

Introduction

ARCHAEOLOGICAL PUZZLES IN A MUSEUM

Egyptian Fabrics from the 1st Millennium AD
at the National Museum of Denmark
(Online Exhibition)

2nd edition - 2023
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Making an exhibition

This presentation is the result of a collective work within the research project entitled RECONTEXT "Reconstructing the history of Egyptian textiles from the 1st Millennium AD at the National Museum of Denmark". The project was funded by two Danish foundations: Aage og Johanne Louis-Hansens Fond and Beckett-Fonden, and led in 2021-2022 by Dr Maria Mossakowska-Gaubert. Hosted by the Centre for Textile Research (CTR), Saxo Institute, University of Copenhagen, RECONTEXT was conducted in close collaboration with the National Museum.



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Museums, collections and archives involved in the exhibition:

The institutions listed below kindly provided and agreed to the publishing of photographs of objects within their collections to be used in the exhibition as comparative material.

- Ägyptisches Museum und Papyrussammlung, Berlin
- Badisches Landesmuseum, Karlsruhe
- Centrum Archeologii Śródziemnomorskiej Uniwersytetu Warszawskiego [Polish Centre of Mediterranean Archaeology, University of Warsaw]
- Kunstsammlungen, Chemnitz
- Landesmuseum Württemberg, Stuttgart
- Musée Archéologique, Strasbourg
- Musée Art & Histoire / Museum Kunst & Geschiedenis, Brussels
- Musée des Tissus et des Arts Décoratifs, Lyon
- Muzeum Narodowe w Warszawie [National Museum of Warsaw]

Open access documents and iconographic material used in the exhibition sourced from:

- British Museum, London
- British Newspaper Archive
- Kraks Vejviser
- Mediesteam [Danish Royal Library's digital media collection]
- Metropolitan Museum of Arts, New York
- National Digital Newspaper Program's Chronicling America.

- Muzeum Narodowe w Gdańsku [National Museum of Gdańsk]
- Muzeum Uniwersytetu Jagiellońskiego [Jagiellonian University Museum], Cracow
- Museumssenteret i Hordaland (MUHO) [Natural and Cultural Heritage Museums], Bergen
- Narodni Muzej Slovenije [National Museum of Slovenia], Ljubljana
- Nasjonalmuseet [National Museum], Oslo
- The Petrie Museum of Egyptian Archaeology, London
- The Phoebus Foundation, Antwerp
- Rigsarkivet [Danish National Archives], Copenhagen
- Römisch-Germanisches Zentralmuseum, Mainz
- Skulpturensammlung und Museum für Byzantinische Kunst, Berlin
- Victoria and Albert Museum, London

Introduction

The Collection of Classical and Near Eastern Antiquities at the National Museum of Denmark (NMD) holds 112 textile fragments from Roman, Byzantine, and Early Medieval Arab Egypt, comprising the richest ensemble in Denmark. The research value of these fabrics lies in the diversity of technique and raw material, the variety of object types, and the richness of their iconography. Moreover, the history of this collection is an excellent example of how European museums acquired textiles from Egypt. The highlights of the collection are fragments identified as parts of tunics of various kinds.

The aim of the online exhibition "Archaeological Puzzles in a Museum" is to give an insight into the history of the collection and the textiles therein. It is also an opportunity to present some of the problems a researcher encounters when trying to "reconstruct" this history, and these issues apply not only to the Egyptian textiles at the National Museum of Denmark, but also to the vast majority of museums worldwide with collections of ancient fabrics. The methods used in this type of research have much in common with putting together a jigsaw puzzle from different boxes, with mixed up elements from various images, and always with pieces missing. Thanks to the interaction of specialists from various fields, we can present the history of the collection and its objects as seen from different perspectives. However, this is not a definitive history; research on some aspects will continue and new data will certainly emerge.

Dr Maria Mossakowska-Gaubert
September 2022

How to visit the exhibition [M.M.-G.]

The exhibition consists of three parts. The introduction includes general information on what a collection of Egyptian textiles is, how it is created, and the methods of reconstructing its history and the objects that form it. The catalogue presents 30 selected fabrics, arranged according to the four stages of the collection's history. This section also contains detailed information on how and from whom the various objects were acquired. The given dating of the objects in the Catalogue is approximate and is based mainly on stylistic criteria.

For the visitor who wishes to go deeper into various topics, we have prepared eight case studies which will allow you to see some of the documents (notably the correspondence between dealers and the museum, and a dealer's notebook), to get to know an extraordinary woman who was the pioneer of ancient textile studies in Denmark, and to gain an insight into the activities of a collector and dealer operating in the 1920s and 1930s in the Scandinavian art market. These case studies also provide an opportunity to discover the significance of the raw material used for the fabric in the investigation of the dating and the provenance of textiles. In addition, three exceptional objects are presented in an in-depth manner.

To make reading easier, bibliographical references have been kept to a minimum, and the reader can find a selected bibliography at the end of the catalogue. For explanations of technical vocabulary used in the text, such as "soumak", "tabby weave", "tapestry", "taqueté", etc., you can consult the multilingual lexicon

developed by the *Centre International d'Étude des Textiles Anciens* in Lyon (CIETA), which is available, [here](#), through open access.

Most of the fabrics shown are characteristic elements of tunic decoration or fragments thereof, such as *clavus*, *orbiculus*, *tabula* etc. To make it easier to situate these elements, they are marked on the schematic drawing presented below (see fig. 12).

Building a textile collection

Why are so many fabrics from Egypt in museums around the world? [M.M.-G.]

Egyptian textile preservation: climate and geography

Climate and geography are the main reasons why the largest number of ancient textiles from the entire Mediterranean region preserved to the present day originate from Egypt. The dry, hot climate and the sands of the desert are ideal conditions for preserving organic fibres: flax, cotton, wool, silk. However, these conditions do not prevail throughout Egypt; the Nile Delta region, humid and with a huge floodplain, has left us almost no woven artefacts.

Archaeological textiles: chronological diversity

Egyptian textiles from different historical periods are held in collections all over the world. They include textiles from the Pharaonic Period (circa 3100 BC - 332 BC), from the era after Egypt was conquered by Alexander the Great and then ruled by the Graeco-Macedonian Ptolemaic Dynasty (332 BC - 30 BC), from the time when it was part of the Roman Empire (30 BC - 395 AD), then the Eastern Roman Empire, so-called Byzantium (395 - 641 AD), from a short but important period for textile history of Persian occupation (619 - 628 AD), and finally when the country became part of the Arab Muslim world (since 641 AD).

Among the surviving textiles, however, there are large chronological differences and disparities. This situation is obviously related to the lapse of time, but probably also to the

fact that the vast majority of textiles come from burials. The differences in burial practices evidenced in the various epochs of Egyptian history - mummification, cremation, burial of the body without additional procedures - are reflected in the form and quantity of textiles found. Textiles are less frequently found in other archaeological contexts such as settlements, cult buildings or simply rubbish deposits. Thus, textiles from the Pharaonic and Ptolemaic periods are mainly mummy wrappings and funerary shrouds. The more substantial finds from Early Roman period are rags deriving from the rubbish heaps of quarries, forts, ports and other places. Finds dating to the Late Roman, Byzantine and later eras primarily come from funerary contexts and consist of items of clothing, shrouds, soft furnishings, and other textiles. The textiles from this era are much more complete and abundant compared to findings from earlier periods.

The burial of the dead dressed in their clothes, without any additional treatment to the body, should be linked to the spread of Christianity in the Nile Valley, which occurred particularly rapidly in the 3rd and 4th centuries AD to become the dominant religion of Egypt. The destruction of the Serapeum and the Great Library in Alexandria in 391 AD on the initiative of the Bishop Theophilos, and the official closure of the Temple of Isis on the island of Philae in 537 AD, can be considered two key events marking the final stage in the process of cultural and religious transformation of Egyptian society, which also coincided with political changes.

"Coptic" textiles?

At this point it is worth mentioning that

the terms "Coptic Period" and the related "Coptic textiles" often appear together, especially in older scholarly literature. The very word "Coptic" is derived from the Greek "Aigyptios", which is an adjective meaning simply "Egyptian". The term "Aigyptios" was adapted into Arabic as *qibt*, and under Arab rule *qibt* became a denomination for the indigenous Egyptian Christians and their culture. Modern European languages adopted the word "Copt" to describe Egyptian Christians via the Latin *Cophytus* - *Coptus*, a term used by travellers visiting Egypt in 16th-17th centuries. From the 17th century onwards, scholars studying Egypt began to use this term to designate Egyptian Christians, their religion and all other aspects of their culture and identity.

Regarding the history of the word "copt", more information can be found in the work of Christian Cannuyer (1996)

Therefore, it is difficult to speak about a "Coptic Period" in the history of Egypt: it is not obvious when it should begin and when it ends. It is equally imprecise to use the adjective "Coptic" in the field of art or material culture: one does not know who made an object of art or of everyday life, and with the exception of iconography with explicit Christian symbolism, other motifs were not necessarily perceived by the creator or recipient as emanating from Christian culture, and were often certainly not perceived as such. These terms lead to many misunderstandings, both historically and culturally, and to avoid them it seems more appropriate to use strictly historical vocabulary, such as "Byzantine Period" and "Medieval Arab Period", and consequently, "Egyptian art from the Byzantine Period", or

"Christian art (if one is sure of the meaning) from Medieval Arab Egypt".

Egyptology, Egyptomania, and Egyptian textiles

The fascination of Europeans with Egypt over the centuries was fuelled by the stories of the Bible, as well as by artefacts brought back by travellers, including crusaders, pilgrims, and merchants, who would explore the area and return with accounts of these expeditions. In 1822 Jean-François Champollion (1790-1832) managed to read the hieroglyphic script using, among other sources, the so-called Rosetta Stone, a stela bearing a decree from 196 BC by King Ptolemy V, written in hieroglyphic, demotic and Greek script. This stela was discovered in 1799 by the French expedition to Egypt led by Napoleon Bonaparte. The decryption of ancient Egyptian writing laid the foundations for a new scientific discipline: Egyptology. However, post-Pharaonic Egypt did not arouse as much emotion as the pyramids, tombs, temples and the hieroglyphic texts engraved or painted on their walls, or written on papyrus scrolls. At that time only Alexandria, the capital of Ptolemaic, Roman and Byzantine Egypt, with its Great Library, and famous mathematicians, geographers, philosophers, theologians and other scholars, figured in the general consciousness of European elites as a symbol of the highest level of scientific, artistic and literary development in the ancient world.

The 19th century witnessed a great interest among the scientific community for the study of the history, culture and art of Egypt. Within this context artefacts, not only of the Pharaonic period, became desirable objects for the development of

scientific research, and also as collectable items both for museums and private individuals. Moreover, a certain "Egyptomania" arose in Europe and North America, exciting a taste for Egyptian objects and their copies, as well as works inspired by Egyptian art and architecture.

Most items of small size, including textiles, were excavated *en masse* from ancient graves by peasants, local traders, European dealers, either personally or with the help of local agents, and by representatives of museums or private collectors. Throughout the 19th century, "consular agents" were also very active, supplying antiquities to the countries they represented. They had a status that gave them diplomatic immunity, although very often they had no real ties to the country they represented. The end result was that antiquities were exported from Egypt by collectors, dealers, tourists, diplomats etc. almost without any control.

From the 1850s the first more or less methodical archaeological excavations began in Egypt, at that time primarily conducted by French and English archaeologists and Egyptologists. However, this did not prevent many monuments from being stolen by excavation workers and then sold on the antiquities market. This is also the period in which the custom of sharing finds from excavations was established. So, for example, half of the objects found by Auguste Mariette (1821-1881) in Saqqara, where he excavated from 1850 to 1854, went to the Louvre, while the other half remained in Egypt and later became part of the collections of the Egyptian Museum in Cairo. New standards in excavation techniques and elaborate methods of documenting

archaeological material, especially ceramics, were introduced into Egyptian archaeology by a British Egyptologist, William Matthew Flinders Petrie (1853-1942), who, starting in 1884, excavated numerous sites all over Egypt and Palestine.

As far as the antiquities trade is concerned, the first antiquities shop in Egypt was opened in 1862 in Cairo by Selim Khawam. In 1888 the Egyptian Antiquities Service established a "sales room" in the Egyptian Museum, stocked with materials acquired throughout Egypt by local inspectors. In 1912, on the initiative of the French Egyptologist Gaston Maspero (1846-1916), at that time Director General of the Egyptian Antiquities Service, Ismail Sirry Pasha, Minister of Public Works, promulgated a law regulating the sale and export of Egyptian antiquities. From then on, all dealers had to have official licenses issued by the Antiquities Service, and items exported outside Egypt had to have the appropriate certification. Further regulations and legal restrictions on the antiquities trade promulgated by Egyptian authorities appeared in 1951 and then in 1979, but it was not until 1983 that taking antiquities out of Egypt was completely banned under the Egyptian Law on the Protection of Antiquities, known as Law No. 117.

On the topic of Egyptology and Egyptomania, as well as the antiquities trade in Egypt, see works by Frederik Hagen and Kim Ryholt (2016) and Donald Malcolm Reid (2019)

Egyptian antiquities throughout the history of the National Museum of Denmark [A.H.H.]

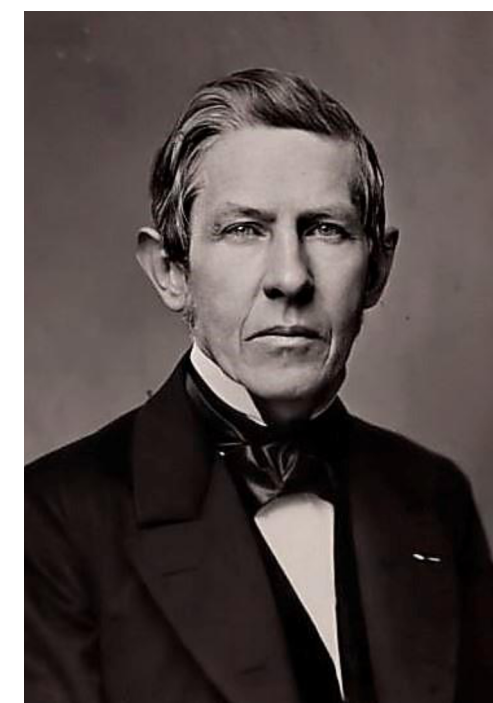
The National Museum of Denmark acquired its current name in 1892, but its history and formation stretches back into the 17th century and the Royal Danish Kunstkammer at Copenhagen Castle. The collections of the Kunstkammer were universal in scope and also held a few objects from Ancient Egypt. Equally important for the history of the National Museum was *Den Kongelige Commission til Oldsagers Opbevaring* (Royal Danish Commission for the Preservation of Antiquities), which aimed at the collecting registration and preservation of the nation's historical monuments and objects. It was founded in 1807 and soon developed into a public museum with Christian Jürgensen Thomsen (1788-1865) as a driving force. Thomsen is best known today for introducing the three-age system, a ground-breaking method for dating prehistoric artefacts.

In 1845, Thomsen opened a new Ethnographic Museum, based on objects from the former Kunstkammer: the chosen location was Prinsens Palæ, the present seat of the National Museum. In 1851, the *Antik-Cabinettet*, or Collection of Antiquities followed suit. Finally, in 1854, the Danish prehistoric collection was also installed here. Each of these collections were carefully systematised and curated by Thomsen himself. He believed that these collections were collectively important for the understanding of the development of mankind. As an example of this, Thomsen would encourage the comparative study of stone tools, not only from Scandinavian prehistory, but also from cultures, old and new, around the

world.

In 1866, the year after Thomsen died, Ludvig Müller (1809-1891), was appointed head of the Collection of Antiquities (fig. 1). At that time the number of Egyptian antiquities had grown significantly, primarily due to diplomats and traders who were active in Cairo and Alexandria. In 1851 the Collection of Antiquities was greatly enriched by the addition of a large collection of Greek and Italic vases, formerly the property of King Christian VIII.

At the end of the 19th century the Collection of Antiquities had grown into a rich and diverse ensemble, which was able to demonstrate the



1. Ludvig Müller (1809-1891), a Danish numismatist and archaeologist, was head of the Royal Collection of Coins and Medals, from 1865, and also director, from 1866 until his death, of the Collection of Antiquities in the Royal Museum of Fine Arts in Copenhagen. Photo © Danish Royal Library

material history of the cultures of the Ancient Mediterranean, with an emphasis on the Classical cultures of Greece and Rome. During the second half of the 19th century and into the early 20th century most additions to the collections were as a result of private donations or purchases. The donations typically came from Danish diplomats, scholars, artists or architects. The purchases were in some cases conducted by museum staff or colleagues who would actively seek out auctions or dealers, predominantly in Europe, while in other cases collectors or dealers would present their lots to the museum at their own initiative.

The formation of the late antique textiles collection at the National Museum followed this pattern quite closely. Based on the evidence found in the correspondence and other archival material, there was no intention to systematically build a large and focused collection of late antique textiles. On the contrary, the collection expanded in a more "coincidental" fashion, with the exception of the Margrethe Hald acquisitions. Late antique textiles were most likely viewed as a material which could, on the one hand, elucidate the transition from Pharaonic Egypt to the Classical world, and on the other, as valuable comparative material alongside pieces from Danish prehistory and the ethnographical collections.

Collecting Egyptian textiles [M.M.-G.]

Four stages in the construction of the National Museum collection of Egyptian textiles can be distinguished. Its beginnings were connected to the thriving art market of the late 19th century (56 fragments). The fabrics

were purchased at this stage from dealers and collectors, such as Theodor Graf, Ahmed Mustafa and Robert Forrer. Then, in the 1930s and 1940s, textiles were acquired in smaller quantities from dealers (12 fragments), Walter Carl and Peter Johansen, as well as by donation and through wills (4 fragments) made by two Egyptologists, Erik Iversen and Hans Ostenfeld Lange. Again, in the 1930s, 16 or perhaps 17 objects were transferred to the NMD by University College London, and most likely some others by the Kaiser-Friedrich-Museum in Berlin (perhaps two or three fragments) for analysis by a textile expert, Margrethe Hald. The last acquired fabrics (six fragments) in the 1950s and 1960s came from the Egyptian and European art market. To date, the source of origin of 15 fragments from the NMD has not been established.

Exhibiting Egyptian textiles [A.H.H.]

The textiles from Theodor Graf were some of the first late antique textiles to arrive in Denmark. In early March 1887 Valdemar Schmidt (1836-1925), professor of Egyptology at the University of Copenhagen, gave a lecture on the textiles to Det Kongelige Nordiske Oldskriftselskab (The Royal Nordic Society of Antiquaries). This society, which is still in existence, was founded in 1825 with the intention of studying and furthering knowledge of Nordic history, languages and monuments.

2. Valdemar Schmidt (1836-1925), the first professor of Egyptology at the University of Copenhagen and in Denmark.
Photo © Danish Royal Library



At monthly meetings, scholars would give lectures sometimes on subjects not pertaining to Scandinavia. Schmidt was a member of the society, and he would also on other occasions present new acquisitions to the Collection of Antiquities. The society was housed in the same buildings as the collection, thus the objects were in close proximity. (fig. 2)

Schmidt's presentation of the textiles from Graf, termed "samples", touched on a number of subjects. According to a newspaper report in *Berlingske Tidende* from the following day, 2nd March 1887, these were: changes in burial customs, materials and techniques, and finally how these garments would shed new light on the attire of Roman "senators".

The earliest exhibiting of the textiles is not documented in detail, but it seems likely that a fair number of pieces from both Theodor Graf and Robert Forrer were on display not long after their arrival in the museum. Photographs of the exhibition showcases from the 1930s, but taken after 1951, reveal that around 25 pieces were then on display, including the large tunic from the Petrie Museum, University College London, and some of the recent additions from Hans Ostenfeld Lange and Mehdi Ben Zapletal. It is possible that these additions to the collection replaced some of the pieces from Forrer or others. The textiles were shown as a part of a chronological section dealing with Greek and Roman Egypt. The mode of display was dense, with the textiles presented almost like a jigsaw puzzle (fig. 4).



3. Exhibition showcase presenting Egyptian textiles at the NMD. Photo taken in 1992. Archives of the National Museum of Denmark. Photo © NMD

4. (opposite page) Exhibition showcase arrangement from the 1930s, presenting Egyptian textiles at the NMD (photograph from 1951). Archives of the National Museum of Denmark. Photo © NMD



A slightly later and less cluttered arrangement included around ten pieces, now with the tunic as the centrepiece (fig. 3). For contextual purposes, this display also included some Pharaonic tools used in textile manufacture. In the current display, installed in 1994, the tunic forms part of a section dealing with Greek and Roman Egypt. The remaining textiles are in storage, but are available for research purposes.

Over the years, some of the textiles from the NMD have been lent for temporary exhibitions, including to the Louisiana Museum of Modern Art (1962) and the Ny Carlsberg Glyptotek (1996).

It should be noted that the textiles brought by Margrethe Hald from London, now in the Collection of Classical and Near Eastern Antiquities, were formerly a part of the "Comparative Collection" of Danish Prehistory at the National Museum (with the exception of the tunic). This group of objects, covering a number of countries and time periods, is defined as a study collection. Therefore, the majority of pieces transferred from London have not been on permanent display.

A note on the inventory numbers [M.M.-G., A.H.H.]

Although it seems obvious that every object in a museum has its own unique number, this is not always the case, especially with regards to older collections. Thus, objects acquired together and/or coming from the same source, could be given a collective number.

In the case of the Egyptian textiles at the National Museum of Denmark, the objects acquired from Robert Forrer

were registered under two numbers: 3670 (now 30 textiles) and 3671 (now 18 textiles). During the preparation of the present online exhibition, in order to recognize the textiles, we introduced additional numbers, which appear after the inventory number and are recorded as NMD Inv. 3670_1, 3670_2, etc. In the case of some objects, the numbers used by Forrer have been retained and combined with the NMD inventory number resulting in numbers such as NMD Inv. 3670_1537.

Another issue is textiles marked "Unr", i.e., without any inventory number, which are shown in the catalogue as NMD Inv. Unr_a, NMD Inv. Unr_b, etc. Some of these objects were not inventoried on arrival, as they were defined as study material. Other pieces have over time become "dislocated" from their number, as most probably happened with NMD Inv. Unr_a (see **Catalogue No. 5**), which was identified by Anne Haslund Hansen as belonging to the Forrer collection and indicated as No. 1588 in his letter of 1891 to Ludvig Müller (see **Case study 2**).

5. A passage from the museum entry book, in which the fabrics acquired from Theodor Graf in 1886 are recorded under the inventory numbers 3116-21. Collection of Classical and Near Eastern Antiquities at the National Museum of Denmark
Scan: © NMD

Reconstructing the history of a collection

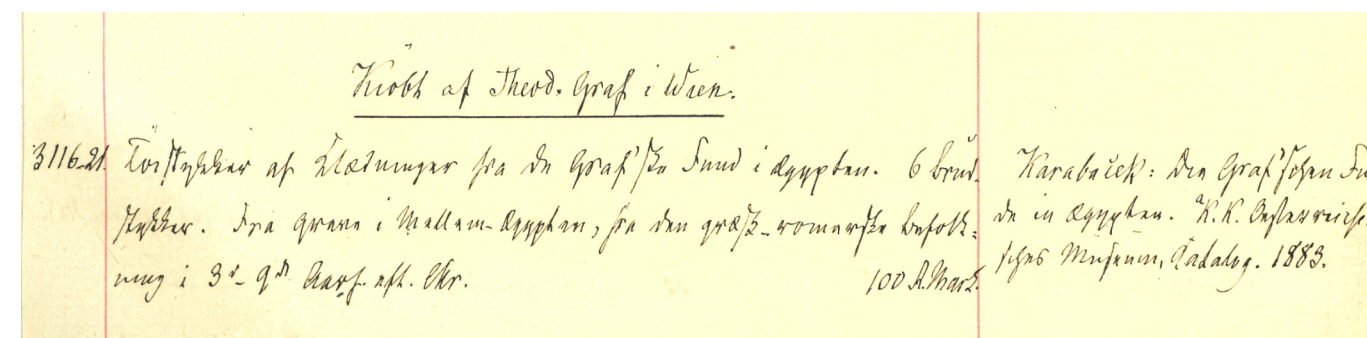
One history or many stories? [M.M.-G.]

The history of a collection is created by those who acquire objects and those who provide them. In order to reconstruct this aspect of the history of the Egyptian fabrics collection at the NMD, we have used various sources: the National Museum's register book (fig. 5), correspondence with dealers (Theodor Graf, Robert Forrer); dealers' archives (Forrer); separate notices (Ahmed Mustafa) and even a sketch showing most likely the way to a dealer's house (Werner Jakobsen); correspondence between researchers, Margrethe Hald (NMD) with Grace M. Crowfoot (UCL), as well as with Helmut Schlunk (Kaiser-Friedrich-Museum, Berlin); information from newspapers (Peter Johansen); and finally, published research that provides a closer look at the personality and activity of a dealer (Mehdi Ben Zapletal, Tove Alm) or a scholar (Sir. Flinders Petrie, Hans Ostenfeld Lange).

The history of a collection is also a history of the individual objects. The analysis of fibres and weaving

techniques are fundamental to the investigation of textiles. Combining this data with the information provided by the archival survey can sometimes make it possible to determine provenance, or even to precisely identify archaeological context. Furthermore, comparative studies of iconographic motifs can also provide information about the origin or dating of a fabric.

A history of one collection is additionally often a part of the history of other collections. Most European museums and collections acquired their Egyptian textiles from the art market. Many textiles were divided and sent to different museums either by the collectors themselves or by museum staff. Frequently, the most legible, visually appealing part of an ornament has been cut out, leaving behind a puzzle with few clues as to the cloth's original overall appearance. The identification of fabric fragments scattered across European museums and associated with the NMD collection is essential to reconstruct the original objects that have been divided, and to create a "family tree" to which a fabric may belong, such identifications are not, however, always obvious.



“Duplicated fabrics” and the multiple production of textiles [P.L.]

Cutting up textiles in the antiquities market

Working with Early Byzantine textiles in museum collections, we observe relatively many matching fragments, corresponding in technique (material, threads, weave, finishing), shape, colour and pattern. We may assume that matching pieces originate from the same textile, which had been cut into pieces and divided in the art market, a well known practice at the end of the 19th and beginning of the 20th century. Matching pieces distributed to various, sometimes up to ten different European Museum collections is quite common, especially if famous collectors like Franz Bock or Robert Forrer were involved (Linscheid 2017, p. 10-11; 127-129). A virtual puzzle of matching fragments is great fun, and scientifically useful, because it helps to reconstruct the original shape, function and provenance of a textile.

Duplicate textiles in *taqueté* weave

The assumption that matching fragments belong to the same cloth is based on the premise that textiles were produced as single, individual pieces. Here we want to draw attention to the evidence for multiple production of textiles, that is, the production of two or even more textiles from the same material, using the same technique, colours and decoration, thus appearing as “duplicated” textiles.

A striking example of a duplicated textile can be found in the group of weft-faced compound tabbies, or *taquetés*, patterned with hunting

scenes in green on a red background, or, if you turn the fabric over, in red on a green background. A lion and a deer, an archer and a rider with a long spear attacking a boar can be recognised. The scenes are interrupted vertically by a violet section (fig. 6).

There are fragments of this fabric, matching in technique, material, colours and depictions, distributed over 11 different museum collections; most of them were noted by Sabine Schrenk (Schrenk 2004, p. 173-176; Linscheid 2017, p. 32-33). There is no known find spot for any of the fragments, but radiocarbon dating places this group in the period 4th to mid-6th century AD. Schrenk has convincingly reconstructed these fragments as a tunic based on the evidence of a neck slit in the fragment in the Kunstgewerbemuseum, Berlin,

6. Fragment of a tunic in *taqueté* weave with hunting scenes. Karlsruhe Badisches Landesmuseum (Inv. T 159).
Photo: Thomas Goldschmidt © BLM Karlsruhe



as well as a mirroring line in the pattern of the fragment in the Západočeské Museum, Pilsen: the violet bands must be the *clavi* of the tunic. Since the fragment in Pilsen belongs to the shoulder area and is finished with a corded edge, the tunic can be interpreted as sleeveless. Schrenk noted that two more matching fragments, one in Berlin (Museum für Byzantinische Kunst), and one in Tübingen (Ägyptologisches Institut), show a different number and orientation of the figures and she therefore presumed the existence of a second, duplicate tunic (fig. 7a).

This assumption was confirmed by a recently published, large fragment of the same *taqueté* weave in Stuttgart's Württembergisches Landesmuseum (Inv. GT 3846: Nauerth 2014, no 34). This fragment preserves the complete length of a tunic side part with shoulder section. The turning of the figures marks the shoulder level of the tunic. With its intact shoulder section, the Stuttgart fragment cannot have belonged to the tunic reconstruction presented by Schrenk, because in that tunic both shoulder areas are already accounted for by respectively the Pilsen and Berlin fragments. Consequently, the fragment in Stuttgart must have belonged to another, second tunic. Both tunics are identical in technique, colours and patterning, and both tunics are sleeveless. (fig. 7b).

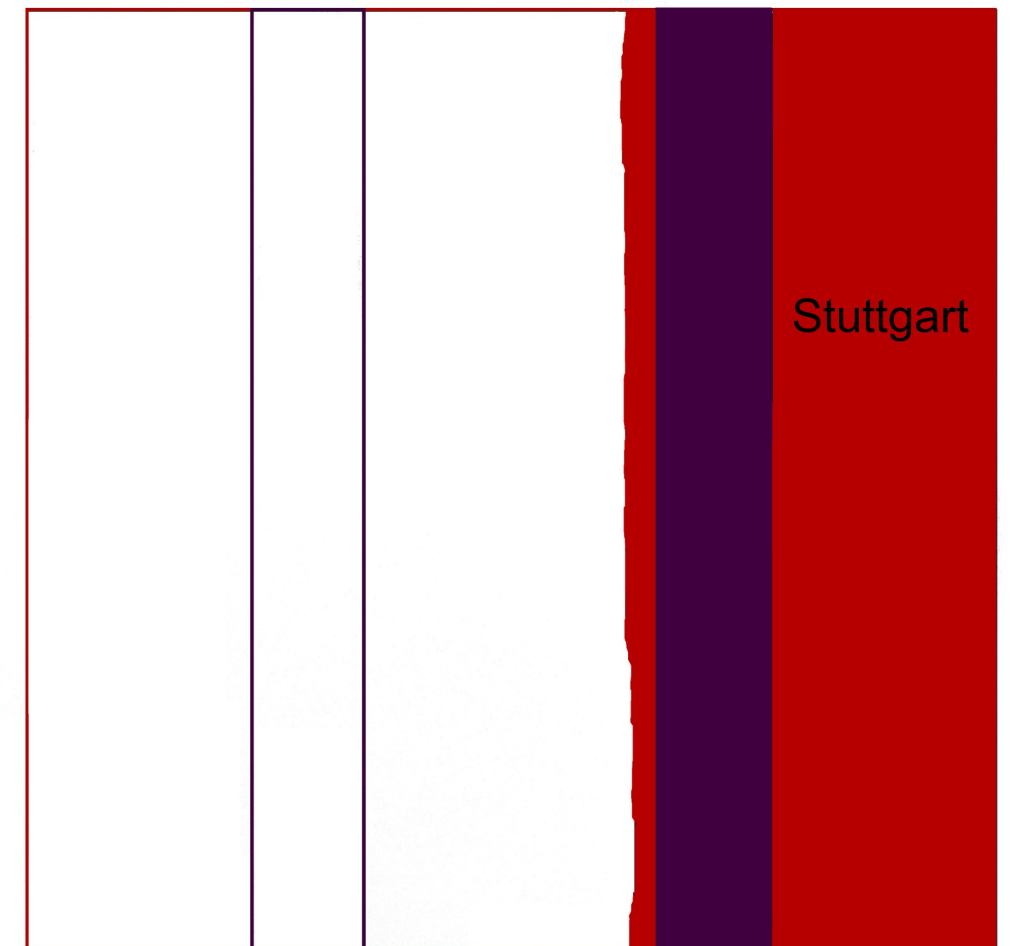
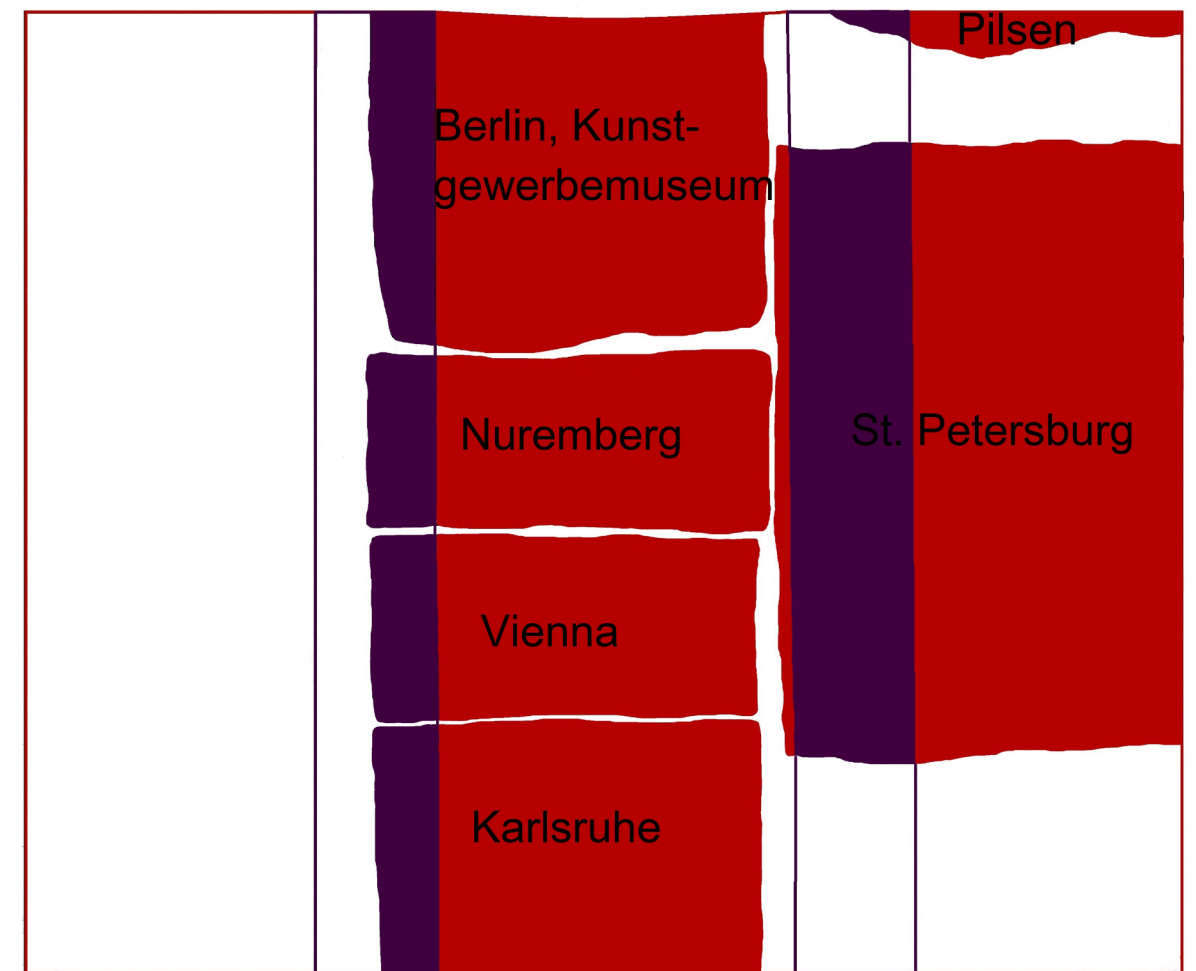
The next example of multiple production is again a weft-faced compound tabby or *taqueté*, this time with birds in octagons (see **Catalogue No. 8**). Radiocarbon analyses again point to production in the 4th-6th century; many of the fragments have been attributed to Akhmim. This *taqueté* fabric with birds in octagons appears in two complete rectangular

fabrics, called "cushion covers", in the Victoria and Albert Museum, London (Inv. 780-1893). However, more matching fragments exist and must have belonged to a tunic (Inv. 304-1891). Barbara Thomas has investigated these fragments (see **Case study 4**). Again, the same weaving and pattern template was used for more than one textile, in this case even for textiles of varying functions: a furnishing textile and a garment.

The two examples of multiple production presented so far are weft-faced compound tabbies. This complex weave requires an elaborate loom setup; therefore producing several textiles on the same loom would be reasonable. Nevertheless, it cannot be excluded, that the same textiles were woven on different looms, maybe even in different workshops, but using the same weaving instruction.

7a. Reconstruction of the first tunic in *taqueté* weave with hunting scenes; side A, with fragments in Karlsruhe, Vienna, Nuremberg, Berlin Kunstgewerbemuseum, Saint Petersburg, Pilsen; side B (not depicted), with fragments in Pilsen, Cleveland, Göteborg, Philadelphia, Riggisberg, Paris.
Drawing: Petra Linscheid after Schrenk (2004), p. 175.

7b. Reconstruction of the second tunic in *taqueté* weave with hunting scenes; side A, with fragment in Stuttgart; side B (not depicted), with fragments in Stuttgart, Berlin Museum für Byzantinische Kunst, Tübingen.
Drawing © Petra Linscheid





8. Tunic, multiply produced. Antwerp Katoen Natie Inv. 614 (DM133). Photo: Hugo Maertens © The Phoebus Foundation

Duplicate textiles with tapestry

Multiple textiles not only occur with complex weaves. The Katoen Natie collection in Antwerp holds a complete child's tunic in linen (Inv. 614 [DM133]: De Moor et al. 2008, p. 200-201) radiocarbon dated to 650-780 AD (95.4%) The tunic is decorated with *clavi*, sleeve bands, and knee and shoulder panels in colourful tapestry weave. The *clavi* are decorated with a green tendril with red buds on a yellow background, separated by a red field with a light coloured plant. Antoine De Moor has noted a matching *clavus* with identical technique, pattern, colours and size, also from a linen tunic, in the

Bouvier textile collection (Inv. S 435: Stauffer 1991, p.177). Since the Antwerp tunic is complete, the Bouvier *clavus* provides evidence of another linen tunic with identical *clavus*. (fig. 8).

Duplicate textiles with loops

Multiple productions can also be observed among monochrome textiles. In the 4th-6th century roundels with a knot ornament woven with bluish loops were quite popular. At least seven fragments with exactly the same motif have survived, belonging to at least three large linen covers, upholstered with long linen loops (Linscheid 2017, p. 63). (fig. 9).



9. Fragment of a linen loop cover with knot ornament, multiply produced. Karlsruhe Badisches Landesmuseum (Inv. T 184). Photo: Thomas Goldschmidt © BLM Karlsruhe

Economic aspects and pattern sheets

The examples presented above show that a tunic or furnishing textile was not necessarily an individual piece, but by using the same weaving and pattern templates (fig. 10 and 11), a textile could be produced a second time, or even more often. By choosing not only an identical pattern but the same material, colours and technical details as well, weavers created duplicate products, which is evidence of the multiple or even serial production of textiles. Whether multiple products were woven in the same workshop remains an open question, because weaving templates and pattern sheets might have travelled and have been widely disseminated.

For more about pattern sheets, see the work of Annemarie Stauffer (2020).

Evidence of multiple production is of special interest because it sheds light on the Early Byzantine textile economy, which is still not very well understood. Do duplicate tunics or furnishings point to a stock production of textiles? And what about the consumers? Were identical textiles sold to different customers? Or did one customer order multiple examples of the same textile? More research in the future may yet reveal more duplicate textiles. So far, we know of just a small percentage of the textiles produced in Early Byzantine Egypt.

Attributing matching fragments to the same textile object

When considering the possible existence of duplicate textiles, we need strict criteria to attribute matching fragments to the same original object. What, for example,

about the matching fragments from Copenhagen and some other collections (see **Catalogue Nos. 5, 6, 7 and 13**)? Are they fragments cut from the same textile? Or did they belong to multiple produced textiles?

To conclude, when deciding if matching fragments belong to the same item, or else to two duplicate objects, a close examination of all technical details is needed, including the minute counting of threads in fabric and pattern units. Weaving faults, as Sabine Schrenk and Barbara Thomas (see **Case study 4**) have demonstrated, may prove that fragments were woven on the same warp.

Furthermore, the completeness of the object should be considered, as illustrated by the examples presented above. Can all matching fragments be integrated into one single reconstruction or are there “surplus” fragments providing evidence of a second product? The direct fitting of a fragment’s cut edges may be perfect proof of their origin from the same textile.

Last but not least, the history of provenance of matching fragments has to be compared, since fragments acquired from the same source are more likely to belong together.



10. Fragment of a pattern sheet, papyrus (4th–5th century AD, Hermopolis). Ägyptisches Museum und Papyrussammlung (SMB Inv. P. 13275 Fr. b). The upper field shows fish, water plants and parts of a male figure. On the lower field are a fish, a bird and lotus leaves. The drawings are black with details painted over in white. This type of pattern sheet was used in weaving, but also for laying mosaics and in painting. Photo: Sandra Steiß © bpk / Ägyptisches Museum und Papyrussammlung, SMB



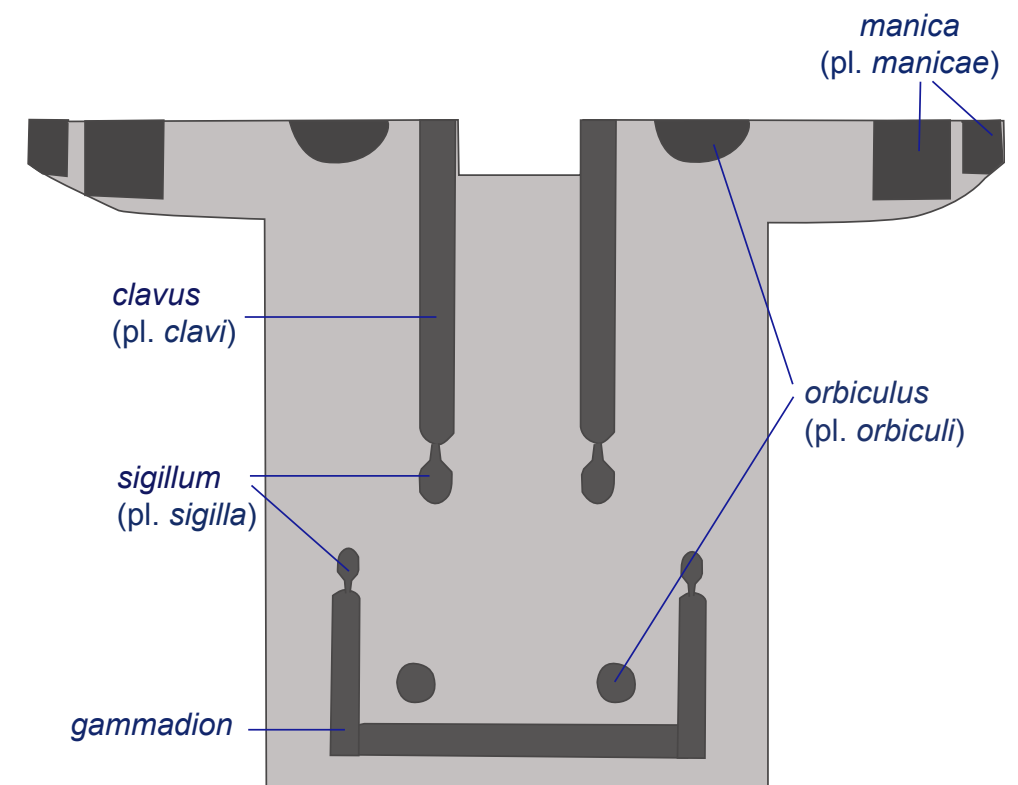
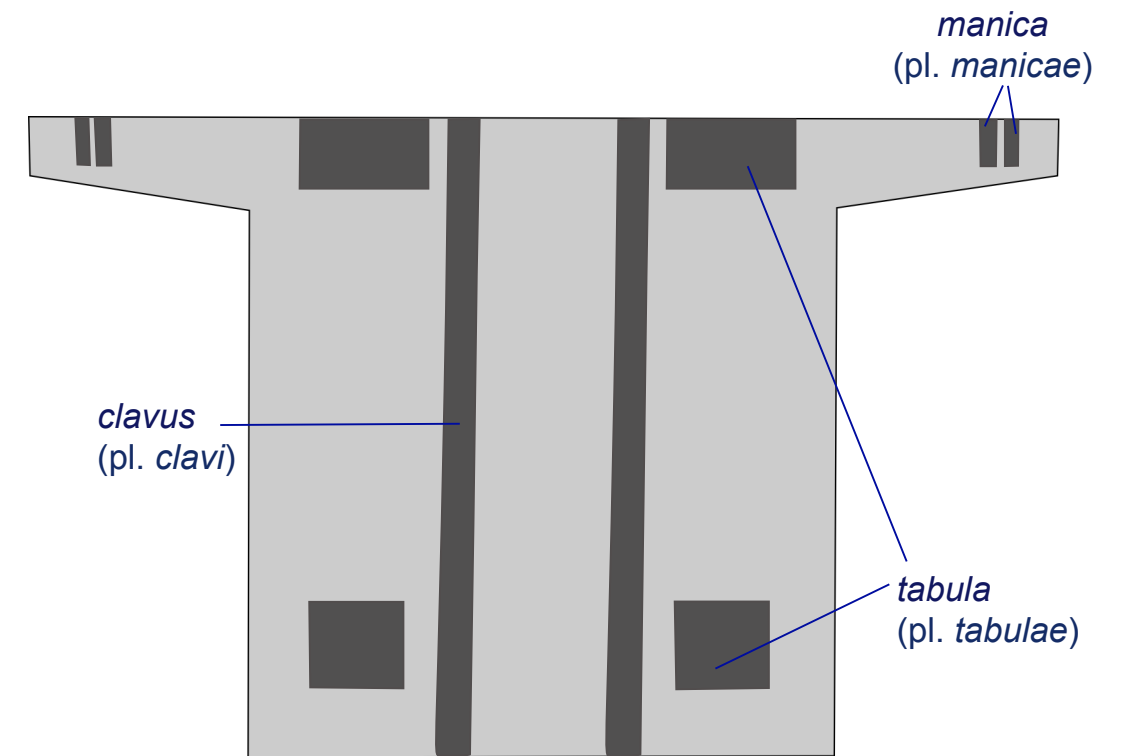
11. Fragment of a pattern sheet, papyrus (3rd–4th century AD, Hermopolis). Ägyptisches Museum und Papyrussammlung (Inv. SMB P. 13275 Fr. d). *Tabula* with representation of a running eros. A lion and some other four-footed animals as well as birds were depicted around the *tabula*. The dark band, most likely a *clavus*, shows a bird, perhaps a quail, and a circular shape that is difficult to define. The drawings are black with details painted over in white and grey-blue. Photo: Sandra Steiß © bpk / Ägyptisches Museum und Papyrussammlung, SMB

What did the fabric look like?

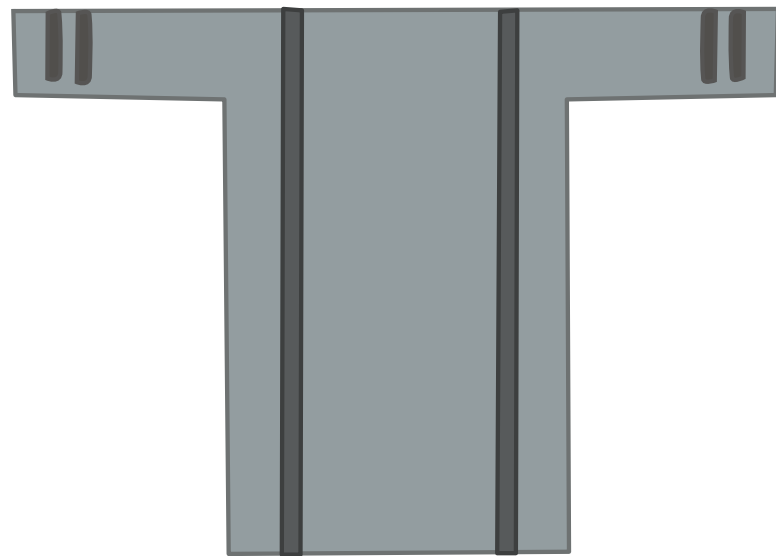
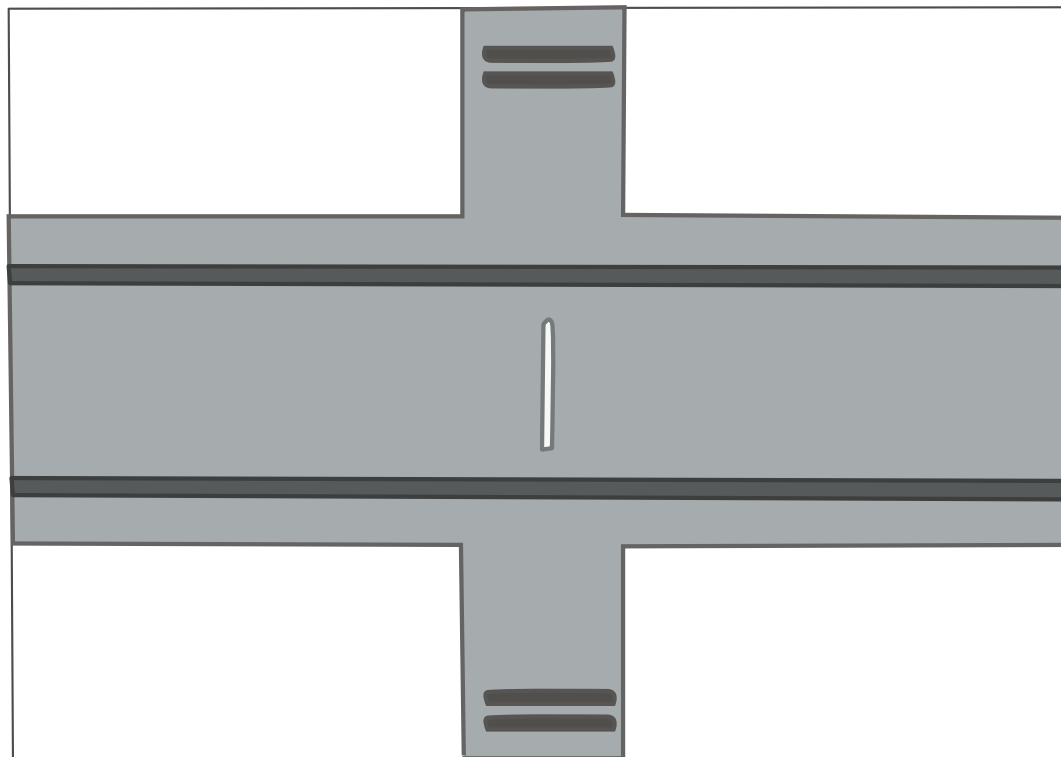
Drawing indicative fabric reconstructions [A.K.]

In addition to one more or less complete tunic (NMD Inv. 12141), the NMD collection consists of fragments of tunics, headgear, mantles and furnishing textiles. In order to get an idea of how these fragments were positioned in the entire textile, some indicative drawings have been made. Most of the fragments belonged to tunics from the Byzantine Period. The most common tunic worn during this period is the T-shaped model, woven in one piece or in three pieces, and embellished with vertical stripes, the so-called *clavi*, bands on the sleeves, and circular or square decorations on the shoulders and below the knees (see fig. 12).

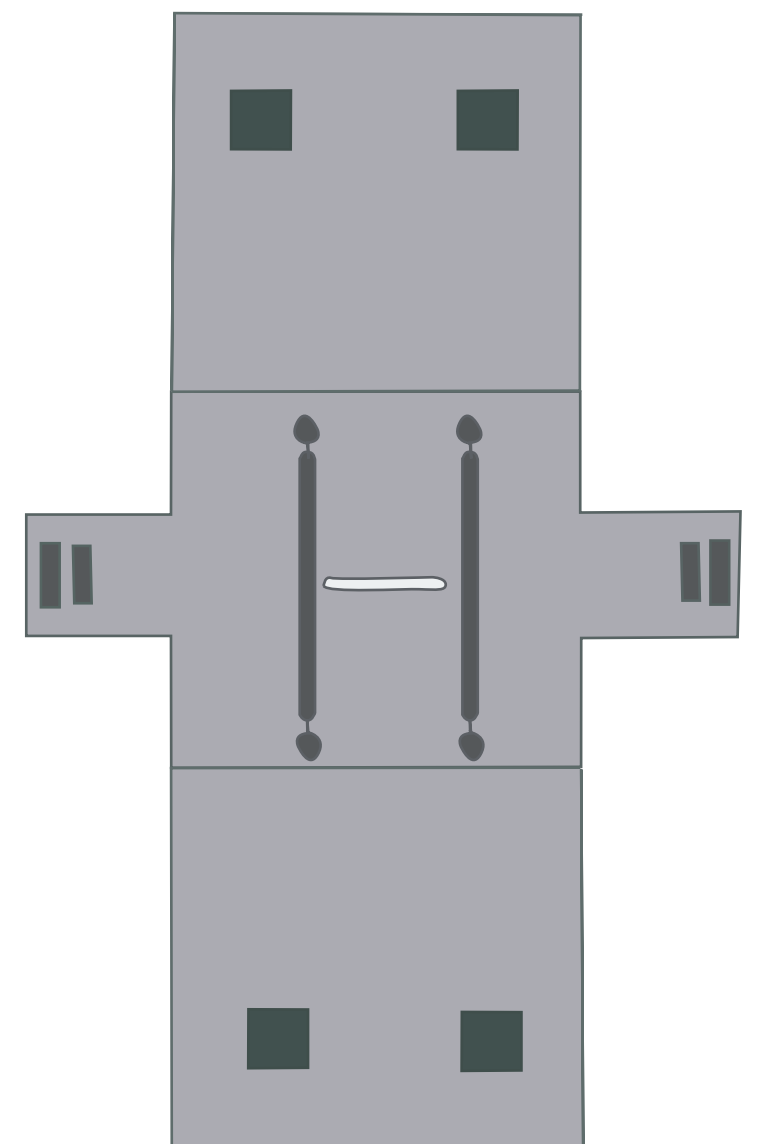
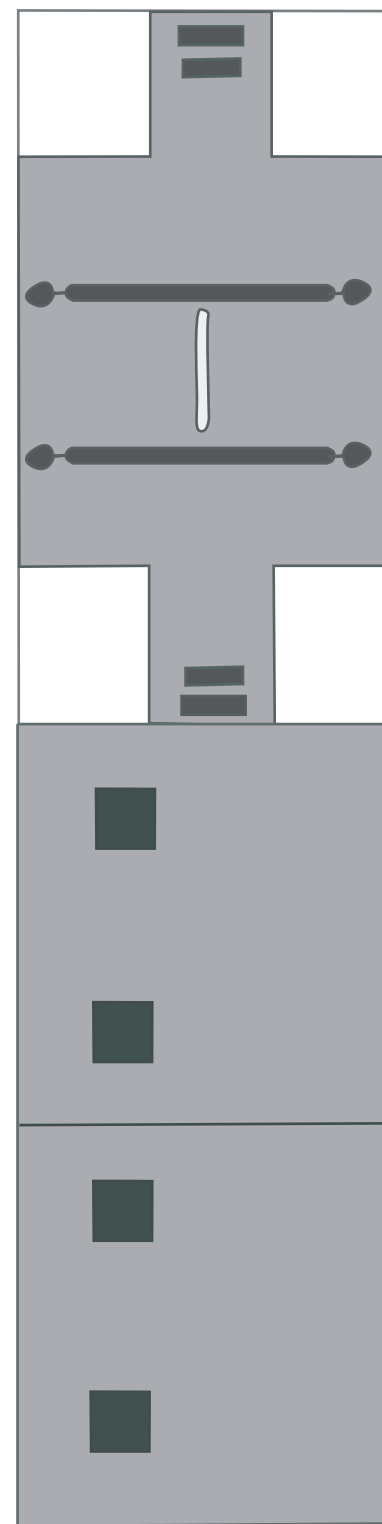
The variety of embellishments on tunics is immense, but it is possible to deduce from the selected fragments what type of general decoration – such as short or long *clavi* – the original tunic had. The weaving direction also often provides information about the position of the tapestry fragments. Regarding the representations of tunics, it must be taken into account that the preserved fragments are too small to know with any certainty the dimensions of the tunic, so the proportions of height, width, sleeve length, positioning of the waist pleat, are purely indicative. The type of neck openings depicted is also based upon plausible assumptions. Tapestry fragments with depictions of antelopes on a green background weave most likely come from a rectangular mantle and not from a tunic (**Catalogue no 13**). All antelopes are depicted rotated 90 degrees with respect to the wearing direction of a tunic. It seems very unlikely that these animals would have been woven in this direction on the *clavi* or hem band of a tunic.



12a, b. Decorative elements on Byzantine tunics. Drawing © Maria Mossakowska-Gaubert



12c. Tunic woven-to-shape in one piece.
Drawing © Maria Mossakowska-Gaubert, after D.L. Carroll, *Looms and textiles of the Copts*, 1988, fig. 12A.



12d: Tunic woven-to-shape in three parts.
Drawing © Maria Mossakowska-Gaubert, after J. Lafontaine-Dosogne, D. De Jonghe, *Textiles Coptes. Musées Royaux d'Art et d'Histoire*, 1988, fig. 137 and 138.