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Chapter 3: Containers: From Wrapped Textiles and Jars to Hard Disks

Abstract: This chapter explores the diverse range of containers used throughout history to store and preserve written and non-written artefacts, from ancient manuscripts to modern digital data. It highlights the varying materials – such as threads, textiles, leather, reeds, clay, wood, and cardboard – used for archival storage, as well as the different shapes and sizes of containers, including bags, boxes, baskets and jars. It discusses how these containers were adapted to the specific needs of the artefacts they held, and the challenges involved in preserving them. It also examines the historical and geographical diversity of archival storage, the evolution of archival terminology, and the way in which these containers were arranged, transported, and preserved. The chapter is organised by material type and chronological period, offering a comprehensive overview of archival storage practices across time and cultures

1 Introduction

Bamboo strips, palm leaves, birch bark and paper manuscripts have been randomly preserved according to the way in which they were deposited, generally without a specific container. The Cairo Genizah represents an assemblage of 400,000 manuscripts, that were taken from multiple sites in Cairo and beyond, found in a cache in the Ben Ezra Synagogue of Fustāt, slowly withering away.¹ When preserved in containers, these manuscripts were often removed from their original place and sometimes emptied, the dossiers in which they were contained being thrown away. Therefore, their use as archival storage is lost. In other places, such as for the administrative organisation of the Byzantine or Abbasid Empire, there is no material evidence concerning archives, even though texts give some information on storage.² This is also the case for many other ancient archives.

1 Jefferson 2022. The same practice is evident from the Damascus Qubbat al-khazna, see D'Ottone Rambach, Hirschler and Vollandt (eds) 2020. This chapter focuses on archive containers, but also takes into account those used for other collections of written artefacts when this can shed light on the subject.

2 See Grünbart 2018 for the Byzantine Empire and van Berkel 2014 for the Abbasid Empire.

The widespread use of paper, invented during the late first millennium BCE in China, the use of which having increased around the world since about 1000 CE, has changed archival practices fundamentally. Archives made of paper are arranged and preserved in a great variety of containers: for example, envelopes, folders, cardboard and archive boxes.

Archives in today's digital world are arranged within folders on computers, hard disks, CD-ROMs, USB sticks and the cloud, composed of series of servers; both the digital data and their containers are highly ephemeral.

Whatever the period, geographical area or language, the terminology of archival containers has given rise to a large number of translations that are far from uniform. Understanding this vocabulary is particularly complex. The terms used in ancient texts to identify the materiality of the containers are not always helpful either. Cuneiform texts from the early second millennium BCE feature, for example, the terms *tamalakkum* and *šiliānum* for tablet containers. If they are traditionally translated as 'box' and 'jar', respectively, we have no clue about the materials from which they were made (e.g. wood, reed, clay) or their shape.³ The word *qimaṭr* denotes a container of documents or books in the Arabic literary sources from the ninth century on. Unfortunately, this word was used to refer to a great variety of containers: a box or bag, a bookcase or even a bound register.⁴

It is a real challenge to identify and analyse the containers used to store archives and dossiers from the invention of writing to the digital data of today. Depending on the time period and area concerned, some containers made from organic materials have not survived. This is the case, for example, for the ancient Near East, where artefacts made of textiles, reeds or wood have mainly disappeared. However, in some instances, the imprint they left on clay tablets and tags suggest their use.

Furthermore, the actual conservation of written artefacts, though again dependent on their medium and the climatic conditions of the areas concerned, provide clues about containers. Clay cuneiform tablets from Mesopotamia have survived time, while papyrus and leather manuscripts have disappeared. Almost two-third of the population in Egypt lived in the Nile Delta, an area not favourable for the preservation of organic materials;⁵ papyri from Alexandria library have burnt. However, those deposited in tombs in the desert during the Pharaonic

³ Such translations are contradicted by the data gathered in some texts. A *šiliānu* container, for example, could be made of rush (Kt n/k 1460:24–26), and we learn that three *tamalakkum* could be placed into a *šiliānum*.

⁴ Hallaq 1998.

⁵ Hagen 2018, 74–75.

Period have been exceptionally well preserved. Unfortunately, a majority of these have been discovered during illicit excavations and there is no record of their original context, including the containers in which they were preserved. Most of the ostraca found during the excavations were discarded in Antiquity and, thus, not archived – accordingly, little information about storage facilities is available. The remains found in the rubbish dumps at Oxyrhynchos, the capital city of the nineteenth Nome in Egypt, contained large quantities of papyri kept in some seven hundred boxes.⁶ The same applies to ancient China, where most of the documents which have been discovered were presumably discarded in Antiquity. As for the manuscripts found in tombs, the reason for their presence is still much debated, and they seem to have been mainly copies written for this specific purpose.⁷ The magistrates' archives deposited in the *archeion* in ancient Greece and Rome from the second century BCE on, partly written on wood, *axon*, have disappeared, as well as the containers and furniture testifying to the organisation of the archives.⁸

However, even for the earliest historical periods, archaeological discoveries, though admittedly random in nature, provide some glimpses into the storage technologies. The function of these containers is to store, protect and preserve textual and non-textual documentary artefacts. Their storage capacity depends on their size. Inside them, the documents may be filed or not, influencing how they can be retrieved, if necessary. Containers with their manuscripts can be removed and transported, sometimes for long distances, for example, boxes and baskets of clay tablets transported on donkeys in ancient Mesopotamia, documents transported from the provinces to the political centre in the Abbasid Empire⁹ or mail bags transported by cargo aircraft today. Occasionally, dedicated backpacks were used to move files and archived written artefacts (Case Study 3.1).

This chapter deals with a great variety of 'containers' made from different materials and taking various shapes: for example, textiles, leather sheets and reed mats used as wrappings, bags, leather pouches, jars, other types of ceramics, baskets, boxes, leather bookcases and cardboard folders. These containers were more or less adapted to the material, shape and size of the written artefacts stored inside: clay tablets, leather and papyrus rolls, ostraca, palm and copper leaves, birch bark manuscripts, codex, concertina, sound, video or digital data. Thus, clay tablets were, for

6 Rustow 2020, 23–25 and 455, n. 4.

7 Fölster 2018, 223. Moreover, the written artefacts discovered in the tombs in China are considered to be libraries and not archives.

8 Coqueugniot 2013, 3.

9 Van Berkel 2014.

example, stored in boxes made of wood or reeds, while papyrus rolls were placed in high jars. Their own shape and size also depended on the place in which they were deposited: on the ground, on shelves, in niches, chests, cupboards, and many others.¹⁰

This chapter surveys the various types of archival containers used around the world from Early Antiquity to today. It is divided into sections according to the materiality of these containers and includes thread bindings and wrappings with textiles and other flexible materials, such as leather, various types of bags and sacks whatever their material, baskets, jars, boxes, whether of wood or other materials, and a special section is dedicated to containers for photographic, sound, video and digital data. Each of these sections is organised chronologically and geographically, and focuses on some examples to illustrate the use that was made of the containers.

2 Bindings with threads, wrappings with textiles, reed mats and leather

Various materials were regularly used to tie and wrap single documents or groups of written artefacts since the earliest historical periods. Clay tablets, labels and envelopes from Mesopotamia sometimes show imprints of the textiles in which they were wrapped before being completely dry.¹¹ Nineteenth-century BCE letters exchanged between Assyrian merchants mention the careful wrapping of cuneiform clay tablets in textiles, reed mats or leather to protect them during their transport: ‘All these tablets and their copies, on the day Laliya arrives, wrap them, pack them solidly in a *maškūnum* textile of good quality and entrust them to a trustful trader.’¹²

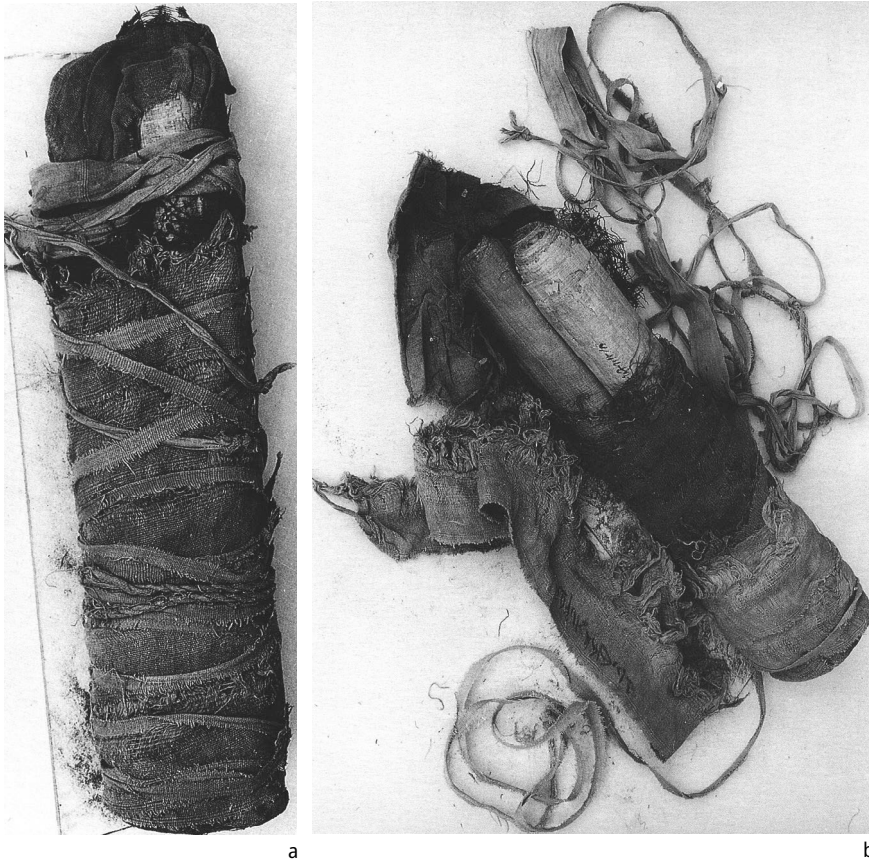
Several cases of written artefacts still wrapped in such ways in textiles survive to this day from ancient Egypt. Among these, three packets of papyri belonging to the archive of Teos and Thabis were acquired by the Egyptian department of the Royal Museums of Art and History in Brussels in 1972.¹³ The wrapping was made of linen, with straps to tightly attach the textile piece. The largest of these packages contained three well-preserved papyri, each being longer than three metres and dealing with the sale of a house in Thebes, dated to between 327 and 311 BCE (Figs 1a–b).

¹⁰ Paul 2018, 353, 356, and see Chapter 4 of this book on furniture by Markus Friedrich.

¹¹ Michel 2016; Andersson Strand, Breniquet and Michel 2017.

¹² Michel 2023, 32; Bilgiç and Günbattı 1995, no. 82:21–27, *mì-ma ṭup-pé-e a-ni-ú-tim, ú me-eh-ri-šu-nu : i-na^autu^{si}, ša Lá-li-a : e-ra-ba-ni, qí-ša-šu-nu : da-ni-na-šu-nu-ma, i-na maš-kà-nim sigs : šu-uk-na-ma, a-na dumu um-mi-a-nim, ke-nim : pí-iq-da-šu-nu-ma*.

¹³ Depauw 2000, 3.



Figs 1a–b: Scrolls from the archive of Teos wrapped in linen (a) and partially unwrapped (b); from Depauw 2000, plates 1–2.

The practice of wrapping manuscripts from (private) archives in textile continued in rural Egypt for centuries. A group of fifty family documents written on parchment and paper from the Fatimid Period (eleventh century) was unearthed in domestic buildings in the Naqlūn monastery, in the eastern part of the Fayyūm region, in 1997.¹⁴ It contained legal and commercial documents as well as letters written in Arabic, and belonged to the archive of the Banū Bifām, a Christian landowning family. The legal deeds written on parchment were rolled and stored

¹⁴ Gaubert and Mouton 2014; Hirschler 2016, 5, and the website dedicated to the study of these documents: <<http://naqlun-archivesbanubifam.uw.edu.pl/>> (accessed on 15 September 2022).

within a leather pouch. The tax receipts, business letters and remaining legal documents that were written on paper were folded in four bundles, each wrapped in a strip of linen.

Documents produced by government officials in Egypt during the Fatimid Period (tenth to twelfth centuries), as well as Arabic documents from the Mamluk Period (thirteenth to early sixteenth centuries) in Egypt and Syria, or those from Al-Haram al-Sharīf in Jerusalem written in the context of local administrative and legal proceedings, were bundled with strings through holes in the paper.¹⁵ Similar practices are attested in late medieval and early modern Europe, where the filing of documents consisted of tying them together with a string through a hole in the paper, the resulting groups of documents often being hung on the wall.¹⁶

Tens of thousands of manuscripts dating from the fifth to the tenth centuries CE were discovered in a cave at Dunhuang, in Gansu province in China. They were rolled in paper, called sutra-wrappers (*zhi*). Some of these scrolls were held together by string.¹⁷

The *pothi* manuscripts, made from palm-leaf strips or paper, in Central, South and South East Asia are ‘made of a stack of folios in landscape format that are flipped upward rather than sideward’.¹⁸ The folios, usually tied together with a thread in bundles, were covered by textiles. Buddhist texts are wrapped in cotton or silk textiles specially woven for them, and there can be several layers of textiles protecting these priceless texts.¹⁹ This practice is also regularly documented, especially in North and East Africa or Asia, for other types of precious manuscripts, which are wrapped in fine textiles. The choice of wrapping materials, thus, clearly reflects the users’ attitudes towards and valuation of the documents and their contents.

The tradition of tying together with a satin ribbon letters received from a beloved one goes back several centuries in western Europe and was still used by our parents or grandparents.²⁰ These letters were then stored in a secret drawer or case, and discovered there by descendants. The purpose of gathering letters with a ribbon is not to protect them or store them in a container; it represents another form of ‘container’ whose purpose is to keep together letters sent by the same and

¹⁵ Hirschler 2016, 4; Rustow 2020, 341–342.

¹⁶ Papritz 1983, 6; Wolfe and Stallybrass 2018, 181–183, describing the famous *Portrait of a Merchant* by Jan Gossaert, c. 1530.

¹⁷ Drège 2014.

¹⁸ Ciotti 2023, 155.

¹⁹ Ciotti 2023, 177–181.

²⁰ This practice is also attested for other types of documents, for example, acquittances tied with a string from the early seventeenth century, see Wolfe and Stallybrass 2018, 193, fig. 8.5.

unique sender, and the choice of satin for the ribbon expresses the importance given to these heartfelt letters. This practice was not limited to love letters, but extended to all correspondence according to some manuals explaining how to order letters for an easy retrieval. Advice is given to bind letters received during a month or sent from the same place in a bundle together, writing on their back the date they arrived.²¹

3 Bags, leather pouches and waterskins

When not simply wrapped in soft materials, written artefacts could be inserted in a bag made of textile or leather, just as the legal deeds of the Banū Bifām family, which were found in a leather pouch. Even though such materials have rarely been found in Near Eastern archaeological sites, both clay labels that were applied to such containers and cuneiform texts document the use of textile and leather bags. Thousands of cuneiform administrative tablets have been found at Puzriš-Dagan (modern Drehem), which was the great royal breeding centre of the third dynasty of Ur (Ur III, twenty-first century BCE) for a wide variety of animals.²² According to a reconstitution made by Christina Tsouparopoulou, in a first stage, the tablets were deposited, perhaps on shelves, during a few weeks to a month.²³ In a second stage, tablets linked to running accounts were deposited in a leather bag (^{kuš}du₁₀-gan), the contents of which were checked by an official. The bag was then closed with a spherical clay label (e₂-tum) on which the official imprinted his seal. The bag had to be big enough to hold some eighty small tablets.

Papyrus and leather scrolls discovered in Egypt or in the Judean Desert were also regularly wrapped in linen textiles or in bundles with a piece of cloth or reeds that were tied with strings and straps in order to preserve them. A cache with papyrus fragments from the Roman Empire was discovered in Nahal Hever (Israel) in the early 1960s; it was later referred to as the ‘Cave of Letters’.²⁴ Two archives were hidden in this cave. The first one, belonging to survivors of the Bar Kochba revolt in 132 CE, was found in a niche full of skulls. There, a bundle of

²¹ Manual quoted by Daybell 2012, 220. My grandmother used to do this for her correspondence in the second half of the twentieth century. When we were tidying up the house, we found bundles of string-bound letters received from my father and other members of the family; on each envelope she had noted the date the letter had arrived.

²² Pouches for tablets are also attested in early-second-millennium cuneiform texts (*zurzum*).

²³ Tsouparopoulou 2017, 622, 625.

²⁴ Cuvigny 2009, 49–50.

fourteen papyrus letters, together with folded wooden leaf tablets, were preserved in a waterskin. The second archive consisted of thirty-five documents dating from 92 to 132 CE and belonging to a twice widowed woman. They were kept in a leather pouch which was wrapped in linen, maintained by a tied string, and itself preserved in a waterskin: thus, a triple protection is documented for this little archive.

Bags represent one of the three main forms of archive containers in ancient China. After the unification of the Qin dynasty (221–206 BCE) and during the Han dynasty (206 BCE–220 CE), the increasingly centralised bureaucratic system produced a flow of official documents that had to be organised. Archives were sealed or temporarily stored in textile bags, opened at one end or at both ends, and bamboo containers.²⁵ Bags opened at one end were used for the easy transportation of several documents, those opened at both ends were better used as envelopes for unique documents, with the left and right sides wrapped and folded, then sealed. Bags and sacks were made of textiles, sometimes silk, whose colours used to indicate the urgency or importance of the document enclosed.

Some of France's royal archives have been stored in sacks since the late Middle Ages. The Trésor des Chartes represents the central archive of the royal family from the time of Philippe Auguste (1180–1223) onwards. It was housed in an annex of the Sainte-Chapelle du Palais from the second half of the thirteenth century, where it remained until 1783. Charters and letters were kept in boxes or chests (*layettes*). However, a number of documents were also kept in sacks (*sacs*), either because they had been removed from the chests and never stored back, or had been placed there temporarily.²⁶ The inventory drawn up in the seventeenth century did not consider the *sacs*, whose number continued to increase. The *sacs* were then referred to as *supplements* and kept separately. At the time of the French Revolution, they were divided into two groups, following the model of the *layettes*: the *gouvernements*, which concerned the various provinces of the kingdom, and the *mélanges*, which included files relating to France's internal and external policies. The *sacs* still have a distinctive inventory number in the Archives Nationales today.

Bags were also a container of choice in the judicial field during the Ancien Régime (1589–1791). Made of jute or hemp – cheap materials of very ordinary quality – or leather, bags were used to store all the documents relating to a trial. These *sacs à procès* (trial bags) were sealed and hung from a hook in the wall or from a beam in the lawyer's chambers or court registries. This kept the bags safe

²⁵ Wang 2022.

²⁶ Delaborde 1909.

from rodents. At the hearing, the lawyer would unhook the bag and extract all the documents it would contain for the trial.²⁷

Such a practice is very well illustrated in the *Village Lawyer* (1621), a painting by Pieter Brueghel the Younger (1564–1638). The walls in the painting are covered by bags hanging on nails and identified with a paper label (Fig. 2).



Fig. 2: Pieter Brueghel the Younger (1564–1638), painting: *Village Lawyer* or *Dorpsadvocaat* (1621), Museum of Fine Arts Ghent, Inv. 1952-G; public domain, via Wikimedia Commons: <https://commons.wikimedia.org/wiki/File:Pieter_Brueghel_the_Younger_-_Village_Lawyer_-_WGA3633.jpg> (accessed on 12 December 2022).

The use of such small bags for records have given birth to the name of the Petty Bag Office in England, which existed since the fourteenth century and dealt with ordinary law issues in the Court of Chancery. Typically, the office's record-keeping practices, including presumably their dominant reliance on bags, was considered increasingly as inefficient and came under heavy attacks in the seventeenth century.²⁸

²⁷ Blanquie 2001; Michel 2021.

²⁸ Busch 1982.

Bags made from leather or canvas were also widespread in early modern England (sixteenth and seventeenth centuries CE), as noted by Heather Wolfe and Peter Stallybrass:²⁹

Thousands of these kinds of pouch have been preserved in the National Archives at Kew, primarily in the records of the Exchequer [...], in various sizes designed to hold various shapes of documents, from vellum rolls to single folded sheets to stacks of documents with seals.³⁰

The use of leather bags and satchels to keep documents is also known in other parts of the world. A fourteenth-century Ilhanid Persian archival list indicates that documents were routinely stored in a bag, probably made of leather: ‘List of Deeds of the Fourth Bag, the White Bag’.³¹ It is also the case in Ethiopia and Eritrea, where leather bags represent a typical feature of the local manuscript culture, and more generally in North Africa. They are either hung on the wall as a storage device or used to carry the manuscripts (Case Study 3.2).

Letters have been transported in postal bags made in a variety of materials for centuries.³² Today, paper bags, sometimes recycled, and plastic pockets are regularly used to archive documents.

Textile bags are generally considered to be temporary or intermediate containers; archives are placed in them until they are transferred to a more permanent container, such as a box or piece of furniture. In some cases, the bag and its contents are stored in a larger or more solid container. It is not uncommon to wrap manuscripts in several layers of the same or different materials (e.g. textile, leather) for better protection.

4 Baskets and reed boxes

Baskets and reed boxes could be used in the same contexts as leather or textile bags. The Ur III administrative archive of Puzriš-Dagan also mentions the existence of reed and wooden baskets (respectively ^{gi}pisan and ^{gis}pisan) to store tablets.

²⁹ Wolfe and Stallybrass 2018, 196–198.

³⁰ Wolfe and Stallybrass 2018, 196–197.

³¹ Aljoumani, Bhalloo and Hirschler 2024, 106.

³² A seventeenth-century postmasters’ trunk counting 26,000 undelivered letters sent from France was found in The Hague; the letters had been transported in bags; many of these letters had a Dutch stamp explaining that they could not be delivered for various purposes, see Ahrendt and van der Linden 2017.

At the end of the year presumably, the clearing of accounts went together with the clearing of the archive. The tablets were removed from the leather bags into larger containers made of reeds.³³ These large basket-like containers could include some five hundred tablets, thus, the content of some six leather bags, including their six tags. An unsealed tablet-shaped label perforated on its edge was then attached to the large basket indicating its contents. These tablet-shaped labels were designated by the expression '*pisan dub-ba*', which literally means 'basket of tablets'; they are attested already during the middle of the third millennium BCE. This administrative procedure, involving a repackaging of written artefacts, suggests that different containers represented the different phases of archival conservation.

Ur III texts found at Umma document the making of reed baskets for tablets. Such a basket measuring some 50 cm in height would be made in two days from ten bundles of reeds of a little more of 2 kg each (i.e. 20–25 kg), and about a litre of bitumen. Bitumen was normally used to make the basket water-resistant and durable, meaning that these containers were intended to last a long time.³⁴ As a matter of comparison, a complete basket found in Egypt and dating to the late sixteenth century BCE made of palm leaves is 45 cm in height (Fig. 3).

Baskets for clay tablets were common throughout the use of cuneiform until the late first millennium BCE.³⁵ They were usually made of reeds, some of them doubled and covered with leather. Wooden tablets coated with wax could also have been stored in a reed basket or box. A clay cuneiform tablet gives the inventory of more than twenty different types of administrative writing boards that were stored in reed boxes in the archive of the Eanna temple at Uruk under the reign of Nebuchadnezzar (604–562).³⁶

During the Roman Empire, scrolls were regularly stored in cylindrical baskets (*cista* or *capsa*), which could be used for other purposes as well (Fig. 4). These are represented, for example, in the frescoes visible on the walls of the house of Marcus Lucretius in Pompeii. A painting in the triclinium room represents a basket of open scrolls at the feet of a seated poet.³⁷

³³ Tsouparopoulou 2017, 625–626.

³⁴ Waetzoldt 1992, 128.

³⁵ An Old Assyrian text from the nineteenth century BCE mentions a *šiliānum* made of rushes (*ša ašlātim*) in which memoranda have been placed (Özgüç and Tunca 2001, 347). Contemporary Old Babylonian family archives were also kept in baskets during the Old Babylonian Period according to Jacquet 2013, 81.

³⁶ Nielsen and Kozuh 2021.

³⁷ Balch 2008, 223; for a reproduction of the frescoes, see Istituto della Enciclopedia Italiana 1999, 230, no. 133. The word *capsa* may also refer to a cylindrical box made of other materials (see below, Section 3.5).



Fig. 3: Basket from the tomb of Meritamun, Thebes, Deir el-Bahri, reign of Amenhotep I; New York City, NY, The Metropolitan Museum of Art, 30.3.16a, b; Rogers Fund, 1930, <<https://www.metmuseum.org/art/collection/search/544843>> (accessed on 15 March 2023, public domain).



Fig. 4: Engraving of a *capsa* reproducing a fresco from Herculaneum; CC BY 2.0, via Wikimedia Commons: <[https://commons.wikimedia.org/wiki/Category:Museo_Archeologico_\(Naples\)_in_art_-_Frescos#/media/File:Delle_antichit%C3%A0_di_Ercolano,_1757-1779_\(T._I-VII\)_20216_\(23748391135\).jpg](https://commons.wikimedia.org/wiki/Category:Museo_Archeologico_(Naples)_in_art_-_Frescos#/media/File:Delle_antichit%C3%A0_di_Ercolano,_1757-1779_(T._I-VII)_20216_(23748391135).jpg)>; the colour painting can be viewed here: <<https://www.ucm.es/quidestliber/capsa>> (accessed on 12 December 2022).

Baskets were also used to store documents during the Middle Ages in Europe. Documents were sometimes organised and filed in several baskets.³⁸ According to the diary of Nicolaus Kindlinger (1749–1819), a German Catholic priest, baskets were still employed to store charters at the end of the eighteenth century.³⁹

Baskets woven from bamboo gabions were regularly used to store archives, especially official documents, in ancient China.⁴⁰ The basket (*si* 筥) made of plaited bamboo, had multiple functions, among which was the storage of written artefacts. It was firmly closed with a string running around it several times, and a wooden label and clay sealing.⁴¹ Baskets were still in use to store family archives in Tibet in the twentieth century CE. Such baskets were abandoned in houses by the last members of ancient families of lamas. Poor care was taken regarding these, and the new house owner would have simply thrown them away when renovating the building.⁴²

Nowadays, archives continue to use oval-shaped bamboo hampers in some countries of Central Asia, for example, Tibet.⁴³

5 Jars, other types of vessels and objects

Jars and other clay vessels were regularly used to store archives in ancient Mesopotamia and surrounding areas. Groups of tablets were found kept in such clay vessels in several sites from the second millennium BCE. The nineteenth-century archives of the Assyrian merchants settled in the lower town of Kültepe, ancient Kaneš, in central Anatolia, were often kept in jars or open vessels (Fig. 5).

³⁸ Papritz 1983, 3.

³⁹ Nikolaus Kindlinger was reorganising the archives of the von Plettenberg-Wittem family in the castle of Nordkirchen when he ‘discovered important documents in a basket in the library’: ‘Ich entdeckte in einem Korbe auf der Bibliothek wichtige Urkunden, wovon die Familie von Plettenberg, als Besitzer des Hauses, und ihre Hausadvocaten nichts wußten’ (Stadt- und Landesbibliothek Dortmund, Hds 126, *Tagebuch Nicolaus Kindlinger*, fol. 76^v and fol. 76^r respectively); personal communication of Ann-Sophie Hellmich-Schwan.

⁴⁰ Wang 2021.

⁴¹ He 2021, 48–49.

⁴² This is, for example, the case of a basket of archives of the Lama Osal Dorje’s family according to Ramble 2018, 34–35.

⁴³ Helman-Ważny and Ramble 2017, 268, fig. 3.



Fig. 5: Part of the private archive of the Assyrian merchant Šalim-Aššur found in a house of Kültepe lower town in central Anatolia, Turkey, nineteenth century BCE; © Kültepe Archaeological Archives.

Similar to baskets, these containers could be labelled with a clay tag, or the name of its owner was inscribed directly on the ceramic itself. The neck of a big broken jar found at Kültepe in 1992 had the name of the merchant Amurru-bāni engraved on it.⁴⁴

Preserving clay tablets in a ceramic pot is a common feature all through the history of Mesopotamia. Recent excavations in the north of Iraqi Kurdistan have revealed several buildings at Kemune, ancient Zakhiku.⁴⁵ One room in the palace contained five earthenware jars containing cuneiform tablets from the beginning of the Assyrian occupation of the region (late fifteenth–beginning of the fourteenth century BCE), including letters still preserved in their clay envelopes. A total of more than a hundred cuneiform tablets were discovered, some in very poor condition. These jars were sealed and hidden away by their owner before leaving the place, with the hope of returning. Middle Babylonian tablets kept in large clay pots were discovered in some of the private houses of the Merkes quarter, also in

⁴⁴ Kulakoğlu and Kangal 2010, 344, no. 448.

⁴⁵ See <<https://kommunikation.uni-freiburg.de/pm-en/press-releases-2022/a-3400-year-old-city-emerges-from-the-tigris-river>> (accessed on 12 June 2022).

Babylon.⁴⁶ Other groups of rural administrative tablets dating to the thirteenth century BCE were found in pots at Tell Imlihiye, along the Diyala River.⁴⁷

According to the Book of Jeremiah, the second of the Latter Prophets in the Hebrew Bible, written accounts of business transactions could be secured, hidden in clay jars, after the impending Babylonian occupation of Judea: ‘the Lord had said: “Take both copies of this bill of sale, one sealed shut and the other open, and put them in a clay jar so they will last a long time.”’⁴⁸

Leather scrolls were also regularly preserved in high jars, this is, for example, the case for papyrus and leather scrolls discovered in the Judean Desert. A Bedouin shepherd found seven scrolls in a cave located on the West Bank north of the Dead Sea in 1947. During the excavations which followed (until 1956, and 2017, 2021) no less than twelve caves at Qumran were explored. They contained almost a thousand manuscripts, written mainly on papyrus, but also on leather and forming a library with an archival component. The manuscripts, written predominantly in Hebrew, but also in Aramaic and Greek, date from the third century BCE to the second century CE. The scrolls found at Qumran were rolled tightly and some were fastened by thongs or strings which were fixed at the beginning of the scroll by a reinforcing tab or through a hole.⁴⁹ Certain scrolls were wrapped in linen. Some of them were kept in high cylinder jars often preserved with their lid; such a container helped the preservation of the scrolls (Fig. 6). Others were simply placed on wooden shelves fixed to the wall.

Ancient Egypt from the Pharaonic Period on provides many examples of papyrus or leather scrolls kept in jars.⁵⁰ The Demotic archive of Totoes found at Deir el-Medina and dating to the second century BCE was kept in two sealed jars in the wall of a building north of the Hathor temple. It consisted of fifty-three papyri either wrapped in covers also made from papyrus or in linen strips.⁵¹ The use of *pithoi* and other ceramics continues to be one of the preferred ways of storing and preserving documents in ancient Greece. This use is the most well documented because it is one of the best preserved examples from Antiquity.⁵²

⁴⁶ Pedérsen 2005, 72, fig. 28, and 101, fig. 49.

⁴⁷ Paulus 2013, 89.

⁴⁸ Jeremiah 32:14, translation <<https://www.biblegateway.com/passage/?search=Jeremiah%2032&version=CEV>> (accessed on 9 September 2022).

⁴⁹ Tov 2017, 37–38.

⁵⁰ Hagen 2018, 155 mentions, for example, legal documents kept together – including the Papyrus Ambras – in a couple of jars and dating presumably to the eleventh century BCE.

⁵¹ See <<https://www.trismegistos.org/arch/archives/pdf/248.pdf>> (accessed on 9 September 2022).

⁵² Coqueugniot 2013, 50.



Fig. 6: Dead Sea Scroll jar and lid, second century BCE, Qumran; New York City, NY, The Metropolitan Museum of Art, 64.26a, b; Gift of Hashemite Kingdom of Jordan, 1964, <<https://www.metmuseum.org/art/collection/search/325659>> (accessed on 12 June 2022, public domain).

The archive of Flavius Dioscorus (525–573/585) was found by Gustave Lefebvre in a three-room house at Kôm Ishqaw in 1905, at the location of ancient Aphrodito in Egypt.⁵³ In one of the rooms, a 90 cm high jar with a broken neck was full of papyri. It contained 150 rolls, written mainly in Greek but also Coptic; among these were legal, business and personal records, as well as original poetry.

The Gandhāran Buddhist birch bark scrolls form the oldest collection of Buddhist manuscripts dating from the first century BCE to the third century CE. They were found in the north-west of Pakistan and east of Afghanistan, and kept in clay jars buried in ancient monasteries.⁵⁴

As a general observation, it seems that the clay jars, which stood the test of time, helped to preserve the manuscripts stored in them, whether clay tablets, papyri or birch bark scrolls.

Specific vessels could be diverted from their normal use as camouflage to store secret archives. This is the case of milk cans which were used in the Warsaw Ghetto by the secret organisation Oneg Shabbat for the Jewish archives. Public records, posters, flyers, invitations, press clippings, personal correspondence, journals and diaries, as well as Nazi propaganda, were stored in milk cans and metal boxes. This Ringelblum Archive, named after its inventor in 1941, was buried in various places before the liquidation of the ghetto. Two of the three caches were unearthed after the war by the very few survivors of Oneg Shabbat.⁵⁵

In the Buddhist tradition, in China, Japan, Korea and India, a very peculiar type of ‘container’ for religious texts is represented by statues: texts are hidden inside for religious veneration.⁵⁶ Statues are, thus, not used for storage, as containers usually are, but the insertion of these written artefacts have the effect of empowering the statuary.

⁵³ Cuvigny 2009, 49.

⁵⁴ Salomon 2018. These manuscripts, written in the Gāndhārī language, used the Kharoṣṭhī script, thus, they are also referred to as the Kharoṣṭhī manuscripts, see also Strauch 2014.

⁵⁵ Kassow 2007; <<https://www.jhi.pl/en/research/the-ringelblum-archive-and-the-oneg-shabbat-group/about-the-ringelblum-archive>> (accessed on 12 December 2022).

⁵⁶ Robson 2012.

6 Boxes, leather bookcases, cardboard folders

The words ‘box’, *boîte* and *Büchse* derive from the Greek term *pyxis*, which originally corresponded to a little box made of boxwood, and later on to a great variety of containers. The *capsa* in Latin (Fig. 7), referred to a round box containing all sorts of documents,⁵⁷ while the *scrinium*, which had the same shape, was divided into compartments. This term was replaced during the fifteenth century by *layette*, which initially corresponded to a box of small dimensions with a lid, and later on to the pull-out drawer of a cupboard.⁵⁸

Much more common, however, were boxes of a cuboid shape. Their size may vary significantly, from small boxes containing only a few documents to very large ones, almost the size of a chest or trunk. Most boxes had multiple uses, and were not specifically made for documents. Some, originally intended for the conservation of foodstuffs or other products, may have been reused for storing documents. They can be made of wood, but also, for example, of reed, leather, metal and cardboard. Occasionally, materials can be mixed or added one on top of the other. Plant-based containers’ archival capabilities could be further improved, for instance, by laminating them with additional sturdy materials, including leather (Case Study 3.3).

The boxes are easy to store in a dedicated space: they can be placed on shelves, piled in the corner of a room or stored inside a cabinet. Boxes may be divided into compartments, for a better internal organisation of the written artefacts. They can have a tag describing their contents, or bear an inscription on the exterior or interior.

The presumably earliest surviving boxes containing written artefacts were found in tombs, both in Egypt and China. In Gebelein, on the Nile, about 40 km south of Thebes, archaeologists found in a tomb of the fourth dynasty (about 2500 BCE), perhaps belonging to a scribe, a wooden box measuring 55 × 26.5 × 8 cm containing twelve papyrus scrolls together with writing equipment: reed pens, red and black ink cakes, and a scribe’s mortar (Figs 8a–b).⁵⁹ The inside of the box cover was used as a writing board showing painted traces of a washed name list and grain account, as well as tentative signs which would correspond

⁵⁷ For the *capsa* as a basket, see Section 3.3.

⁵⁸ <<https://archivadm.hypotheses.org/layette>> (accessed on 15 March 2023); for furniture, see Chapter 4 of this book.

⁵⁹ Posener-Kriéger 1994; Hagen 2018, 77. This last author mentions another example of a preserved wooden box with papyri together with other artefacts found at Thebes (1820 BCE) and presumably belonging to a priest or ritual practitioner (Hagen 2018, 116).

to the testing of a scribe's reed pen. The scrolls themselves are accounts and personnel lists.



Fig. 7: Portrait of Virgilio with a *capsa* on his left, from *Vergilius Romanus*, Vatican City, Biblioteca Apostolica Vaticana, Vat. lat. 3867, fol. 3^v (detail); fifth century CE; public domain, via Wikimedia Commons: <[https://commons.wikimedia.org/wiki/File:Vergilius_Romanus_c._500_Manuscript_\(Vat._lat._3867\)_Biblioteca_Apostolica,_Vatican.jpg](https://commons.wikimedia.org/wiki/File:Vergilius_Romanus_c._500_Manuscript_(Vat._lat._3867)_Biblioteca_Apostolica,_Vatican.jpg)> (accessed on 23 November 2023).

Later on, during the Achaemenid Egypt, documents were still kept in wooden boxes. This is the case, for example, of nine documents linked to private property and hereditary rights of a family and rolled together into a box in Elephantine.⁶⁰

Such boxes have not survived in less favourable climates, such as in the Near and Middle East. However, the disposition of cuneiform clay tablets found during excavations on some sites clearly indicated that they were preserved originally in a cuboid-shaped box made of organic material, probably wood or reed. This is the case, for example, in the house of Ur-utu found at Tell ed-Dêr, ancient Sippar of Annunitum, between the Tigris and the Euphrates in southern Mesopotamia. No less than 2500 tablets were found in this house belonging to the chief-lamentator priest⁶¹ of the goddess clergy during the reign of Ammi-šaduqa (1646–1626 BCE). Archaeologists unearthed piles of tablets in one room of the house (no. 22). These tablets were previously kept in containers made of organic materials which had disappeared. Even though no trace of carbonised wood has been found, Michel Tanret, considering the clear alignment of tablets, suggested that they were kept originally in a box presumably made of reeds (Figs 9a–b).⁶² This box containing 207 tablets arranged in four layers, with a total of about 23 kg of clay, would have measured 26 × 24 × 20 cm. According to a detailed study of the contents of the box, the bottom layer consisted of old family documents, manuscripts moved from the first house of their owner, dossiers concerning real estate acquisitions, and it was completed on top by later documents added at the time the archive was rearranged.⁶³

⁶⁰ Kottsieper 2013, 179, n. 14.

⁶¹ The lamentator-priest had the task of appeasing the heart of offended divinities with elaborate songs accompanied by percussion instruments in order to ward off the misfortunes that divine wrath could bring.

⁶² Tanret 2008, 134–135.

⁶³ Tanret 2008, 145–146.

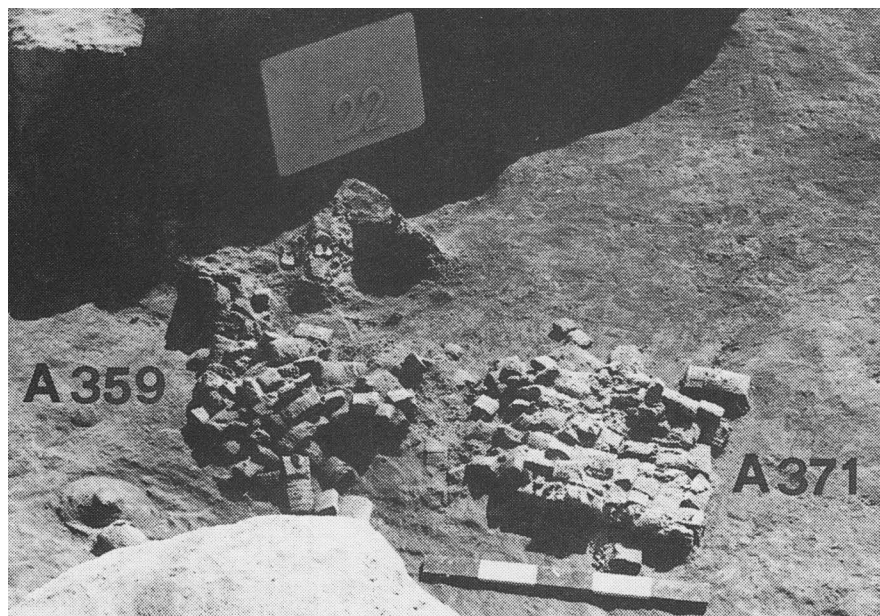


a

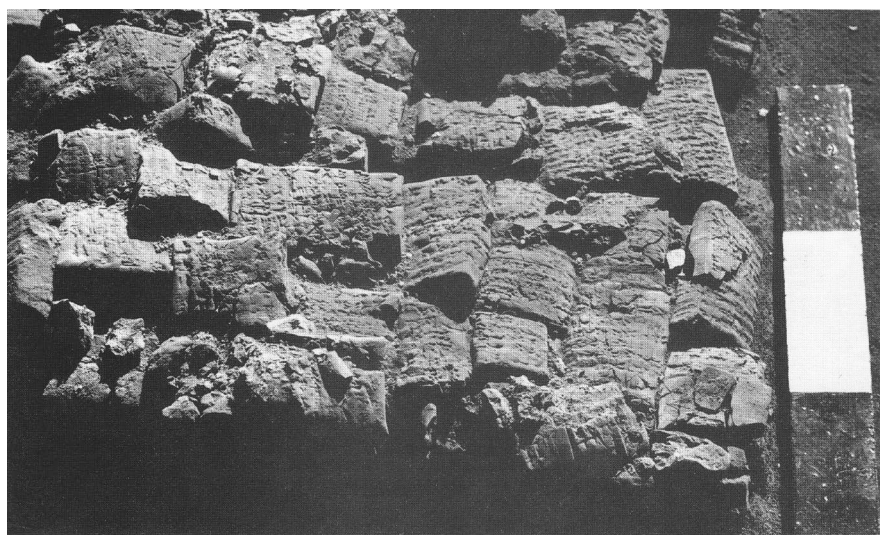


b

Figs 8a-b: (a) Wooden box from a tomb at Gebelein. (b) Inscriptions on the lid of the box used as a notebook. From Posener-Krieger 1994, 318–319, figs 1 and 5.



a



b

Figs 9a–b: (a) Groups of tablets (A. 359 and A. 371) found in the house of Ur-utu, room 22. (b) Focus on the group of tablets A. 371. The shape taken by the heap of tablets suggests that they were kept in a box. From Gasche 1989, plate 14, figs 2–3.

In addition to the small number of archaeological remains, cuneiform texts provide a great deal of information concerning tablet boxes, even though there is no hint about the material from which they were made. This is the case, for example, regarding the *tamalakkum* in the Old Assyrian texts from the nineteenth century BCE.⁶⁴ These containers were presumably boxes made of wood or reed; some archives could contain more than twelve such containers that could be stacked one on top of the other in a room.⁶⁵ They existed in at least two different sizes, the larger containing twenty-seven tablets or more, while the smaller had space for less than ten. They could have a leather cover (Kt 93/k 69:18–27) and separated compartments inside. These containers were regularly transported with their tablets inside, sometimes over long distances, and, thus, must have been strong enough and not too heavy.

Iconography from antique Greece shows wooden boxes and chests in which to keep manuscripts. While these have not been preserved, other boxes made from clay or carved out of stone blocks have been discovered, together with jars, in Argos.⁶⁶

Both bamboo and wood boxes, called ‘baskets’ (*sí* 笥), were used for administrative archives in China.⁶⁷ Wood boxes could occasionally be decorated and lacquered in order to preserve important books. A surviving lacquer box in one of the Han graves at Huchang, in Jiangsu province, is divided into two layers and five compartments; it contained some well-preserved silk books dealing with philosophy, the military, astronomy and geography, as well as some medical notes (Fig. 10).⁶⁸ Such lacquerware containers were popular among the upper classes. Ordinary bamboo boxes and suitcases, whether round (*dan*) or square (*su*), were more widely used to keep archives, also by the state.⁶⁹ Archaeological evidence attests to the two types of boxes for storing writings, often referred to as *si*. Prominent examples here were found in the Mawangdui tomb nos 1 and 3 (present day Hunan Province, dating c. 175–145 and 168 BCE). Importantly, these boxes were very diverse in design, from luxury cases to simple containers for everyday usage by officials.⁷⁰

⁶⁴ Veenhof 2013, 31, 56.

⁶⁵ Stephens 1944, no. 220.

⁶⁶ Coqueugniot 2013, 18.

⁶⁷ In China, wooden boxes were more valuable versions than bamboo woven baskets.

⁶⁸ Wang 2021.

⁶⁹ Wang 2022.

⁷⁰ Hunan sheng bowuguan and Hunan sheng wenwu kaogu yanjiusuo 2004. One example is available at <<http://61.187.53.122/collection.aspx?id=1316&lang=zh-CN>> (accessed on 23 March 2023).



Fig. 10: Lacquered bamboo container from the Han tomb no. 1 at Huchang, Xihu Township, Yangzhou in the Jiangsu province, from Wang 2022, 126, fig. 8.

At the turn of the first millennium CE in Europe, the Latin word *archiv(i)um*, probably derived from the Greek *archeion*, was increasingly used. This term denotes both the documents themselves and the structures where they are preserved, which need to be protected from water, fire, war and thieves.⁷¹ This might explain why, from the thirteenth century on, French kings used to travel carrying with them their most important documents and chancery records packed in boxes and coffers and transported in a separate carriage.⁷²

Administrative documents started to be systematically collected, and are deposited in the Palais-Royal from 1231 on. At the beginning of the fourteenth century, chancery registers made up of charters of royal acts sealed with wax (Trésor des Chartes) were deposited in the sacristy of the Sainte-Chapelle, in the *layettes*, hand-assembled, wooden, drawer cabinets in the form of small pieces of furniture or chests of drawers.

Studies on the Early Modern Period have demonstrated that bags and pouches were used for immediate reference, but these were placed in a box, chest, cof-

⁷¹ Friedrich 2018a, 79–80.

⁷² Friedrich 2018a, 31.

fer or cabinet for long-term storage.⁷³ The size of the boxes could vary a lot, and documents were not necessarily filed in such boxes or other containers. During this period, archives were also transported by boat in chests and barrels, wrapped in oilcloth and locked. This was the case for the evacuation of the archive of the Imperial Chamber Court in Speyer in 1681 when the city was threatened by the French troops of Ludwig XIV; the containers were transported via boat to Frankfurt.⁷⁴

The limited size of cases and small coffers eased their transportation, including, for instance, the late medieval print cases now preserved at the Musée de Cluny in Paris, whose largest dimensions are no more than 45 cm. These wood, metal and leather containers, sometimes richly decorated and sculpted, with a painting on the inside of the lid, were used to store documents and all kinds of small objects in a safe place, as well as to facilitate their transport.⁷⁵

Some boxes were quite small, adapted to contain a limited number of manuscripts. This is the case of the oval-shaped chipboard boxes which were commonly used for documents during the Middle Ages and into the nineteenth century. They could be painted, and their small sizes implied that the documents had to be folded to fit inside.⁷⁶ The Rathaus in Lüneburg, Germany, had a full collection of such chipboard boxes remaining from the fifteenth and sixteenth centuries.⁷⁷

Messengers in medieval Europe carried letters placed in a small box hung over their shoulder by a rope or attached to their belt.⁷⁸ At first, it was round, in the shape of a barrel, as shown in a manuscript by Petrus de Ebulo dating to the late twelfth century (Fig. 11a).

During the thirteenth century, the messenger box, hanging from the belt and resting on the hip, became shield-shaped, and could be decorated (Fig. 11b). It contained only one, or very few, letters. Over time, this letter container also became a social marker, bearing coats of arms indicating the high rank of the person employing the messenger.⁷⁹ From the sixteenth century on, it was no longer used,

⁷³ Wolfe and Stallybrass 2018, 199.

⁷⁴ Friedrich 2018a, 136–137.

⁷⁵ Huynh 2019. See, for example, the various such decorated containers presented at an exhibition in the Musée de Cluny in 2020: <<https://www.musee-moyenage.fr/media/documents-pdf/dossiers-de-presse/dp-mysterieux-coffrets.pdf>> (accessed on 23 March 2023).

⁷⁶ Papritz 1983, 4.

⁷⁷ See a photo of one of these at <<https://nbn-resolving.de/urn:nbn:de:0238-di100g019k0030403>> (accessed on 12 May 2023).

⁷⁸ Weber 1966.

⁷⁹ Weber 1966, 90. For another example, see the messenger box with the arms of Jean d'Argies dated to the end of the thirteenth century CE, Paris, Musée du Louvre, OA 6282, <<https://collections.louvre.fr/en/ark:/53355/cl010099204>> (accessed on 15 February 2023).

only the badge remained on the breast of the messenger who carried the letters, presumably in a simple bag.



Fig. 11a: Letter-carrying messengers with messenger-boxes c. 1195; manuscript of Petrus de Ebulo, Bern, Burgerbibliothek, Cod. 120.II, fol. 106^r; public domain, via e-codices: <<https://www.e-codices.unifr.ch/en/list/one/bbb/0120-2>> (accessed on 15 February 2023).



Fig. 11b: Shield shaped gilt copper messenger-box with the coat of arms of John the Fearless, duke of Burgundy. Early fifteenth century CE. Paris, Musée de Cluny, Musée national du Moyen Âge, Ancienne collection Victor Gay, Cl.17707; <<https://www.musee-moyenage.fr/collection/oeuvre/boite-a-messager.html>> (accessed on 15 February 2023).

Large boxes and cases can hold a great number of documents. When they were not compartmentalised, it was seldom possible for the documents to be filed inside. In addition, these boxes were generally multi-purpose. Indeed, boxes containing documents were not always specifically designed for this purpose. The recycling of boxes, created for other purposes, and reused for groups of manuscripts, is widely attested in world history. In some instances, boxes used to store consumables or other products have been reused to store documents. A wooden box, for example, inscribed with advertisements for Colman's products was recycled as a box for paper index cards cataloguing Sanskrit manuscripts preserved in

the Cambridge University Library.⁸⁰ The box has two compartments which allows a different organisation of the file cards. Boxes in modern Ethiopia and Eritrea may also be shaped from any kind of recycled objects, either in metal or wood, and can be used to keep manuscripts (Fig. 12).⁸¹



Fig. 12: Metal box used to contain manuscripts. Eritrea, Ḥamāsen, Libān, monastery of ʿĀndā ʾAbuna Takla Haymānot Wagariqo; photo: Alessandro Bausi 1994 for the Missione Italiana in Eritrea (MIE), 1992–1994, funded by Consiglio Nazionale delle Ricerche and Alma Mater Studiorum Università di Bologna, and directed by Irma Taddia.

Conversely, boxes have sometimes been made-to-measure for important manuscripts. In some Asian countries, decorated manuscript cases in rectangular shapes made of wood or metal were donated to Buddhist monasteries along with palm-leaf and paper manuscripts.⁸² These kinds of boxes are distinguished by their heavy decorations with an aesthetic and symbolic value. Such boxes were even sometimes de-

⁸⁰ Formigatti 2017, 24–26.

⁸¹ Personal communication from Alessandro Bausi.

⁸² Personal communication by Peera Panarut. As an example, a black and gold-lacquered manuscript case dating to the nineteenth century is now preserved at the Chester Beatty Library in Dublin, <https://viewer.cbl.ie/viewer/image/Thi_1364/1/LOG_0000/> (accessed on 3 April 2023).

signed to contain a single very important document. Cases were made specifically for the Torah scroll, the Qur'an, or (parts of) the Bible. Qur'ans in West Africa, for example, are kept in embellished leather boxes (Case Study 3.4).⁸³ Presentation boxes of this kind have also been made to hold other types of unique documents, such as treaties or important legal documents. The outside decoration and the stored document's content occasionally directly reference each other (Case Study 3.5).

A Siamese diplomatic letter written on gold plate and sent to the emperor of China in 1822 was carried in a golden bag itself placed in an octagonal lacquered container.⁸⁴ Nowadays, certificates of prestigious prizes or diplomas such as honorary doctorate degrees awarded by universities to personalities are presented to the recipient in a cardboard tube, often painted with the coat of arms and the name of the university in golden letters (Fig. 13).



Fig. 13: Two cardboard tubes for certificates of honorary doctorate degrees awarded from the universities of Louvain (1976) and Copenhagen (2017); photo: Cécile Michel.

Similar cylinder-shaped containers made of wood or metal may also be full of ordinary documents, such as Thai and Lao twentieth-century administrative documents and letters. Bamboo tubes also had a similar use in Southern Thailand at the beginning of the twentieth century, but they have not survived.⁸⁵

Filing boxes have been preferred and used in Europe since the late Middle Ages. First made of wood and then of cardboard, they contain documents stored vertically (Fig. 14). They are often open on one side for direct access to documents, with the opposite side plain for labelling.⁸⁶ Alternative uses, however, continue to occur.

⁸³ Scheper 2023, 145–149.

⁸⁴ See Chapter 1 in this book and Panarut 2022.

⁸⁵ Examples of wooden and lead tubes from the nineteenth and twentieth centuries are on exhibition at the National Library of Thailand in Bangkok; personal communication by Peera Panarut.

⁸⁶ For a wooden file-holder from the nineteenth century, see, for example, <https://web.archive.org/web/20221105195008/http://www.officemuseum.com/IMagesWWW/1884_1889_Woodruffs_Improved_File_Holder_1_OM.jpg> (accessed on 14 January 2023).

International standards have been published for the packaging of archival documents on paper and parchment. ISO 16245:2009,⁸⁹ for example, set out the requirements (components, number of layers in a box, whether or not to use folders) for boxes and folders made of paper and paperboard (cellulose materials) used for the long-term preservation of documents. In addition, these packaging materials must have a stable, markable, colourless resin coating and be shaped to fit the document. The porosity of the cardboard allows the passage of air and the release of acidic fumes associated with oxidation. The superimposition of corrugated cardboard layers allows a better resistance to both fire and water.

7 Containers for sound, photographic, video and digital data

So far, we have considered the archiving containers for written texts and drawn images on two- or three-dimensional media. However, other media were used for texts and images, including microfilms and photographs. Both were born in the nineteenth century: The first time an image was fixed on a metal plate was in 1827, while the first miniaturised documents were obtained in 1839 using the daguerreotype process.

The first photographs were taken on glass plates, which were relatively bulky, heavy and fragile, and required packaging adapted to their size, often in a cardboard box. Celluloid film for photography was invented in 1884;⁹⁰ the film was rolled and placed in a cardboard box, and later on in a metal cylinder, arranged in a cylindrical plastic box, itself placed in a cuboid cardboard box. The film was thus stored in three different containers, nested inside each other like Russian dolls.

Microfilms were used in the 1960s in North America to acquire copies of rare books and manuscripts from foreign libraries.⁹¹ They were subsequently widely used for the preservation of journal collections, and for books appendices with long indexes and drawings. Theses have been intensively microfilmed and are preserved under this format in the Bibliothèque nationale de France. Two large boxes, for example, contain microfilms of theses in theology, philosophy, law, surgery, anat-

⁸⁹ <<https://www.iso.org/standard/45988.html>> (accessed on 8 December 2022).

⁹⁰ Amar 1993.

⁹¹ A safe repository for microfilms of manuscripts from Benedictine libraries from across Europe was already envisaged by Father Colman Barry in 1964; the operation started the next year under the direction of Father Oliver Kapsner. In the 1970s, manuscripts from Malta and Ethiopia were also included, and it became the Hill Museum & Manuscript Library (HMML), located at Collegeville, MN, in 1975. In 2020, the collection contained about 300,000 imaged manuscripts, many available nowadays in a digital format, see <<https://hmml.org/about/history/>> (accessed on 12 August 2023).

my and pharmacy written between 1622 and 1790.⁹² PhD dissertations defended during the last decades of the twentieth century have also been deposited in a microfilm form in cardboard boxes in the Bibliothèque nationale de France.

The microfilm format has been chosen to preserve the cultural heritage from man-made or natural disaster in Germany since 1975. The Barbarastollen underground archive contains 32,000 km of microfilms kept in sealed, steel barrels (Fig. 15).⁹³



Fig. 15: Storage chamber of the Barbarastollen in 2016; © Bundesamt für Bevölkerungsschutz und Katastrophenhilfe; CC BY-SA 4.0, via Wikimedia Commons: <https://commons.wikimedia.org/wiki/File:Barbarastollen_Lagerungskammer.jpg> (accessed on 14 January 2023).

⁹² *Thèses & autres écrits académiques, identification et localisation* (Bibliothèque nationale de France, 2005), 54, accessible at <http://grebib.bnf.fr/pdf/guide_theses.pdf> (accessed on 7 June 2023).

⁹³ See <<https://www.dw.com/en/underground-archive-treasures-of-the-past/video-60826172>> (accessed on 2 May 2023). The Memory of Mankind Foundation in Hallstatt, Austria, has chosen clay as its medium since 2012, echoing the cuneiform tablets, some of which have survived for more than five thousand years. It is possible to store, in analogue form, a book of two thousand pages on a ceramic microfilm tablet. These tablets are buried about 2,000 m into the oldest salt mine in the world, at Hallstatt, a UNESCO World Heritage Site. Pictographic indications should enable future discoverers of these tablets to decipher them; <<https://www.memory-of-mankind.com/1000books/>> (accessed on 10 September 2023).

Sound or video archives also have a very specific production process, and the same applies to their conservation and archiving process. Such film-based materials made of nitrate- or acetate-based cellulose present the risk of spontaneous combustion or a chemical degradation; they, thus, need very specific storage conditions.⁹⁴

Sound archives contain ‘information recorded in the form of sound which, because of the method of recording used and the medium, can only be known by means of an acoustic machine allowing its reproduction’.⁹⁵ The very first recording of a voice was made by Edouard-Léon Scotte de Martinville in 1860, but it was Thomas Edison’s invention of the phonograph in 1877 that made it possible to record sounds on a cylinder covered with tin foil. Ten years later, these cylinders were made of cardboard covered with beeswax, then carnauba and, finally, celluloid. These cylinders were individually stored in cylindrical cases made of leather, metal or cardboard. The reproduction of an identical cylinder became possible at the very beginning of the twentieth century by moulding, before the disc replaced the cylinder from 1906 onwards. The 78-rpm disc covered with black shellac and played with a gramophone has two advantages over the cylinder: easy reproduction by pressing and, above all, less space required for archiving, with the use of simple paper sleeves. Fritz Pfleumer developed the magnetic tape to record sound in 1928; firstly, made of steel, it was made of plastic in the 1940s. The information is read by measuring the magnetisation of magnetic particles (iron oxide) deposited on a thin strip of flexible plastic film. It is considered to be the most efficient sound recording, both for analogue and digital techniques, and has also been used to record moving images.

Audio-visual archives have a wider meaning as they include all documents consisting of still or moving images and sound recordings on any medium.⁹⁶ According to the *Institut national de l’Audiovisuel*, these include inter alia:⁹⁷

- television or radio programmes (or programmes produced for webcast) and associated rushes;
- audio-visual content that has not been broadcast and/or has not been seen before: for example, recordings of shows, readings or lectures, collections of testimonies;
- works of art on audio-visual media (e.g. video art), in conjunction with museums or institutions in charge of this heritage.

⁹⁴ <<https://www.ifla.org/wp-content/uploads/2019/05/assets/pac/ipi/ipi1-en.pdf>> (accessed on 24 March 2023).

⁹⁵ Osborne 2012, 38.

⁹⁶ Defrance 1989, 10. See also Delmas 1987.

⁹⁷ <<https://www.ina.fr/offres-et-services/archivage-audiovisuel>> (accessed on 22 December 2022).

Tapes and films were individually stored in round metal (aluminium) boxes adapted to their size (Fig. 16).



Fig. 16: Dorothy Whitaker works in the National Oceanographic Data Center (NDOC) magnetic tape library, 1960s–1970s, NDOC; public domain, via Wikimedia Commons: <https://commons.wikimedia.org/wiki/File:NDOC_magnetic_tape_library.tiff> (accessed on 8 December 2022).

Audio or video documents can only be consulted in real time, unlike written documents, which can be leafed through, so their identification must be very precise.

Magnetic tapes are packaged in various ways (cores, reels, cassettes, cartridges) and these fragile archives should be kept away from light, heat and humidity. When the temperature is too high, the substrates become deformed, too dry air causes the substrates to dry out, while too much humidity leads to the development of mould. Exposure to polluted air can lead to the oxidation of the substrate.

Therefore, films, similar to slides, should be stored in a cold room to preserve their colouring and in anodised aluminium boxes.⁹⁸

The preservation of audio-visual archives has been made very complicated by the quickly growing variety of technologies involved, all of which have resulted in different types of media to be stored. The various regional or national archive sites intend to preserve all recordings on, for example, audio cassette, microcassette, DAT, minidisc, CD, super 8, 16 mm, 35 mm, 1 inch tape, VCR, Umatic, BVU, Betacam, Betacam SP, Dvcam, DVCpor, Hi8, V8, D8, VHS, DVD and Betanum. The obsolescence of formats and reading media make this conservation even more difficult.⁹⁹ Magnetic tapes, for example, have a lifespan of twenty to thirty years and reading tools do not exceed half a century, a lifespan that is continually decreasing with the increasingly rapid technological development. This implies a complex management of transfers and migrations. These media were stored in a wide variety of suitable containers, often made of paper, cardboard or plastic.

The same is true for archives that have been digitised or are digitally born. We have witnessed a very rapid evolution since the second half of the twentieth century of not only the containers in which these data are stored, successively floppy disks, CD-ROMs, zips, DVDs, USB sticks, hard disks and servers, but also the software that enables the data to be read. Various types of boxes and cases have been designed to match these different media, often of plastic, but also of metal. Today, the storage of digital data in the cloud have introduced a new dimension into archival culture, that is to say, a lack of materiality.

8 Conclusion

There is a huge variety of containers that have been used to store various types of textual and non-textual documentary artefacts, such as written documents, photos, sound tapes and films. Their functions are manifold: to store, organise, protect, preserve, give access to the documents and even transport them. These containers are often identified by labels, and arranged in furniture or rooms in the most compact way possible.

⁹⁸ <<https://aedaa.fr/2015/01/la-conservation-des-archives-audiovisuelles/>> (accessed on 12 December 2022).

⁹⁹ A variety of ‘museums of obsolete technology’ exist nowadays, see, for example, <<https://unequivocable.wordpress.com/>> (accessed on 31 August 2023).

Such containers have been either made for another purpose and recycled to hold dossiers, or shaped to be used for specific types of files. Several factors have influenced the material and shape of these latter containers. Firstly, the ecological and climatological environments have determined the materials used. These must be easily accessible locally, but also adapted to the conservation and protection of the archives' media. In the ancient Near East, for example, baskets made from reeds or clay jars were used for clay tablets and papyri scrolls, in Asia, textiles and bamboo boxes were adapted for palm-leaf manuscripts, while in Europe and America, wooden boxes were nicely fitted for paper documents.

The nature of the documents to be preserved also influences the shape and size of the container. Leather or textile bags, for example, during the Roman Empire, could have a narrow, elongated shape, making it easy to store scrolls or papyri folded once lengthwise.¹⁰⁰ Jars full of papyri scrolls were high and narrow, while clay vessels for clay tablets were wider than they were high. Conversely, there is a permanence of certain box shapes and sizes which are attested in far-flung locations and at very different times.¹⁰¹

When we work on the past, the original organisation of written artefacts often no longer exists. Archives may have been removed from their original place, and containers that once used to store dossiers have been emptied, therefore, their use as archival storage is lost. The containers have usually changed over time. The reconfiguration of archives, which resulted in a high rate of lost containers, has been especially important during the nineteenth and twentieth centuries. Many surviving containers have been also reused for other purposes.

Such changes could have a massive impact on certain archives. As an example, in the early 1930s, for both political reasons and the reform of script – from an Arabic alphabet to one derived from Latin and adapted to the Turkish language – over a million documents from the archives of the Ottoman Empire, originally kept in Istanbul, are now held in the St Cyril and Methodius National Library of Sofia in Bulgaria. They were sold for the price of scrap paper to a Bulgarian paper mill. The original containers were lost as hundreds of cases of records were sold from the Finance Archive in Istanbul and transported in bales by train abroad.¹⁰²

Where the original containers have been preserved, we observe that the practical aspects are often privileged. Thus, boxes have many advantages: they are easy to build, easily mobile, easy to store in piles and multi-purpose. The bags can be hung on the wall, taking up no floor space. Furthermore, in the case of trial

¹⁰⁰ Papritz 1983, 4–5.

¹⁰¹ Friedrich 2018b, 431.

¹⁰² Altay 2017.

bags, they facilitate dossier access, as all the documents relating to a case are collected in a single bag.

Other types of container have been specially chosen to hide written artefacts, such as clay or metal vessels, either because it is the natural container for the documents, or alternatively, because it is a container not normally used for this purpose, such as the milk cans in the Warsaw Ghetto.

Some containers may also have been custom-made specifically for a document of value, whether symbolic, religious or otherwise. In such instances, the material, sometimes precious, from which it was made has been carefully selected, itself having a symbolic value, and the exterior decorated, displaying luxury and aesthetic addendum to the written artefact. A wooden box, for example, covered with metal and precious stones, gives important information about the emotional value of the document it contains. Some particularly precious or fragile written artefacts may be wrapped in a silk or velvet textile and stored in a box, which is itself enclosed in a larger box. Negative films, because of their fragility, are rolled up in a metal box, placed in a plastic box, itself packaged in a cardboard box for marketing. Indeed, conservations and protections are important factors for the choice of a container.

Container capacity is necessarily limited. Depending on their shape and size, containers may or may not allow written artefacts to be organised internally. Small boxes allow documents to be classified internally, whereas large boxes, when not compartmentalised, do not. They are filled up until they are full, and written artefacts are then stored without any real logic. There is a tension between the capacity limit of a container and what needs to be placed in it as a unit.

Mobility, accessibility and retrievability of documents are also important factors for the choice of containers. However, these actions also depend on where the containers are stored, whether on shelves, in dedicated furniture or specific spaces or rooms. These aspects are developed in the following chapters.

Acknowledgements

The research for this chapter was funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) under Germany's Excellence Strategy – EXC 2176 'Understanding Written Artefacts: Material, Interaction and Transmission in Manuscript Cultures', project no. 390893796. The research was conducted within the scope of the Centre for the Study of Manuscript Cultures (CSMC) at Universität Hamburg.

I would like to thank all the colleagues of the research field 'Archiving Artefacts' who shared with me examples from their fields of research and provided

me with the bibliographical references needed to document this chapter. In particular, I would like to warmly thank the authors of the various chapters of this book and especially its editor Markus Friedrich, as well as Damien Agut, Alessandro Bausi, Evelyne Brunet-Prioux, Eliana Dal Sasso, Michael Friedrich, Ann-Sophie Hellmich-Schwan, Konrad Hirschler, Sören Krömer, Sebastian Schirrmeister, Thies Staack, and all the colleagues from the Excellence Cluster with whom I have been able to exchange ideas.

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