles of the same threads placed horizontally, with both an aesthetic and a functional role. Threads and textiles are kept in place by dots of

a resinous material.

This kind of decoration is found on the ventral side of animals (the front of cats) (Fig. 17) or over the whole surface of conical-shaped ibis mummies (Fig. 18).

English: Plain fabric with a net pattern over coloured horizontal bands.

Italian: Tessuto a tela con motivo decorativo a rete su fasce policrome alternate.

French: Tissu uni avec filet sur des bandes horizontales polychromes.

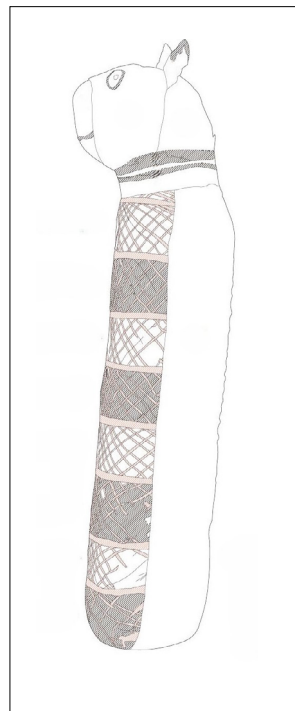


Fig. 17: Cat mummy (Turin, Museo Egizio, C. 2348/2). L. 54 cm. Provenance unknown. Probably Late Period – Ptolemaic Period. Photos: Museo Egizio, Turin. Pattern drawing of the side view by Valentina Poletto.



Fig. 18: Ibis mummy (Cairo, Egyptian Museum, CG 29873). L. 39 cm. Saqqara. Date unknown. Photo: ©Egyptian Museum, Cairo, Animal Mummy Project. Photo by Anna-Marie Kellen.

Subtype A11 – Plain fabric reinforced by a net pattern and criss-crossed dyed bandages

Plain fabric decorated with a net pattern, made from linen threads (sometimes dyed pink/red), juxtaposed and interlaced to form regular lozenges of different widths. The net pattern is reinforced by criss-crossed dyed bandages (Fig. 19).

English: Plain fabric with net pattern and criss-crossed reinforcing bands.

Italian: Tessuto a tela con motivo decorativo a rete e bende di rinforzo trasversali.

French: Tissu uni avec filet et bandes de renfort entrecroisées.



Fig. 19: Cat mummy (London, British Museum, EA 6756). L. 49.5 cm. Provenance and date unknown. Photo: ©The Trustees of the British Museum.

3.2. Type B – Overlapping bandages in a spiral motif

The decorative pattern is made by overlapping bandages (with just one side folded in upon itself), sometimes of different colours, which envelop the body continuously. The bandages are held in tension by the twisting of the spiral itself and by dots of resinous material, conveniently hidden underneath the adjacent textiles.

In the herringbone patterns (Subtypes B4–B6), the sides and base of the animal are often protected by pieces of fabric, which cannot be strictly consid-

ered part of the decorative pattern.

The types (numbered in sequence) are identified according to the way that the bandages are wrapped around the body and the resulting pattern.

- Subtype B1: spiral
- Subtype B2: monochrome herringbone
- Subtype B3: polychrome herringbone
- Subtype B4: herringbone with appliqué
- Subtype B5: herringbone in a diamond pattern
- Subtype B6: herringbone with small or large insets.

Subtype B1 – Spiral

The decorative pattern is made by overlapping bandages (often with just one side folded in upon itself) that envelop the body in a series of spirals. Alternating undyed and dyed textiles are frequently observed. The spiral can have an “S” or “Z” direction. The bandages are kept in place by the overlap of the subsequent coil of the bandages, sometimes reinforced by dots of resinous material.

This kind of pattern is usually found in mummies that are cylindrical or skittle-shaped (cats, dogs) (Fig. 20). The pattern can also be combined with other types of wrappings in larger animals (it is used to decorate the tails of crocodiles, for example).

English: Mono-/polychrome spiral.

Italian: Spirale monocroma o policroma.

French: Spirale mono-/polychrome.



Fig. 20: Cat mummy (London, British Museum, EA 65502). L. 39 cm. Provenance and date unknown; This particular design on cats, with its characteristic painted face, however, seems to originate from Stabl Antar. Photo: ©The Trustees of the British Museum.

Subtype B2 – Monochrome herringbone

The decorative pattern is made by overlapping undyed bandages (with just one side folded in upon itself) wrapped around the animal, forming a herringbone pattern with a “V” at the front of the mummy. Bandages can be kept in place by dots of resinous material.

This type of wrapping is frequently observed on a variety of animals (cat, dog, raptor, ibis, etc.) whose mummies are elongated or look like human mummies (Fig. 21).

English: Monochrome herringbone.

Italian: Spina di pesce, monocromo.

French: Chevron monochrome.



Fig. 21: Raptor mummy (London, British Museum, EA 68006). H. 40 cm. Saqqara. Date unknown. Photo: ©The Trustees of the British Museum.

Subtype B3 – Polychrome herringbone

The decorative pattern is made by overlapping undyed and dyed bandages (with just one side folded in upon itself) wrapped around the animal, forming a herringbone pattern with a “V” at the front of the mummy.

This type of wrapping is found on many animals (cat, dog, raptor, ibis, etc.), and in mummy bundles that can be stood upright (Fig. 22).

English: Polychrome herringbone.

Italian: Spina di pesce con bende policrome.

French: Chevron polychrome.

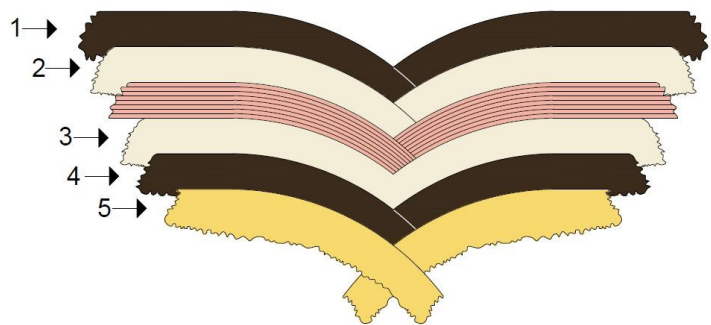


Fig. 22: Cat mummy (Turin, Museo Egizio, C. 2349/4). L. 30.2 cm. Provenance and date unknown. Photo: Museo Egizio, Turin. Pattern drawing by Valentina Poletto.

Subtype B4 – Herringbone with appliqué

The decorative pattern is made by overlapping bandages (with just one side folded in upon itself) wrapped around the animal, forming a herringbone pattern with a “V” at the front of the mummy. It can be decorated with different motifs appliquéd on the front.

This type of wrapping is most frequently observed on birds (Fig. 23)

English: Herringbone with appliqué.

Italian: Spina di pesce con decorazione applicata.

French: Chevron avec appliqué.



Fig. 23: Ibis mummy (London, British Museum, EA 67149). L. 47 cm. Saqqara. Date unknown. Photo: ©The Trustees of the British Museum.

Subtype B5 – Herringbone in a diamond pattern

The decorative pattern is made by overlapping bandages (with just one side folded in upon itself) wrapped around the animal, forming a series of herringbones creating “V” shapes that are divided into diamonds by cross bands. The decoration extends over the entire surface of the mummy.

This type of wrapping is frequently observed in elongated mummy bundles and is used primarily on birds (Fig. 24), but cats²³ are also known (Fig. 25).

English: Herringbone in a diamond pattern.

Italian: Spina di pesce con motivo a diamante.

French: Chevron avec motif en forme de diamant.



Fig. 24: Ibis mummy (London, British Museum, EA 68219). L. 42 cm. Saqqara. Date unknown. Photo: ©The Trustees of the British Museum.



Fig. 25: Cat mummy (Naples, S.A.I., Museo Scerrato, 68). L. 54.5 cm. Provenance unknown. 390-340 BC (¹⁴C of the textile). Photo by Diletta Pubblico.

Subtype B6 – Herringbone with small or large insets

The decorative pattern is made by horizontal overlapping bandages (with just one side folded in upon itself) wrapped around the bird's neck, forming a herringbone pattern in the front with small (Fig. 26) or large insets (Fig. 27). The tips of the herringbone pattern are enhanced by what appear to be small triangular insets, but are actually horizontal bandages covered by the herringbone ones. The bandages are sometimes dyed in different alternating colours. The animal's sides are covered by pieces of fabric that are not strictly part of the decorative scheme, but serve a more practical purpose

by stabilising both the bundle's contents and the inner wrapping.

This type of wrapping is frequently observed on ibis mummies positioned with the animal lying on its back with the beak resting on its ventral side and the legs drawn up to the body.

English: Herringbone with undyed and polychrome bandages with insets.

Italian: Spina di pesce con bende non tinte e polichrome con inserti trasversali.

French: Chevron formé de bandelettes unies ou polychromes avec encarts.



Fig. 26: Ibis mummy (Turin, Museo Egizio, S. 8189). L. 31 cm, W. 7.8 cm. Asyut. Probably 5th to 1st century BC. Photo: Museo Egizio, Turin. Pattern drawing by Valentina Poletto.



Fig. 27: Ibis mummy (Turin, Museo Egizio, S. 8188). L. 34 cm, W. 12.4 cm. Asyut. Probably 5th to 1st century BC. Photo: Museo Egizio, Turin.

3.3. Type C – Simple orthogonal interweaving

The pattern is realised through the orthogonal interweaving of vertical and horizontal bandages (with the edges folded on one or both sides), with a technique very close to, and possibly inspired by, weaving.

The final effect of the design is enhanced by the use of bandages dyed in different colours, kept under tension and in place by dots of resinous material. There is no stitching.

Generally, this type of decoration is found on the ventral side of smaller animals (dogs, cats, birds of prey) or on the dorsal side of bigger ones, like crocodiles.

The types (numbered in sequence) are identified according to the way the bandages are interwoven:

- Subtype C1: monochrome tabby interweaving
- Subtype C2: polychrome tabby interweaving
- Subtype C3: polychrome chevron twill interweaving
- Subtype C4: polychrome crenellated interweaving.

Subtype C1 – Monochrome tabby interweaving

The pattern is executed through the orthogonal interweaving of undyed vertical and horizontal bandages (with the edges folded on both sides) in the same way as a tabby weave (Fig. 28).

English: Monochrome tabby plaiting.

Italian: Intreccio a tela monocromo.

French: Tressage en damier monochrome.



Fig. 28: Cat mummy (Paris, Louvre, N 3505). L. 99 cm. Provenance unknown. Graeco-Roman period. Photo: ©2004 Musée du Louvre. Photo by Christian Décamps.

Subtype C2 – Polychrome tabby interweaving

The pattern is achieved through the orthogonal interweaving of undyed and dyed vertical and horizontal bandages with a tabby weave. The edges of the bandages can be folded or unfolded on both sides.

The interweaving of brown-dyed vertical bandages and undyed horizontal bandages produces a chessboard pattern (Fig. 29).

English: Polychrome tabby weave with chessboard pattern.

Italian: Intreccio a tela policromo a scacchiera.

French: Tressage en damier polychrome.



Fig. 29: Dog mummy (New York, Metropolitan Museum of Art, 13.182.50). L. 28 cm. El-Deir, Kharga. Date unknown. Photo: ©The Metropolitan Museum of Art, New York.

Subtype C3 – Polychrome chevron twill interweaving

The pattern is obtained through the orthogonal interweaving of undyed and dyed vertical and horizontal bandages with a chevron twill pattern resulting in a V-shaped motif. The edges of the bandages are usually folded on both sides.

This type of wrapping is found on birds (Fig. 30) and cats (Fig. 31).

English: Polychrome chevron twill plait with a V-shaped motif.

Italian: Intreccio diagonale a spina di pesce con motivo a V.

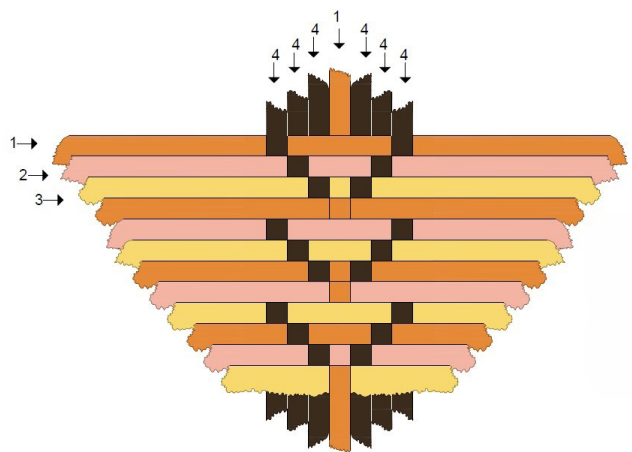
French: Tressage en chevron polychrome.



Fig. 30: Dog mummy (New York, Metropolitan Museum of Art, 13.182.50). L. 28 cm. El-Deir, Kharga. Date unknown. Photo: ©The Metropolitan Museum of Art, New York.



Fig. 31: Cat mummy (Turin, Museo Egizio, C. 2349/1, L: 30.3 cm). Provenance and date unknown. Photo: Museo Egizio, Turin. Pattern drawing by Valentina Poletto.



**Subtype C4 – Polychrome crenellated
interweaving**

The pattern is obtained through the orthogonal interweaving of undyed and dyed vertical and horizontal bandages in a pattern resulting in a crenellated motif. The edges of the bandages are usually folded on both sides.

This type of decoration can be found on the ventral side of cat mummies (Fig. 32) and around ibis mummies.

English: Polychrome crenellated interweaving.

Italian: Intreccio policromo merlato.

French: Tressage crénelé polychrome.



Fig. 32: Cat mummy (British Museum EA 37348). L. 46 cm.
Abydos. Date unknown. Photo: ©Trustees of the British
Museum.

3.4. Type D – Coffers (complex orthogonal interweaving)

The pattern is achieved through the orthogonal interweaving of several vertical and horizontal bandages (with the edges folded only on one side), arranged in coffers, which can be replicated across several columns and rows. The bandages are held in tension by their interlacing and by the addition of dots of resinous material, conveniently hidden underneath the adjacent textiles. No stitching is used.

Each coffer is framed and separated from adjacent ones by a bandage (folded on both sides), sometimes in a contrasting colour, which serves both to enhance the design and to structurally maintain the decoration in place. Many of these “framing” bandages have disintegrated over time, as they were not

woven into the structure and were originally only stuck in place by a resinous substance.

The types are identified according to the final visual pattern obtained through the interweaving of differently coloured bandages. The description/definition of each pattern is based on the visual effect of the surviving dark-coloured elements. Relying on any other dyed elements (not brown), which may be discoloured/faded, would be too unreliable at the present stage of research. This is a methodological choice, but a necessary one in order to establish our typology.

- Subtype D1: simple coffer
- Subtype D2: quarter-coloured coffer
- Subtype D3: diagonally coloured coffer
- Subtype D4: polychrome mirrored stepped pattern
- Subtype D5: meander coffer.

Subtype D1 – Simple coffer

The pattern is achieved by the orthogonal interweaving of several vertical and horizontal bandages with the edges folded only on one side and arranged in coffers, which can be replicated over several columns and rows. The bandages are held in tension by their interlacing and by the addition of resinous dots, conveniently hidden underneath the adjacent textiles.

Each coffer is framed and separated from adja-

cent ones by a bandage, sometimes in a contrasting colour, giving a polychrome effect.

Generally, this type of decoration is found on the ventral side of dogs, cats, birds of prey, or on the back of crocodiles, but there are cases in which it also appears on the sides and back of ibis mummies (Fig. 33).

English: Simple coffer.

Italian: Cassettone semplice.

French: Caisson simple.

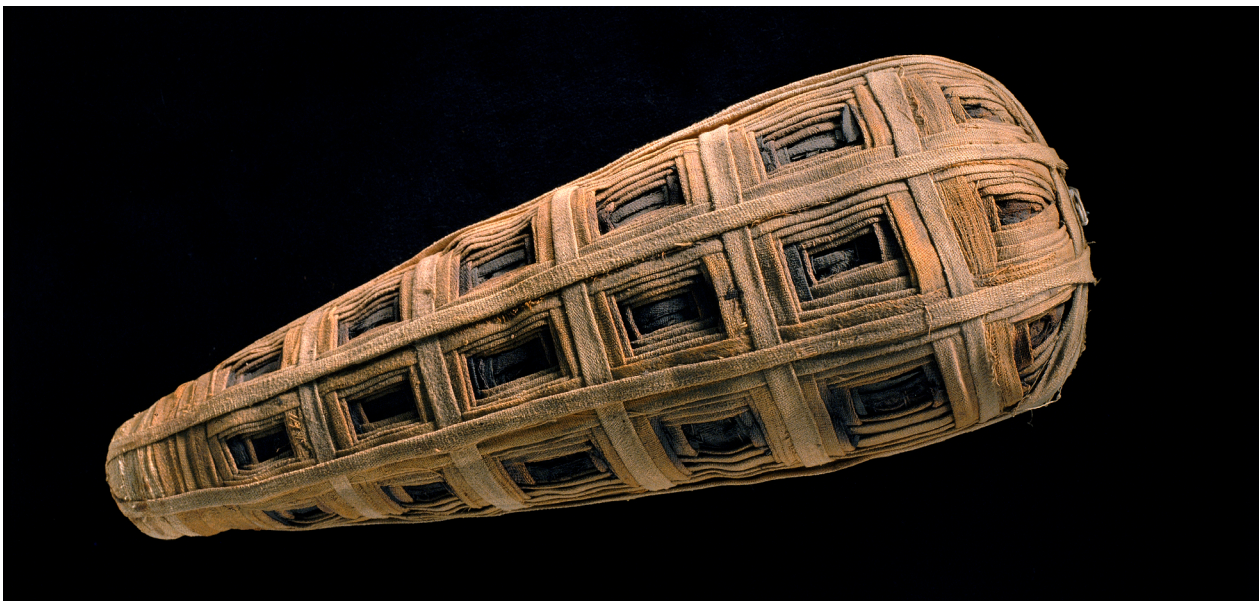


Fig. 33: Ibis mummy from a pottery jar (Cairo, Egyptian museum, CG 29864). L. 38 cm. Saqqara. Possibly 1st to 3rd century AD. Photo: ©Egyptian Museum, Cairo, Animal Mummy Project. Photo by Anna-Marie Kellen.

Subtype D2 – Quarter-coloured coffer

The pattern uses the same interweaving techniques discussed in Subtype D1, the main difference being the polychrome bandages, which are used to form a different pattern. In this subtype, a quarter of each coffer is created with bands of contrasting colours.

Generally, this kind of decoration is found on

the ventral side of dogs, cats or birds of prey, and on the front of snake mummies (Fig. 34) or the back of crocodiles, but there are cases in which it also appears on the sides and back of ibis mummies.

English: Quarter-coloured coffer.

Italian: Cassettone con un quarto colorato.

French: Caisson avec un quart coloré.

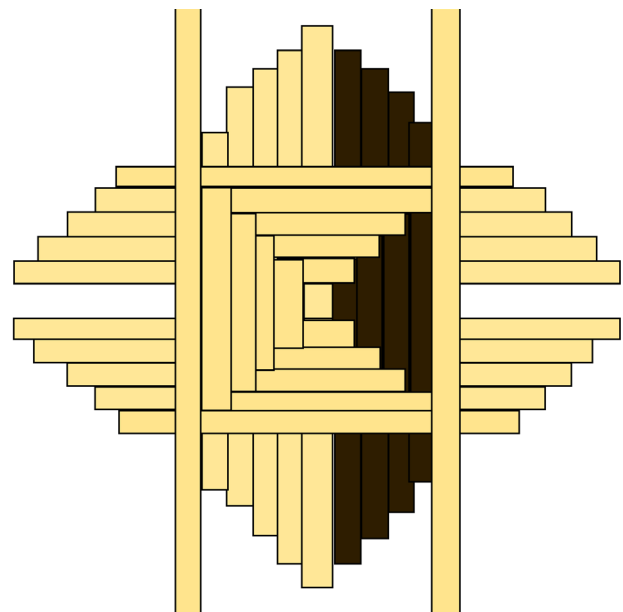


Fig. 34: Snake mummy (London, British Museum, EA 35493). L. 21.3 cm. Provenance and date unknown. Photo: ©The Trustees of the British Museum. Pattern drawing showing a single complete coffer and an extension that explains the mode of weaving. Drawing by Valentina Poletto.

Subtype D3 – Diagonally coloured coffer

The pattern uses the same interweaving techniques discussed in Subtype D1, the main difference being that the polychrome bandages are used to form a different pattern. In this type, each coffer is divided into two diagonal halves, creating triangles of contrasting colours.

Generally, this type of decoration is found on the ventral side of dogs, cats (Fig. 35), birds of prey, or on the back of crocodiles, but it also appears on the sides and back of ibis mummies.

English: Diagonally coloured coffer.

Italian: Cassettone colorato diagonalmente.

French: Caisson coloré diagonalement.

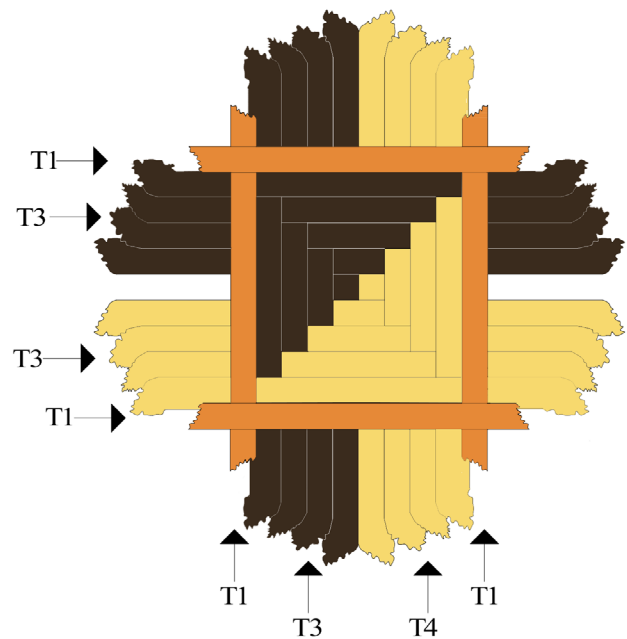


Fig. 35: Cat mummy (Turin, Museo Egizio, C. 2349/6). H. 35 cm, D. 22 cm. Provenance and date unknown. Photo: Museo Egizio, Turin. Pattern drawing by Valentina Poletto.

Subtype D4 – Polychrome mirrored stepped pattern

The pattern uses the same interweaving techniques discussed in Subtype D1, but to form a different pattern. In Subtype D4, each coffer consists of bandages creating a mirrored step-pyramid pattern with vertical or horizontal orientations, using the darker-coloured bandages to define the orientation.

Generally, this sort of decoration is found on the

ventral side of dogs, cats (Fig. 36) or birds of prey, or on the back of crocodiles, but there are cases in which it also appears on the sides and back of ibis mummies (Fig. 37).

English: Polychrome mirrored stepped pattern.

Italian: Motivo policromo speculare a gradoni.

French: Motif en escalier polychrome en miroir.

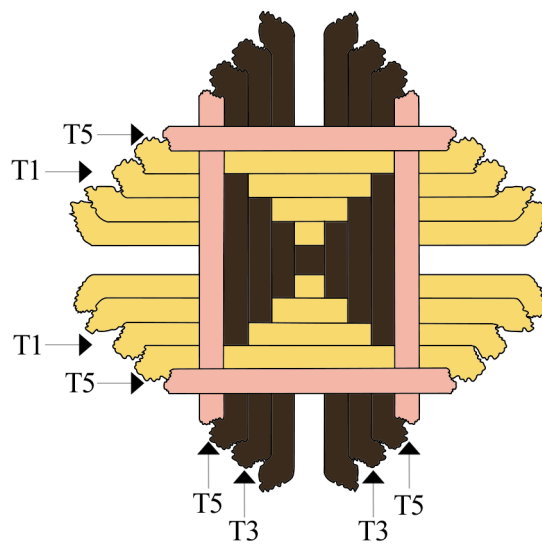


Fig. 36: Cat mummy (Turin, Museo Egizio, C. 2349/5). H. 41 cm. Provenance and date unknown. Photo: Museo Egizio, Turin. Pattern drawing by Valentina Poletto.

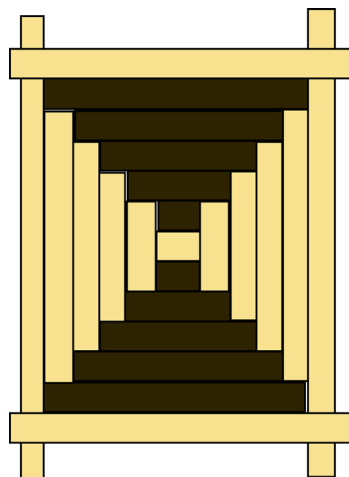


Fig. 37: Ibis mummy (London, British Museum, EA 53937). L. 35.5 cm. Abydos. Date unknown. Photo: ©The Trustees of the British Museum. Pattern drawing by Valentina Poletto.

Subtype D5 – Meander coffer

The pattern uses the same interweaving techniques discussed in Subtype D1, but to form a different pattern. In Subtype D5, each coffer has a meander pattern.

Generally, this type of decoration is found on the chest of cattle (Fig. 38), the ventral side of dogs, cats, birds of prey, or the back of crocodiles, but there are cases in which it also appears on the sides and back of ibis mummies.

English: Polychrome meander coffer.

Italian: Cassettone a meandro policromo.

French: Caisson à méandre polychrome.

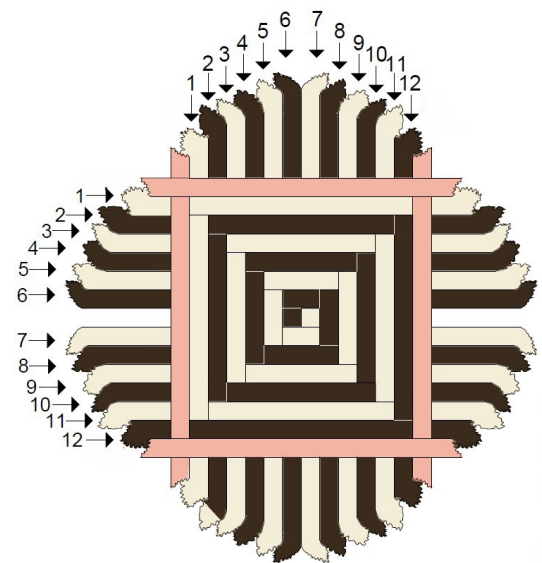


Fig. 38: Cattle mummy (Turin, Museo Egizio, C. 2343/1). L. 67 cm, W. 43 cm, H. 47 cm. Provenance unknown. 540–210 BC (^{14}C of the textile). Photo: Museo Egizio, Turin. Pattern drawing by Valentina Poletto.

3.5. Type E – Hybrid technique

Patterns obtained by combining two or more of the above types will be called “hybrids”. More subtypes could be added to the ones below.

- Subtype E1: hybrid diamond coffer
- Subtype E2: D-shape.

Subtype E1 – Hybrid diamond coffer

The diamond coffer is considered a hybrid type as it is achieved by combining the features of Type B with those of Type D.

The pattern, as in Type D, is achieved through the orthogonal interweaving of vertical and horizontal bandages (with the edges folded only on one side), arranged in diamond-shaped coffers. In some instances, the diamond pattern is repeated on the dorsal side as well. Each coffer is framed and separated from adjacent ones by a bandage (folded on both sides), sometimes in a contrasting colour, which serves both to enhance the design and to structurally maintain the decoration in place.

Thus, the bandages are not arranged in a plain and orthogonal structure, as in Type D, but each bandage is entirely wrapped around the body in a continuous manner, as in Type B.

This type is usually found on the ventral surface of animals like raptors (Fig. 39), cats (Fig. 40), dogs, etc., though it may be repeated over the entire surface of the animal.

English: Hybrid diamond coffer (Type B+D).

Italian: Cassettone a diamante ibrido (Tipo B+D).

French: Caisson en forme de diamant hybride (Type B+D).



Fig. 39: Raptor mummy (Turin, Museo Egizio, P. 1460/13). H. 22.3 cm. Provenance unknown. 390–170 BC (¹⁴C of the textile). Photo: Museo Egizio, Turin. Pattern drawing by Valentina Poletto.

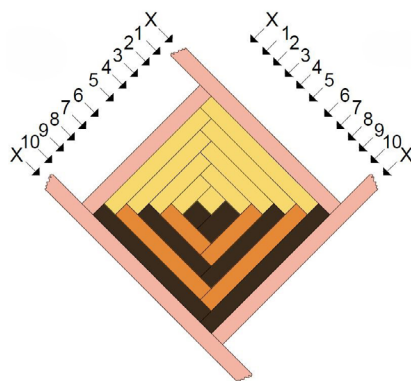


Fig. 40: Cat mummy (London, British Museum, EA 55614). L. 45.5 cm. Provenance and date unknown. Photo: ©The Trustees of the British Museum.

Subtype E2 – D-shaped

The decorative pattern is made of horizontal overlapping bandages (with just one side folded in upon itself) wrapped around the bird, forming a squared or elongated D-shaped pattern that uses the methodology of herringbone types (e.g., Subtypes B2 or B3). The number of layers can vary, and sometimes they are dyed in different alternating colours. The animal's sides are covered by pieces of fabric.

An appliqué can be added on the plain part of the shroud. Thus far only one such example has been noted (on an ibis mummy) (Fig. 41).

English: Elongated D-shaped herringbone polychrome motif.

Italian: Spina di pesce a forma di D allungata polichroma.

French: Chevron en forme de D allongé polychrome.



Fig. 41: Ibis mummy (Turin, Museo Egizio, S. 11029). L. 37.6 cm, W. 12.2 cm. Asyut. Probably 5th to 1st century BC. Photos: Museo Egizio, Turin.

Annex 1: Typology of shapes

Animal mummies take many forms. Sometimes they mimic the animal (in various poses) that they contain, or are meant to contain, while in other instances they are wrapped in a more standardised

package: square, rectangular, drop-shaped, or roughly circular. The same animal can be wrapped in a variety of ways, and it is yet to be determined if variations are based on diachronic change, provenance, or atelier. It is quite possible that cost might have played a part, but this too is unestablished as yet.²⁴

Rectangular (Fig. 42)

English: Rectangular.

Italian: Rettangolare.

French: Rectangulaire.



Fig. 42: Subtype D2. Snake mummy (London, British Museum, EA 35493). L. 21.3 cm, W. 9.5 cm. Provenance unknown. Ptolemaic Period. Photo: ©The Trustees of the British Museum.

Square (or square with rounded corners) (Fig. 44)

English: Square (or square with rounded corners).

Italian: Quadrangolare (o quadrangolare con angoli arrotondati).

French: Carré (ou carré aux angles arrondis).



Fig. 43: Subtype A2. Shrew mummy with an edging bandage (TT11-TT12, no. 6492). L. 7 cm, W. 5.1 cm. Photo by Salima Ikram. Courtesy TT11-TT12 Djehuty Project.

Circular (Fig. 44)

English: Circular.

Italian: Circolare.

French: Circulaire.



Fig. 44: Subtype A3. Reptile mummy (London, British Museum, EA 52921). D. 8.5 cm. Abydos. Ptolemaic Period. Photo: ©The Trustees of the British Museum.

Teardrop (flattened) (Fig. 45)

English: Teardrop (flattened).

Italiano: A goccia (schiacciata).

French: En forme de goutte (aplatie).



Fig. 45: Subtype B4. Ibis mummy (London, British Museum, EA 67149). L. 47 cm. Saqqara. Date unknown. Photo: ©The Trustees of the British Museum.

Conical (Fig. 46)

English: Conical.

Italian: Conica.

French: Conique.



Fig. 46: Bundle of linen found in an ibis cemetery (Cairo, Egyptian Museum CG 29872). L. 37.3 cm, W. 11.2 cm. Photo: ©Egyptian Museum, Cairo, Animal Mummy Project. Photo by Anna-Marie Kellen.

Reclining ibis with head and beak in relief (Fig. 47)

English: Reclining ibis with head and beak in relief.

Italian: Ibis reclinato con testa e becco in rilievo.

French: Ibis couché avec tête et bec en relief.



Fig. 47: Subtype E2. Ibis mummy (Turin, Museo Egizio, S. 11029). L. 37.6 cm, W. 12.2 cm. Asyut. 5th to 1st century BC. Photo: Museo Egizio, Turin.

Skittle/cylindrical (with or without detailed head, painted or enhanced with appliqué) (Figs. 48–49)

English: Skittle/cylindrical (with or without detailed head, painted or enhanced with appliqué).

Italian: A birillo/cilindrico (con o senza dettagli applicati o dipinti).

French: En forme de quille/cylindrique (avec ou sans tête détaillée, peinte ou rehaussée d'un appliqué).



Fig. 48: Cat mummy (Turin, Museo Egizio, C. 2349/3). L. 39 cm. Provenance and date unknown. Photo: Museo Egizio, Turin.

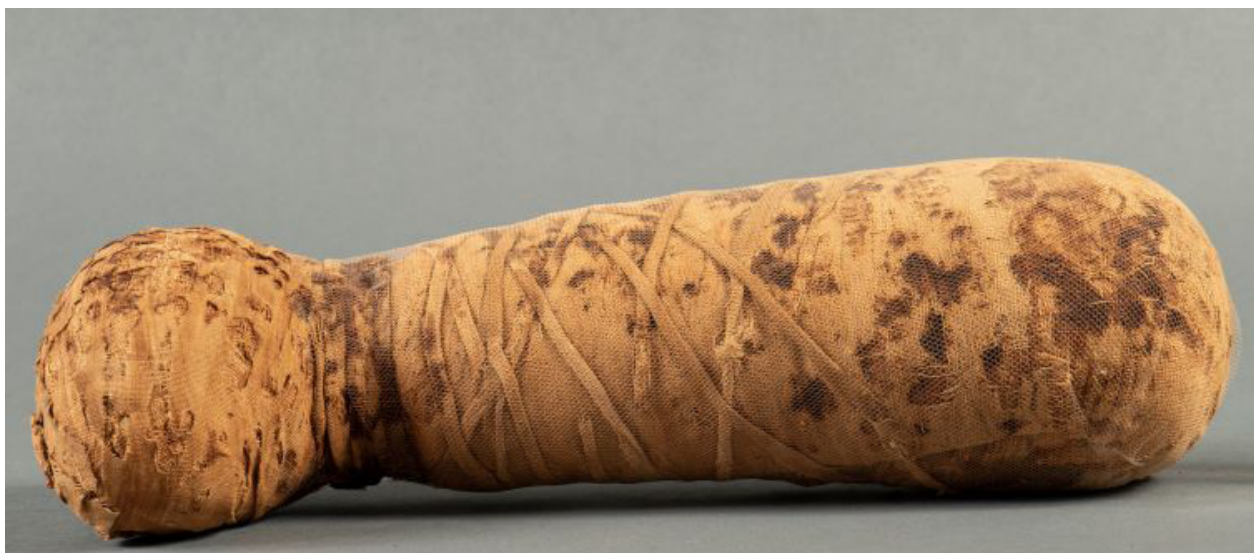


Fig. 49: Cat mummy (Turin, Museo Egizio, P. 1442). L. 32 cm. Provenance and date unknown. Photo: Museo Egizio, Turin.

Teardrop with modelled head (Fig. 50)

English: Teardrop with modelled head.

Italian: A goccia con testa modellata.

French: En forme de goutte avec tête modelée.

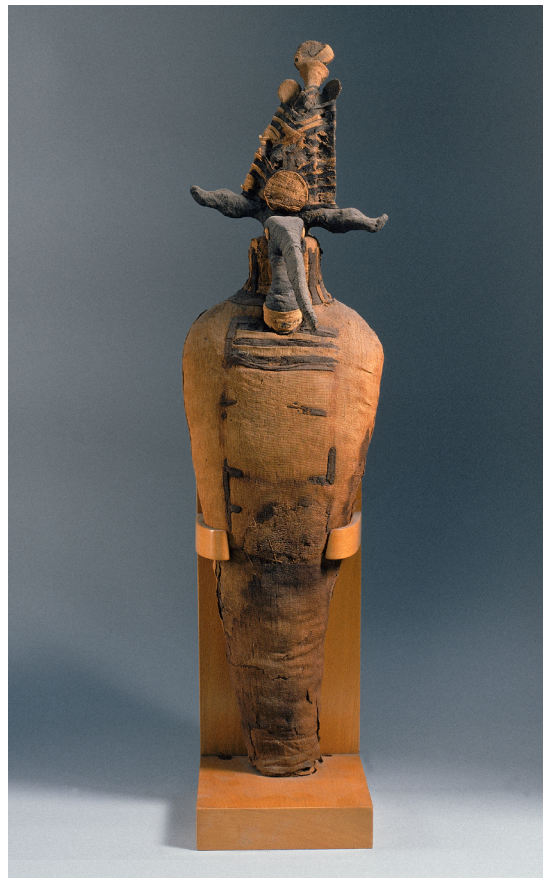


Fig. 50: Ibis mummy (Cairo, Egyptian Museum, CG 29868). L. 68 cm. Abydos. Date unknown. Photo: ©Egyptian Museum, Cairo, Animal Mummy Project. Photo by Anna-Marie Kellen.

Animal form: standing (Fig. 51)

English: Animal form: standing.

Italian: Forma animale: stante.

French: Forme animale: debout.



Fig. 51: Cat mummy (Sharm el-Sheikh Museum, number pending). L. 36 cm. Bubasteion, Saqqara. Probably Ptolemaic Period. Photo: ©Ministry of Tourism and Antiquities' Press Office. Photo by Ayman Damarany.

Animal form: couchant (Fig. 52)

English: Animal form: couchant.

Italian: Forma animale: accucciato.

French: Forme animale: couchée.



Fig. 52: Subtype D6. Cattle mummy (Turin, Museo Egizio, C. 2343/1). L. 67 cm, W. 43 cm, H. 47 cm. Provenance unknown. 540-210 BC. Photo: Museo Egizio, Turin.

Anthropomorphic mummiform (Fig. 53)

English: Anthropomorphic mummiform.

Italian: Mummiforme antropomorfo.

French: Momiforme anthropomorphe.



Fig. 53: Subtype E1. Raptor mummy (Turin, Museo Egizio, P. 1460). L. 22.3 cm, W. 3.7 cm. Provenance and date unknown. Photo: Museo Egizio, Turin.

Annex 2: Glossary

Tabby weave (also called plain weave)

The most basic of textile weaves, where a weft yarn (pick) passes over and under the warp yarns (ends). In the next row the weft passes under one end and over the next, thus forming an interlocking structure (Fig. 54).²⁵

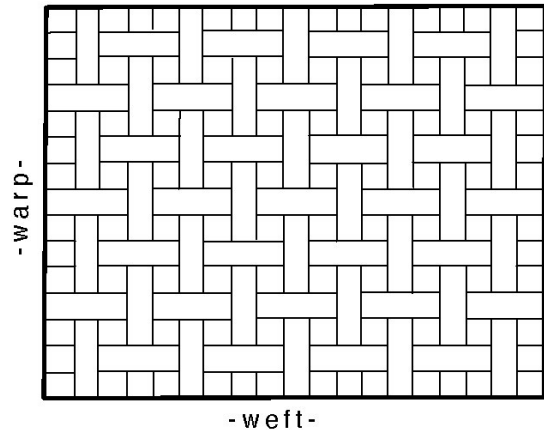


Fig. 54: Tabby weave. Drawing by Pieter Collet, after Kemp and Vogelsang-Eastwood, *Amarna*, 2001, fig. 4.4, p. 92.

Basket weave (also called extended weave)

A tabby weave in which warp ends or weft picks, or both, move in groups of two or, more rarely, three (Fig. 55). The pairing can be applied to both warp and weft sets, or just to one of them. In the latter case the term **half-basket** is used (Fig. 56).

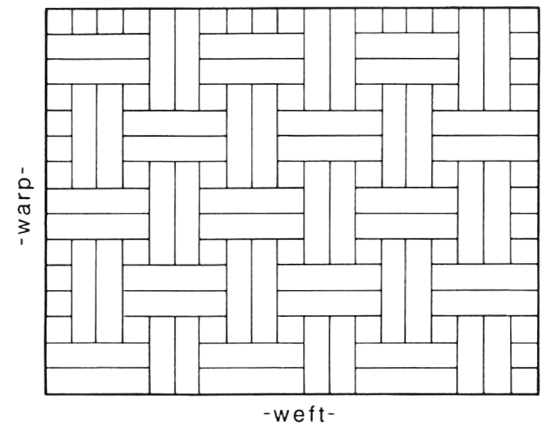


Fig. 55: Basket weave or extended weave. Drawing by Pieter Collet, after Kemp and Vogelsang-Eastwood, *Amarna*, 2001, fig. 4.5, p. 93.

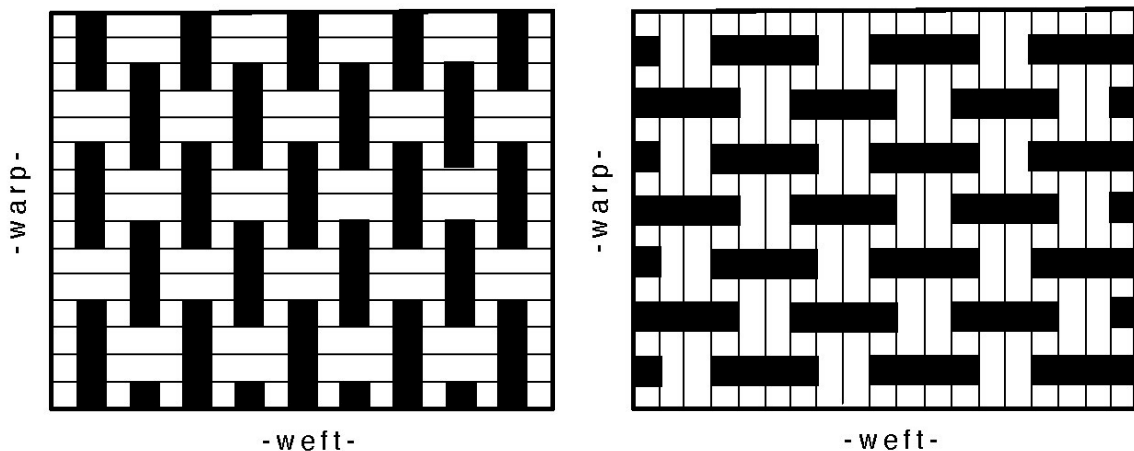


Fig. 56: Half-basket weave; Drawing by Pieter Collet, after Kemp and Vogelsang-Eastwood, *Amarna*, 2001, fig. 4.6, p. 93.

Twill

A weave based on a unit of three or more warps and three or more wefts, in which each warp passes over two or more adjacent wefts and under the next one or more, and under two or more adjacent wefts and over the next one or more (Fig. 57).

The visual effect is that of a series of diagonal lines, which can have an “S” or “Z” direction.²⁶

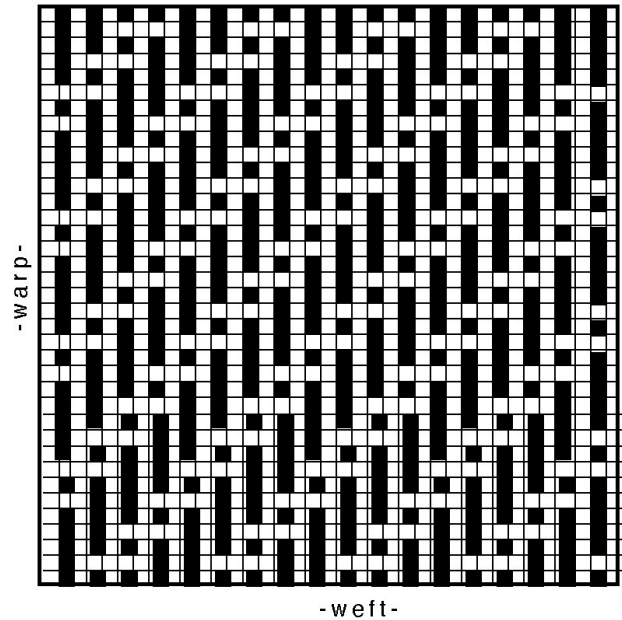


Fig. 57: Twill. Drawing by Pieter Collet, after Burnham, *Textile Terminology*, 1980, pp. 154–55.

Chevron twill

Any form of twill in which the direction of the diagonal lines is reversed over groups of warps or wefts. It is a warp chevron twill, or herringbone twill, when the axes of the chevrons lie in the direction of the warp (Fig. 58). In this case, the V-shaped motif appears vertical and it can be defined as a warp chevron twill.

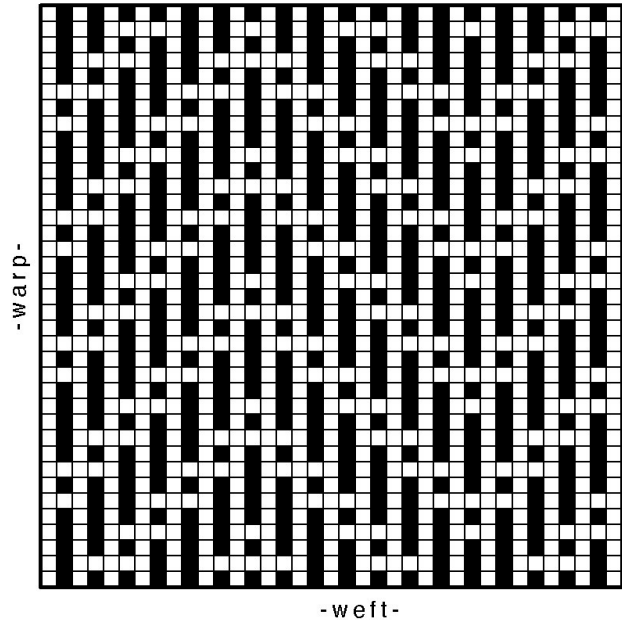


Fig. 58: Chevron twill. Drawing by Pieter Collet, after Burnham, *Textile Terminology*, 1980, p. 23.

Notes

- ¹ For ¹⁴C dating see Richardin et al., *Radiocarbon* 59/2 (2017); Porcier et al., in Porcier et al. (eds.), *Creatures of Earth*, 2019; Ikram et al. (eds.), *The Animal Mummies of the Museo Egizio*, 2024. Thus far, the limited ¹⁴C carried out on animal mummies shows that the latest date to the middle of the 4th century, while texts from the Bucheum testify that the cult survived into the early 5th century, as noted by Dodson, in Ikram (ed.), *Divine Creatures*, 2005². However, it is quite possible that the practice persisted into slightly later times as paganism persisted into the 6th century until Justinian closed the Isis temple at Philae and that of Sobek and Horus at Kom Ombo (for an overview of the documentation for the end of paganism in Egypt, see Tomorad, *JES* (S) IV [2015]).
- ² See Ikram, in Porcier et al. (eds.), *Creatures of Earth*, 2019 for a general overview and history of animal mummy studies.
- ³ Geoffroy Saint-Hilaire, *AMHN* 10 (1807). In another publication he mentions five species, which remains discredited until now (Geoffroy Saint-Hilaire, *Description de l'Égypte*, pp. 243–63).
- ⁴ Hekkala et al., *MOL ECOL* 20/20 (2011); Hekkala et al., *JAS-Rep* 33 (2020).
- ⁵ Lortet and Gaillard, *La faune momifiée*, 1903–1909.
- ⁶ For example, von den Driesch and Boessneck, *TierPrax* 13 (1985); Boessneck, *Tuna el-Gebel I*, 1987; von den Driesch and Kessler, *Einsichten* 1 (1994); von den Driesch et al., in Grupe and Peters (eds.), *Conservation Policy*, 2004; von den Driesch et al., *ÄgLev* 15 (2005); Kessler and Nur el-Din, in Ikram (ed.), *Divine Creatures*, 2005²; von den Driesch and Peters, in Flossmann-Schütze et al. (eds.), *Kleine Götter – Grosse Götter*, 2013.
- ⁷ Emery, *JEA* 51 (1965); Emery, *JEA* 52 (1966); Emery, *JEA* 53 (1967); Emery, *JEA* 55 (1969); Emery, *JEA* 56 (1970); Emery, *JEA* 57 (1971).
- ⁸ Smith, *A Visit to Ancient Egypt*, 1974; Smith and Jeffreys, *JEA* 63 (1977); Smith and Davies, *The Sacred Animal Necropolis*, 2005; Smith et al., *The Sacred Animal Necropolis*, 2006; Smith et al., *The Sacred Animal Necropolis*, 2011.
- ⁹ Smith and Davies, *The Sacred Animal Necropolis*, 2005; Smith et al., *The Sacred Animal Necropolis*, 2006; Smith et al., *The Sacred Animal Necropolis*, 2011.
- ¹⁰ Charron, *RdE* 41 (1990); Charron, *Les animaux et le sacré*, 1996; Charron, in Empereur (ed.), *La gloire d'Alexandrie*, 1998; Tristant et al., *Archéologia* 481 (2010); Charron, in Massiera et al., *Apprivoiser le sauvage*, 2015, to mention but a few publications.
- ¹¹ For example, Ikram, *Choice Cuts*, 1995, Appendix II; Ikram, in Buitenhuis et al. (eds.), *Archaeozoology of the Near East*, 2005; Ikram, in Hawass et al. (eds.), *Proceedings of the Colloquium*, 2011; Ikram, in Ikram (ed.), *Divine Creatures*, 2015; Ikram, in Massiera et al. (eds.), *Apprivoiser le sauvage*, 2015; Ikram, in Porcier et al. (eds.), *Creatures of Earth*, 2019; Ikram et al., in Nicholson et al. (eds.), *The Catacombs of Anubis*, 2021.
- ¹² Ikram, *KMT* 12/4 (2001); Ikram and Helmi, in Hawass and Pinch-Brock (eds.), *Egyptology at the Dawn*, 2003; Ikram, *A Zoo for Eternity*, 2004; Ikram and Iskander,

Catalogue Général, 2002; Ikram (ed.), *Divine Creatures*, 2005².

- ¹³ See Ikram, in Porcier et al. (eds.), *Creatures of Earth*, 2019 for an overview, and the bibliography in Ikram, in Massiera et al. (eds.), *Apprivoiser le sauvage*, 2015. For recent work on animal catacombs, see Nicholson et al., *The Catacombs of Anubis*, 2021.
- ¹⁴ A prospective project to create a database that will focus on this is being launched: see Pubblico, in Pirelli et al. (eds.), *Animals in the Religion, Economy, and Daily Life*, 2023.
- ¹⁵ Emery, *JEA* 53 (1967), p. 4.
- ¹⁶ This paper will not focus on how the wrappings were constructed – some discussions of this are presented in Ikram et al. (eds.), *The Animal Mummies of the Museo Egizio*, 2024.
- ¹⁷ Ikram, *Choice Cuts*, 1995, pp. 237–96; Ikram, *SEP* 1 (2004); Ikram, *Divine Creatures*, 2005².
- ¹⁸ Bosch-Puche and Ikram, in Di Cerbo and Jasnow (eds.), *On the Path to the Place of Rest*, 2022.
- ¹⁹ Lortet and Gaillard, *La faune momifiée*, 1903, pp. 185–87.
- ²⁰ Lortet and Gaillard, *La faune momifiée*, 1903, pp. 78–82; Ikram and Iskander, *Catalogue général*, 2002, p. 11.
- ²¹ The authors are grateful to the various museums (mentioned in the text) for their assistance and support, to J.M. Galán for access to TT 11, and to Federico Poole and the anonymous reviewers, whose remarks made us rethink our categories and achieve greater clarity.
- ²² Waziry, *Vestiges of Ancient Egypt*, 2023, figs. 24, 26, 36.
- ²³ See Pubblico and Oliva, in Porcier et al. (eds.), *Creatures of Earth*, 2019, notably p. 298, fig. 6.
- ²⁴ Also see Borla and Ikram, in Ikram et al. (eds.), *The Animal Mummies of the Museo Egizio*, 2024.
- ²⁵ Kemp and Vogelsang-Eastwood, *Amarna*, 2001, pp. 92–93.
- ²⁶ Burnham, *Textile Terminology*, 1980, pp. 154–55.

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