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Chapter 4: Furniture

Abstract: This chapter aims to provide a comprehensive examination of the evolution and societal significance of archival furniture, delineating its dual role in storing and facilitating the use of manuscripts throughout history. It emphasises the importance of contextualising the emergence of purpose-built archival pieces within broader historical narratives by highlighting the development of different archival systems and furniture designs from early periods to modern times. Beginning with an overview of basic storage tools and practices for protecting written artefacts, the paper transitions to a nuanced analysis of artificially created structures designed to equip large storage spaces, also discussing the production processes and aesthetic design of archival furniture. Valuable insights into the envisionment of the presence of written artefacts are provided drawing on a range of sources, including surviving artefacts, archaeological findings and textual/graphical descriptions. The exploration of the evolution of archival furniture over time and the profound effects it has had on both archival methodologies and societal attitudes towards written artefacts across different historical periods, therefore, also offers conclusions on how people ordered their lives, based on their daily handling of documents and manuscripts.

1 Introduction

Building on the previous chapter which described the basic storage tools used to protect and group written artefacts, this chapter studies (artificially created) objects and structures that were designed to equip large, confined spaces¹ for the purpose of storing and retrieving manuscripts. These objects and structures are here collectively called ‘archival furniture’.² A basic axiom of the historical analy-

1 My understanding of ‘archival spaces’ encompasses both natural sites used for the storage of writings, such as caves, as well as man-made architecture.

2 Standard definitions of ‘furniture’ include ‘Movable articles, whether useful or ornamental, in a dwelling-house, place of business, or public building’ (*Oxford English Dictionary*, used online at <www.oed.com> [accessed on 17 August 2023]) or ‘things such as chairs, tables, beds, cupboards, etc. that are put into a house or other building to make it suitable and comfortable for living or working in’ (*Cambridge Dictionary*, used online at <<https://dictionary.cambridge.org>> [accessed on 17 August 2023]).

sis of furniture holds that ‘a study of furniture, or an attempt to reconstruct an actual interior, can provide us with many details’ concerning ‘the way people lived from day to day, how they ordered their lives, and the kinds of expectations they had of one another’.³ This also applies to the special case of furniture used in archival storage and document retrieval. Archival furniture materialises, quite literally, how individuals, institutions and social groups envision written artefacts’ presence in and impact on human life. They embody and shape ‘graphic ideologies’.⁴ This chapter, therefore, assumes that the study of archival furniture is more than an ephemeral aspect of the study of archives and archival history; rather, archival furniture must be seen as key evidence from which to draw conclusions about the ways people related to manuscripts from day to day, how they ordered their lives around documents and vice versa, and about the kinds of expectations they had of the use of manuscripts. Recent work on the history of schooling and learning has demonstrated that furniture was a defining factor in shaping economies of attention, directing individual focus and influencing the actual practices of engagement with ideas, texts and written artefacts.⁵ Similarly, furniture used for storing and handling archival materials significantly shaped the ways in which people interacted with archived manuscripts, or, as Henry Petroski has written for a parallel case: ‘Books and bookshelves are a technological system, each component of which influences how we view the other. Since we interact with books and bookshelves, we too become part of the system’⁶ – the same could easily be said for archives and archived written artefacts.

Important as the role of furniture for archival practices is, it should not be taken as self-evident or unavoidable. The first two subsections, therefore, put the role of archival furniture in context. The first part of this chapter highlights that practices of stacking and piling written artefacts *outside* of furniture – in fact, often contradicting furniture’s basic stated intention of containing and controlling materials – must be considered to be of utmost importance. Heaping, stacking and piling are basic features of human interaction with writings, and they are never confined, though often shaped, by pieces of furniture. Armoires or shelves, thus, have no unidirectional impact on archival practices but, instead, intersect in numerous and contradictory ways with daily forms of handling documents. A second subsection of this chapter highlights briefly an extreme alternative to storage

³ Lucie-Smith 1979, 12–13.

⁴ For the term, see Hull 2012.

⁵ Schrire 2020, 38–50.

⁶ Petroski 1999, 3.

in properly archival containers and pieces of furniture, thereby nuancing our understanding of what archival spaces should look like.

Only with these basic caveats in mind does the following survey then distinguish two key types of archival furniture, dividing it into pieces used for ‘storing’ and those dedicated to ‘using’ archival materials. While this distinction seems clear enough in many cases, it is necessary to keep in mind that individual pieces of furniture may very often fulfil many primary and secondary, as well as intended and unintended, functions simultaneously: tables, primarily designed as support structures for writing and reading manuscripts, may additionally be used as (temporary) storage contraptions, while shelves, primarily intended as supporting structures for the storage of written artefacts, may be appropriated as miniature tables on some occasions.

The basic typology is followed by a section commenting briefly on the production process and aesthetic design of furniture used archivally. Generally speaking, only a little information is available about the details of work on individual pieces of furniture, and what we know is often incomplete. Based on the current state of knowledge, production processes sometimes led to extraordinarily intricate pieces of furniture, which were luxuriously decorated and/or exquisitely crafted. In numerous cases, however, the limits of documentation seem to mirror the fact that a lot of furniture used for archival purposes was often not primarily produced with aesthetic considerations in mind, but of a rather moderate, function-oriented type. While libraries were often created as spaces of conspicuous luxury, intended for socialising and displaying wealth, this was rarely the case in archival contexts.

The final section of this chapter turns to the more recent past of archival history. The design and production of archival furniture since the nineteenth century, roughly speaking, has entered a new period, both in terms of the materials used and specialisation. Now, in fact, *only* now, has the idea become widespread that archives, and administrative spaces at large, should be furnished with dedicated pieces of furniture, purpose-designed for the management and storage of paperwork. Indeed, contemporary perspectives on furniture now assume that office- and administration-related furniture, presumably including furniture specifically designed for archives, constitute a distinct subcategory.⁷ While the final subsection of this chapter discusses key episodes of this trend towards purpose-built archival equipment, this chapter at large highlights that specifically archival or administrative types of furniture are by no means self-evident. A lot of furniture used in an archival context has been generic in nature and only appro-

⁷ Smardzewski 2016, esp. 49–50.

priated on the spot for archival functions. In many cases, ‘archival’ furniture is simply repurposed ‘normal’ furniture. Purpose-made archival equipment, by contrast, has appeared only in relatively few contexts, and often only after long histories of record-keeping that made do with more generic types of furniture. It is, therefore, important to historicise the appearance of specifically archival pieces of furniture.

The study of archival furniture can rely on a range of sources. Original pieces of storage tools still survive from some eras and areas, and are occasionally still even in use. Yet, this is relatively rare for early periods of archival history. A lot of furniture has been made from perishable organic materials, particularly wood, therefore, it is prone to decay. Archival furniture is not usually considered to be an end in itself, but more as a tool serving the purpose of protecting its contents, thus, it has only rarely been the object of dedicated acts of preservation or protection. The gradual wear and tear of furniture was acceptable as a trade-off with the protection of documents. Nevertheless, at least a few ancient pieces have come to light through archaeological finds, making it possible to trace the history of archival furniture back several millennia. The study of extant furniture is further supplemented by indirect evidence provided by architectural details, such as holes in walls or floors, indicating where now-decayed furniture may have been positioned. Finally, depictions and descriptions of archival furniture in textual and graphical sources of various kinds exist, ranging from passing comments about individual archival arrangements to a few, and mostly modern, extensive conceptual discussions of how archival furniture might best be constructed.

2 Heaps and piles

Simply putting written artefacts somewhere, preferably on top of each other, may be the most basic, almost self-evident way of storing manuscripts. Writings may have acquired ‘their place’ in any human spatial environment simply by having been put to rest somewhere and remaining untouched in their accidentally chosen location. Perhaps spots where written artefacts had started to aggregate – simply by associating same with same – attracted a certain pull effect, with new writings being deposited next to other, previously deposited ones. As a rule, historians have found – at least in premodern Europe – a tendency for ‘storing like with like’, which makes things ‘easier to find, but also reflects the organizers’

conceptualization of the world'.⁸ A specific corner of a room or an otherwise unused space may, thus, have developed habitually into a place for storing written artefacts, which, gradually, piled up.

Even though piles of written artefacts might initially have acquired their location in seemingly haphazard and accidental ways, in retrospect, their placing may, nevertheless, indicate an individual's or society's greater attitude towards writings. Locations selected for putting things may express cultural valuation. Spaces are never neutral, but reflect their inhabitants' mindsets – a point historians may fruitfully exploit to discover attitudes towards writing in different contexts. The location of piles of artefacts often indicates that people considered them to be part of their inner sanctum. Individuals in ancient Assur may keep some important deeds next to their bed, just like early modern German princes occasionally had dedicated armoires full of records in their private chambers, thus, surrounding these corpora with a special kind of secret and intimate aura.⁹ Frances, countess of Essex, in 1599, preserved some of her favourite pieces of correspondence under her bed (in a casket) – presumably hiding them efficiently and still keeping them close at hand.¹⁰ Storage locations sometimes indicate a close analogy between writings and other treasures. Small or mid-sized private archives – perhaps consisting only of a few legal documents, several letters or a scattering of other memorabilia – were often stored, for instance, by people in rural areas, together with other possessions in armoires or other containers within their living quarters.¹¹

Piling and heaping, though widespread, unavoidable and continuously popular, has a bad reputation. Simple stacks of writing materials are often considered signs of depravation or a lack of archival care. Throughout the ages, authors intent on criticising archival arrangements that they encountered took recourse to the trope of piles of documents 'on the floor' in seemingly uncared ways. One French administrator in 1725, working in what is usually considered a rather sophisticated archival institution, the *Parliament de Paris*, described that institution's reality:

for some time now newer registers have been stored on the floor, in stacks of thirty or forty volumes. Only a few narrow paths lead across the completely cluttered floor.¹²

This was meant as a strong criticism. References to heaps and piles sitting on the ground are often short-cuts for diagnoses of 'under-developed', 'neglected' or

⁸ French 2021, 113.

⁹ For Assyria, see Postgate 2013, 84.

¹⁰ Daybell 2016, 210–223, esp. 211.

¹¹ For one such case, beautifully analysed, see Chatterjee 2020, 30.

¹² Quoted in Friedrich 2018b, 111.

‘insufficient’ archival arrangements. In such contexts, archival furniture is often presented as a token of archival order and a positive valuation of records and writing. The existence of (specialised) dedicated furniture is made into a symbol of archival advancement.

Yet, there is no simple progress from piles to files. Piling and heaping continue to be important practices even in contexts where sophisticated furniture and other equipment are available. Instead of strict alternatives or consecutive episodes of archival history, piles and furniture coexist in complex ways. Even in self-consciously archival modern bureaucracies, for instance, storage continues to happen *outside of* well-furnished spatial arrangements. Manuscripts were often kept *around* furniture, not on or in it, often on a long-term and effectively semi-permanent basis. This is beautifully captured in some of Jan Banning’s recent photographs of bureaucrats from around the world (Fig. 1).



Fig. 1: Jan Banning, *India, Bureaucracy, Bihar*, in the artist’s project ‘Bureaucrats’; © Jan Banning 2004; <<https://janbanning.com/2022/07/01/bureaucrats/>> (accessed on 4 July 2025).

Despite the existence of complex archival furniture, heaping papers into large stacks remains popular. This may happen for a number of reasons. External piling often occurs when the space inside the dedicated *armoire* is full – such phenomena would then have to be considered, quite literally, as consequences of information ‘overflow’.¹³ Alternatively, extra-furniture piling is a temporary phase (which may, of course, turn semi-permanent when never undone), for instance, when manuscripts currently being processed are placed intermittently on tables, mobile trays or simply rest next to a user’s working place. Piling was an often-unavoidable phase in the process of creating order. Many projects of distributing documents into containers or pieces of furniture, inventorying or indexing, and (re-)organising archival fonds necessarily involved acts of piling.¹⁴ Creating piles, the activity of piling, was often a process of meaning-making, full of active decisions about what belongs and, thus, is to be placed where.

Piles or heaps of documents are not only coexistent with archival furniture, they may also be considered a consequence of the destruction of previously extant physical archival structures. Clay tablets appear in archaeological excavations as piles not because they had been stored in unordered or haphazard ways, but because their wooden support structures have vanished over time. Once orderly stacked and bound palm leaves may be encountered by (modern) readers as chaotic piles only because their bindings or threads have been lost. And the formless mass of written artefacts that late-nineteenth-century European manuscript-hunters described so colourfully for the *genizot* of Cairo and other Middle Eastern Jewish synagogues as well as for numerous Arab Christian monasteries, had entered their state of existence as formless piles only after periods of well-ordered archival conservation which will often have included storage in pieces of furniture.¹⁵ Piles and heaps, in other words, should be considered less as alternatives tout court compared to furniture-based storage, but rather as potentially temporary periods in the longer life cycle of a written artefact’s archival afterlife. Spatial arrangements lead from piles to files, and back from files to piles.

¹³ Blair 2010.

¹⁴ Friedrich 2018a.

¹⁵ A plethora of European descriptions of Egyptian and Middle Eastern ‘chaotic’ manuscript repositories in *genizot* and monasteries is available in the excellent monograph by Jefferson 2022. Recent scholarship has spent a lot of energy reconstructing the ‘lost archives’, whose well-ordered structures have disappeared once the manuscripts were deposited in the (Cairo) *Genizah*; in exemplary fashion, see Rustow 2020.

3 Interring written artefacts

Manuscripts were sometimes intentionally stored outside of (dedicated) furniture for the purpose of hiding them. Indeed, burying manuscripts is more than only a perennial trope of record- and writing-related storytelling.¹⁶ Actual cases of hiding written artefacts in the ground or in architectural features of buildings are a recurrent feature of archival history. Several papyri were hidden in ancient Karanis, Egypt, by a manager of a modest *grapheion* under the threshold of a building (Fig. 2).¹⁷



Fig. 2: Hidden papyri in Karanis, Egypt, courtesy of the Kelsey Museum of Archaeology, Ann Arbor, MI.

Amalia Zomeño has documented several cases from southern Spain, where, during the Christian conquest in the fifteenth century, Muslim individuals hid caches of writings in the walls of their homes, thus, temporarily substituting a hole in the wall for a spot on the shelf. A fourteenth-century Ming prince hid a manuscript in the altar of a temple in his home city (the Leitan of Daning), thereby, providing it

¹⁶ Ancient Mediterranean sources are full of stories about miraculous ‘finding’ of books in and on the ground, in addition to finding them in ‘libraries’ or ‘archives’; see Speyer 1970.

¹⁷ Claytor 2014, 161–164.

with exceptional protection when the city was burned in an episode of civil war around 1400.¹⁸ Similarly, late-eighteenth-century Jesuits in Coimbra (Portugal) hid important documents in a church altar shortly before their order's suppression to make them inaccessible to readers other than themselves.¹⁹ A private letter from the early 1600s came to light in 1836 from under a floorboard in an Oxford college.²⁰ On a much larger scale, some German firms in Saxony buried part of their archives in the ground to save them from incoming Soviet troops in 1945.²¹ All of these cases, which happened in contexts where sophisticated storage technologies, including pieces of furniture, existed, demonstrate, if in strikingly extreme fashion, how individual acts of record-keeping happened not just 'outside' of furniture but in ways that intentionally disregarded the archival logic traditionally associated with furniture, i.e. the logic of accessibility, retrievability and availability.

4 Furniture for storing

Despite its continuing relevance, the practicability of piling up written artefacts without additional supportive spatial structures has narrow limits. Non-flat materials, including scrolls or irregularly shaped writing surfaces, such as clay tablets, are generally difficult to pile in principle. And even flat objects, whether individual pages or large codices, can only be piled up to certain height without a further supporting structure, not least, for reasons of instability. Moreover, piles of artefacts are complicated to browse through and use, as finding and taking out items near the bottom of the pile is difficult. For all of these reasons, archival practices in many contexts relied on additional artificial spatial structures to store records which are meant to increase the convenience of handling as well as improve protection in various ways. Furthermore, pieces of furniture were built and used to increase the storage space available: vertical extension of unsupported piles is often limited, therefore, the full height of spaces available in theory can hardly be used to the maximum extent without additional structures. Boxes or chests alone are insufficient to maximise the usage of extant space, as they, too, cannot simply be piled endlessly on top of each other without severely curtailing usability. If boxes can be stacked at all, such piles of archival boxes eventually require additional structures to guarantee handling. They have the advantage, however, of being moveable, allowing for relatively swift evacuation of archives in cases of emergency (see Case Study 4.1).

¹⁸ Wang 2012. This was the 'Thunder Altar'.

¹⁹ <<https://jesuits.eu/news/416-historical-pieces-found-in-coimbra>> (accessed on 28 May 2024).

²⁰ Daybell 2016, 212.

²¹ This is what 'likely' happened; see Sichel 2021, 19.



Fig. 3: View into a modern archive, piles of boxes; © Hessisches Landesarchiv; photo: Nasser Amini, Hessisches Staatsarchiv Darmstadt.

Modern archives, for instance, often consist of rows of shelving upon which standardised special cardboard boxes (of which many types exist, see previous chapter) are piled – usually two to four pieces high – which hold several files each (Fig. 3).

4.1 Storing non-flat writings: Pigeonholes

Importantly, the physical shape of written artefacts determines significantly what kind of spatial structures will be optimal to enhance piling and placing options. Different types of written artefacts require different spatial structures for storage. This is particularly obvious historically in the case of round types of writing, especially rolls. Scrolls are not easily placed on flat surfaces. Instead, so-called pigeonholes have often been the preferred storage form for them. This practice is well-documented from Antiquity.

Specialised storage structures designed to accommodate the physical features of scrolls have existed, for instance, in Dura Europos (Syria). In this large palace, the Hellenistic state registry office sported a (unique) system of at least one hundred diamond-shaped compartments (“pigeonholes”), built into three of the four

walls of the archive room, and distributed in four rows (Fig. 4).²² These compartments may have been created with rolls in mind, as their limited size – roughly 35 cm breadth – would have allowed storage of only a restricted number of (related?) roles in one place. Next to the compartments, brief indications of their contents were etched into the wall.²³ Based on the assumption that Greek archives would have also housed only scrolls, similar arrangements have been (speculatively) claimed for the Athenian Metroon of the Hellenistic era.²⁴

A somewhat different option for storing rolls is depicted in a relief from Nijmegen from the time of Constantine the Great – now lost, but preserved in a seventeenth-century illustration – that shows a similar, yet larger and rectangular structure (Fig. 5).²⁵ Storing rolls also led to specific furniture in premodern Europe.²⁶ While many scrolls were simply stored in cupboards, early modern European archival furniture sometimes used purpose-built small compartments or drawers, effectively laying scrolls side by side, not on top of each other.²⁷

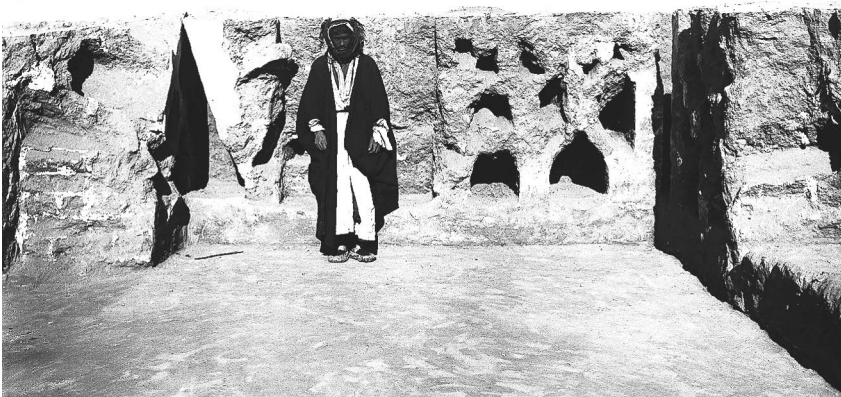


Fig. 4: Pigeonholes, House of Scribes from the South, photograph, Dura e-63; © Yale University Art Gallery, Dura-Europos Collection.

²² See Posner 1972, 130, citing verbatim the archaeological excavation report from 1944. Also see an updated description in Coqueugniot 2012, 97. Further important considerations based on literary sources are in Clark 1901, 33.

²³ Coqueugniot 2012, 98.

²⁴ Vanavanis 2002, 221–256.

²⁵ According to Clark 1901, 35, all excavated pieces from Nijmegen have been destroyed.

²⁶ On difficulties related to storing rolls, see Shirota, Holz and Peltzer (eds) 2020, 278.

²⁷ On scrolls in cupboards, see Aston 2004, 242.

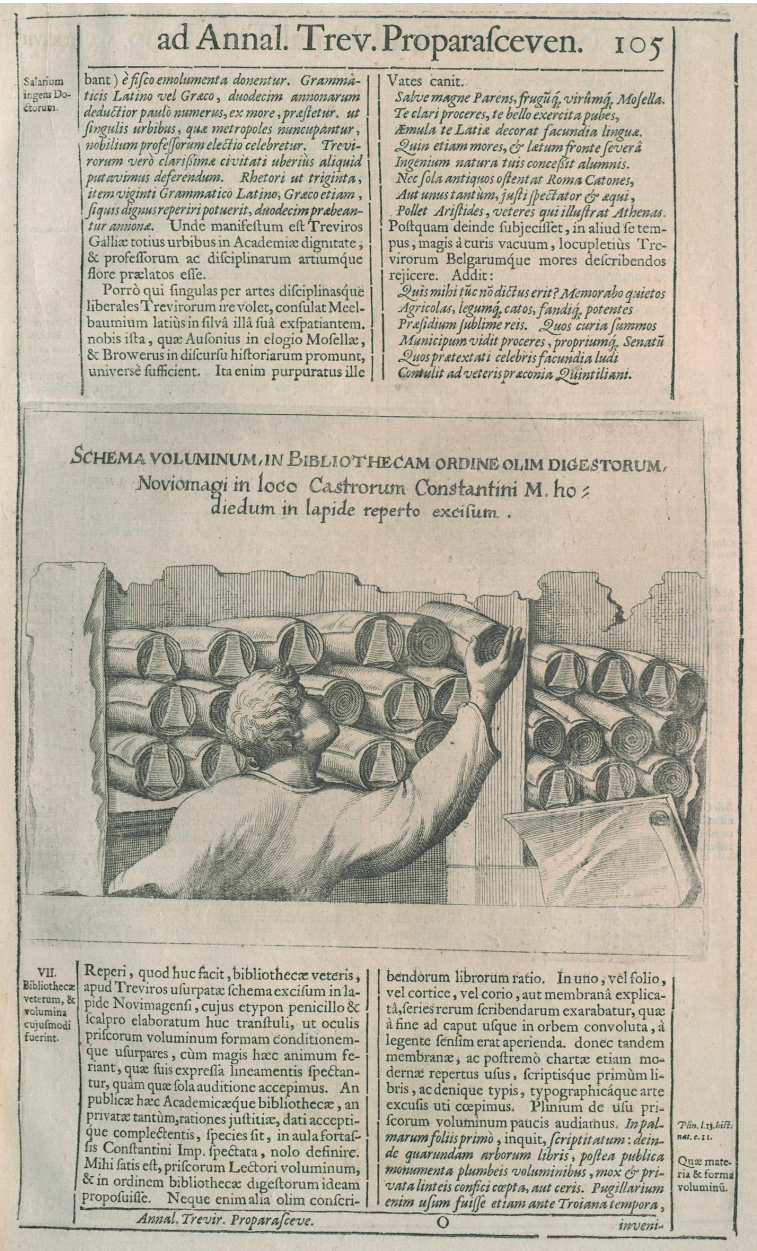


Fig. 5: Pigeonholes, Brower and Masen 1670, vol. 1, 105; public domain via Freiburger historische Bestände – digital, Albert-Ludwigs-Universität Freiburg, <<http://dl.ub.uni-freiburg.de/diglit/brouwer> 1670-1/0141> (accessed on 26 September 2025).

Scrolls required special spatial arrangements not only because they are difficult to pile, but also in order to avoid flattening them, whereby their primary form of usage, i.e. unrolling them section by section, would become much more inconvenient or even impossible. The result of flattening scrolls can be seen in numerous examples from fourteenth-century Persian and Arab documents, now housed in the Ḥaram al-sharīf in Jerusalem. Originally rolled up, they were pressed flat at some point, a process still visible today due to the increasingly wider spaced horizontal fold-lines resulting. While it is unclear whether these scrolls were flattened intentionally (e.g. to allow storage in a codex- or file-related secondary arrangement, thus, accepting the reduced usability as a necessary trade-off) or unintentionally (e.g. as a result of careless storage), they, nevertheless, demonstrate, *ex negativo*, the importance of proper scroll-specific storage arrangements if the original material form was to be safeguarded. This may sometimes have been an acceptable option or, at least, have been tolerated (or maybe people just did not care).

Highly specific forms of storing at least one particular type of scroll shape Jewish manuscript cultures. Here, storing facilities were created in order to express the particular importance of the Torah scrolls. A dedicated piece of furniture, the so-called Ark of the Scrolls, became a key element of Jewish liturgical spaces. Evidence from early on suggests that Arks of the Scrolls were often designed as ‘chests or an ark’, either closed or not.²⁸ Early modern examples from Europe, for instance, an impressive ark from Modena from 1472, in fact, roughly resembled (archival) armoires used elsewhere for storing less sacred, but equally well-protected written artefacts.²⁹ That the ark is attributed to the artist Christoforo Canozzi da Lendinara (c. 1420–before 1490), who also worked on the *studioli* (cabinets) for the rulers of Modena, may explain the design parallels with other storage and study interiors. Sophisticated artistic traditions in the production of what could be described as particularly elaborate sacral furniture for storing written artefacts also developed elsewhere in Jewish Europe (Fig. 6).³⁰

²⁸ Hachlili 2000, 159.

²⁹ The piece is today found in the Musée d’art et d’histoire du Judaïsme, Paris. A detailed description (including images) with additional information – which also form the basis of all comments here – is available at <<https://www.mahj.org/en/decouvrir-collections-oeuvres-clefs/torah-ark-aron-kodesh>> (accessed on 17 August 2023).

³⁰ For example, Yaniv 2017.



Fig. 6: Holy ark (*Aron ha-Kodesh*), Modena, 1472; carved and inlaid wood, 265 × 130 × 78 cm, Musée d'Art et d'Histoire du Judaïsme, Paris, on long-term loan from the Musée national du Moyen-Âge, Paris © Grand-PalaisRmn (Musée de Cluny – musée national du Moyen-Âge) / Christian Jean, Gérard Blot.

4.2 Shelves

In contrast to rolled writings and scrolls, the most basic type of storage furniture for written artefacts that could lie flat or stand up is the shelf, whether attached retroactively to walls or as a preconceived element of walls. Shelves came into usage around the world (see Case Study 4.2). Some residences in ancient Assyrian cities had niches built into their walls which served as a kind of built-in shelves.³¹ Wallis Budge, after having excavated Assyrian structures in Derr, confidently explained that in one room, many ‘tablets were kept on shelves [...] we saw the tablets lying in situ on slate shelves’.³² Elsewhere in the ancient Mediterranean niches, often created in a sequence, also played an important role as storage facilities.³³

Wooden structures were attached to walls. Archaeologists have found evidence in ancient Ebla (modern day Syria), for instance, of shelves supported by wooden pillars anchored to the floor and attached to mud-brick walls as storage facilities for clay tablets, ‘mostly arranged next to each other with their faces parallel to the wall, so as to form series’.³⁴ Such a way of storage would have made browsing tablets – and finding specific items – much more convenient than storage in closed containers. Ancient Greek archives also often used wooden shelves, whose planks were held together by nails.³⁵ Physical remains of such shelves were still visible in Herculaneum in the mid eighteenth century as results of their having been transformed into coal during Vesuvius’s eruption in 79 CE. A famous German traveller, Johann Joachim Winckelmann, described vividly what he saw in 1762:

Inside the wall, there was scaffolding [sic, ‘shelves’] at the height of a man such as commonly seen in archives, and in the middle of the room there was another scaffolding similar or a table to hold writings. The wood of this structure was transformed into charcoal.³⁶

³¹ Postgate 2013, 281. For a (private) Chinese eight-century parallel (though referring more to ‘books’ than to ‘archives’), see Drège 1991, 164.

³² Clark 1901, 4, quoting a private letter by Wallis Budge to John Clark. Budge explicitly mentions that these tablets concerned archival material (‘commercial documents relating to the local temple’, Clark 1901, 4), not ‘literary tablets’, Clark 1901, 4.

³³ Faraguna and Boffo 2021, 45.

³⁴ Matthiae 1977, 251. More evidence of a similar kind is reviewed in Yeo 2021, 103–106.

³⁵ Coqueugniot 2013.

³⁶ ‘Tutto all’intorno del muro vi erano degli scaffali quali si vedono ordinariamente negli archivi ad altezza d’uomo, e nel mezzo della stanza v’era un altro scaffale simile o tavola per tenervi scritture, e tale da potervi girare intorno. Il legno di questa tavola era ridotto a carboni’, quoted from Clark 1901, 25.

In order to maximise space, shelves were often stacked upon each other, creating the multilayered storage arrangements familiar to modern users. Such arrangements, meant to maximise storage spaces, can be found in many contexts, including the Muslim world. In one tenth-century Baghdad archive, ‘the documents [...] almost reached the ceiling’, perhaps by being placed on shelves (rather than simply being piled up).³⁷ Arrays of shelves also served as furniture for storing written artefacts in private homes, as becomes obvious from the illustrations in a Paris-manuscript of al-Hariri’s *Maqamat* (see Case Study 4.3). In this case, the set-up of the shelves was designed to facilitate customary ‘horizontal stacking’ of writings.³⁸ The Ming dynasty also stored their famous Yellow Registers in a large archival facility, where every storage room was equipped with four rows of shelves, each row three shelves high.³⁹ Each row of shelves was protected by a ‘wooden panel’ placed on top, to protect documents from the elements – in addition to the building’s roof, i.e. effectively adding a second protective layer. Shelf-like scaffolding structures meant to hold archival documents had also become a standard feature in premodern Europe. A typical example is the famous Spanish Crown Archive of Simancas, established gradually in the reigns of Carlos V and Philipp II in the sixteenth century. The work of several carpenters from 1586 to 1589, charged with installing many shelves along the walls of several archival rooms, including above the doors, is well documented.⁴⁰

4.3 Cupboards, armoires and closed pieces of furniture

The shelves upon which written artefacts rested were often covered with doors, creating the closed cabinet or armoire. The Ancient Greeks called such closed containers *kibotós*, while in Latin such a piece of furniture was called an *armarium*, terms later sometimes used metonymically for ‘archives’.⁴¹ One such armoire is clearly visible on a relief from a sarcophagus dating roughly from the fourth century CE (Fig. 7).⁴² After Antiquity, armoires reappear in European locations from the High Middle Ages onwards, at the latest, as storage facilities for records and manuscripts. Some fourteenth-century illustrations depict simple cupboards with two folding doors. Significantly, manuscripts in the form of codi-

³⁷ Van Berkel 2014, 13.

³⁸ Quote and discussion from Hirschler 2016, 70.

³⁹ Wenxian Zhang 2008, 164.

⁴⁰ Details in Grebe 2012, 170, n. 371.

⁴¹ On the Greek words, and their metonymic usage, see Faraguna and Boffo 2021, 769.

⁴² <<https://www.metmuseum.org/art/collection/search/468268>> (accessed on 29 May 2025). Further examples of late antique book-armoires are discussed and reproduced in Ramirez 2009.

ces were stored in these receptacles lying flat, not just standing upright. In effect, such storage arrangements were not entirely dissimilar from the storage of codices in a box or chest, also on display in the same image (Fig. 8).



Fig. 7: Sarcophagus with a Greek Physician, early 300s, made in Ostia, Rome, marble, $21\frac{3}{4} \times 23\frac{1}{4} \times 84\frac{7}{8}$ in. ($55.2 \times 59.1 \times 215.6$ cm), New York, NY Metropolitan Museum of Art, inv. 48.76.1; public domain: <<https://www.metmuseum.org/art/collection/search/468268>> (accessed on 4 July 2025).



Fig. 8: Johannes Andreae, *Novella super Sextum*, northern Italy, c. 1340–1350, miniature attributed to Maestro della Crocifissione D, active in Bologna c. 1325–1340, Cambrai, Bibliothèque municipale, ms. 0620 (0572), fol. 1r (detail); © Institut de recherche et d’histoire des textes – Centre national de la recherche scientifique.

While initially, perhaps, being used primarily for administrative records rather than legally important muniments, the latter still being deposited primarily in strongboxes, shelves, armoires and cupboards became dominant for all kinds of records by the early sixteenth century, at the latest.⁴³ Their rise in Europe clearly mirrors the growing presence of armoires in other types of collections, including the nascent *Wunderkammern* and other museum-style arrangements.⁴⁴ Extant examples of early modern archival armoires can be found in the city archive of Lüneburg (Fig. 9), with built-in armoires from the middle of the fifteenth century, or at the castle of Ronneburg (Fig. 10), where an archive armoire from around 1520 composited of drawers earlier used for a different archive is exhibited.



Fig. 9: Archival armoire, Hansestadt Lüneburg, Rathaus, Altes Archiv, Stadtarchiv Lüneburg, BS, II-b-4-17-a.

⁴³ Chronology according to Aston 2004, 242.

⁴⁴ Spénlé 2011, 69–84; Te Heesen (ed.) 2007. For a very impressive depiction of armoires in natural collections, see Mercati 1717. Many thanks to John Dillon for the reference.



Fig. 10: Archival armoire, Burg Ronneburg; public domain; photo: Cherubino, CC BY-SA 3.0, via Wikimedia Commons: <https://commons.wikimedia.org/wiki/File:Burg_Ronneburg_Schreibstube_Archivsschrank.JPG> (accessed on 26 September 2025).

Armoires also became popular for storing written artefacts outside of Europe. A special archival repository in Qing-era China, dedicated to the preservation of the regularly updated imperial genealogies (Jade Registers; *Yudie* 玉牒), also came to consist of more or less uniform armoires. While the massive tomes of genealogical charts, which grew in size from update to update, were initially stored in boxes or chests, the genealogies came to be stored in cabinets from the eighteenth century onwards for reasons of weight and size. According to the division of the imperial genealogy in red and yellow sections, covering the close and more distant lineages respectively, two sets of armoires were also produced, one painted in red, the other in yellow. Judging from an eighteenth-century report, the armoires were massive, each seven feet high, five feet wide and a little over three feet deep.⁴⁵

⁴⁵ Illustrations appear in Guojia dang'an ju zhongyang dang'an guan 國家檔案局中央檔案館 2016, 58–61. See also an illustration at <<http://axjlzp.com/newn179.html>> (accessed on 29 May 2024).



Fig. 11: An example of a manuscript cabinet dated 1777 now exhibited in the manuscript reading room of the National Library of Thailand, Bangkok, dimension: height 171 / width 113 cm; photo: Peera Panarut.



Fig. 12: Detail of Fig. 11.

Thai manuscripts were also frequently stored in closed cupboards, often with two doors. Hundreds of examples from the eighteenth and nineteenth century survive, and they routinely feature elaborate and highly sophisticated decorative embellishment. In at least one instance, it is documented that such a massive armoire was paid for and donated by a private individual to a (unidentified) monastery for the purpose of merit fulfilment (Figs 11 and 12).⁴⁶ While no original examples survive from outside monastic provenance, it is, nevertheless, clear from catalogues and other written sources that roughly comparable armoires would also have been at use in the Royal Grand Palace of Bangkok, storing written artefacts similarly in an administrative and governmental context.⁴⁷

⁴⁶ Kongkaew Weeraprachak (ก่องแก้ว วีระประจักษ์) 2007.

⁴⁷ Panarut 2022.

4.4 Archival furniture and the spatialisation of epistemic orders

An armoire is much more than simply a very large, upright standing box.⁴⁸ Differing from boxes, armoires open to the front, not the top. Moreover, armoires usually contain shelves (of various heights) or any combination of shelves, compartments, drawers and other substructures, thus, allowing for the customised distribution of storage spaces (see Case Study 4.4). Such complex internal substructuring of spaces was not common in chests, even the largest ones. An armoire's internal compartments were sometimes called *capsae* or *locellus*.⁴⁹ In fact, early modern European archival thinkers discussed extensively the advantages and disadvantages of certain internal designs of archival armoires.⁵⁰ Complex internal segmentation of archival furniture came to be considered a crucial tool of manuscript management. Early modern secretaries, for instance, were

to have a closet, with Cubbardes of drawing boxes and shelves, therin and upon to place in dew order, all letters received from the Kinges Majestie, from the Lords of the privy cownsell, and from other Noble men.⁵¹

Compartmentalised furniture shaped archival practices not only in state bureaucracies, but also in private businesses. A famous depiction from 1517 of the globally active Fugger firm's administrative head office, for instance, shows this clearly: it features an archival armoire with numerous drawers, each dedicated to paperwork concerning one city in which the firm was active (Fig. 13). Structures of business operations were mirrored in structures of paperwork, which, in turn, manifested themselves materially and spatially in the structure of this early purpose-built piece of administrative furniture.

⁴⁸ While boxes may have been occasionally produced in Europe so as to be stackable, including opening to the front, by no means all types of chests or boxes were capable of this. Moreover, boxes used for storing written artefacts in numerous manuscript cultures were not rectangular at all, for instance, in Thai and Lao contexts, where the bottom of boxes was usually smaller in size than the top, giving these containers an inverted pyramidal form. Stacking such containers would have been difficult or impossible.

⁴⁹ Aston 2004, 243.

⁵⁰ Friedrich 2018b.

⁵¹ Quotation from Richard Braithwaite's secretarial manual, quoted in Daybell 2012, 219.



Fig. 13: Office of Jacob Fugger; with his main accountant Matthäus Schwarz, 1517; © Herzog Anton Ulrich-Museum, Braunschweig; photo: Claus Cordes.

The Fugger case is famous, but no exception. Archival armoires, if purpose-built, were intentionally also created with several independently accessible compartments to enhance their organisational capacities elsewhere.⁵² The more fine-grained the spatial compartmentalisation was, the more necessary were the external references to what they contained. As is evident for the Fugger cabinet, short summaries of what individual drawers contained were externally attached to guarantee quick access. In medieval Florence, for instance, the city's record-keeper was 'to attach a note telling what is in each compartment above each compartment' from 1289 onward.⁵³

On a grander scale, entire pieces of archival furniture (and not just individual compartments or drawers) were used to identify and segregate well-defined corpora of writings. The colouring of armoires was often used as a key identifier in such cases. From 1799 onwards, the Bayerisches Hauptstaatsarchiv distinguished four of its major finding aids and, by implication, also their respective documentary fonds, with a colour scheme: 'Kasten Schwarz', 'Kasten Blau', 'Kasten Rot' and 'Kasten Grün'. Elsewhere, even the archival armoires themselves were distinguished by their external colour, for example, in Gotha, where a 'white cabinet' was casually referenced as containing certain types of documentation.⁵⁴ In such cases, the furniture in which documents were stored became part of a document's 'call number'. In the Munich case, while the colour and style of the actual armoires referenced by the 'black' or 'blue' inventories are unknown, the colour scheme in part remains a key element of the official call numbers of the documents to this very day.

While the role of archival furniture (and its parts) for the structuring of archival fonds was widely acknowledged and implemented in practice, this was, nevertheless, an ambivalent and sensitive topic. Using external surfaces of armoires to identify their contents not only facilitated authorised document retrieval, but also enabled unauthorised access. As a compromise, therefore, specialists suggested using abstract signs (i.e. numbers, letters or symbols), which remained meaningless to outsiders, rather than keywords as external call numbers.⁵⁵ Numerous extant pieces of furniture from early modern Europe still feature such abstract notations on the outside, differing in this respect from the otherwise similar case of the Fugger armoire.

⁵² Positively reported, for the case of the Reichsarchiv in Mayence, in Heiliger 1752, col. 899.

⁵³ Quoted from Casanova 1928, 328: 'De foris quoque super qualibet armarii camerula infigat cedulam exprimentem quid continetur in illa.'

⁵⁴ Friedrich 2018b, 103.

⁵⁵ Heiliger 1752, col. 900. The author preferred nondescript abstract numbers on the outside, while recommending that one should place on the inside of the doors a 'table made from sturdy paper detailing the compartments inside this part of the [multi-door] armoire and explaining which contents are housed under which number'.



Fig. 14: Archival armoire from the monastery of Heiligkreuztal; © Staatsarchiv Ludwigsburg.

A piece from the monastery of Heiligkreuztal, for example, clearly displays such exterior signs, thus, indicating what could be found where (Fig. 14).

Debates about the conflicting goals of secrecy and accessibility also affected ideas of archival furniture design on an even more fundamental basis. Experts discussed the advantages and disadvantages of having armoires with closed doors along these lines. An armoire with a closed door may hide its contents, perhaps even locking its documents away, thus, enhancing secrecy, especially if no external references were given. From a user's perspective, the same doors, however, may be a handicap, especially if the piece's contents are not properly described externally – one needs to open first, before being able to inspect what is inside. Thus, archival users in early modern Germany sometimes expressly suggested that doors should be removed because they 'blocked the aisles' if open and required the users to have multiple keys always ready at hand.⁵⁶ In brief, doors made using an archive inconvenient. Immediate accessibility and visibility of archived documents, by contrast, was user-friendly, and it was an absolute condition of usability in those cases, for instance, in ancient Greece, where meta-documentation, such as inventories or lists of archived materials, were unknown.⁵⁷ Again, compromises were sometimes found. Some early modern European archival armoires were, for instance, fitted with glass doors (e.g. in the Spanish Archivo General de Indias de Sevilla, 1784/1785) or other types of transparent covers, thus, combining the effects of closing, and locking, with the possibility of instantaneous inspection (Fig. 15).⁵⁸ Sir Christopher Wren once spoke positively of such 'neat Lattice doers for archives'.⁵⁹

⁵⁶ 'nur möchten die Thüren von den Schränken weggenommen werden: dann dieselbe in denen Gängen nur ein beschwerliches Gesperre machen, wie sie dann auch zu nichts dienen zumalen die Schlüssel dazu nicht mehr vorhanden', Wolfenbüttel, Niedersächsisches Landesarchiv Wolfenbüttel, 36 Alt Nr. 112.

⁵⁷ On the key role of visually intuitive spatial arrangements as key forms of document organisation especially in Greek poleis, where 'era sconosciuto l'uso di cataloghi', see Faraguna and Boffo 2021, 508.

⁵⁸ On Sevilla, see Schulz-Dornburg and Zimmermann 2020, 32 and *passim*.

⁵⁹ Quoted in Clark 1901, 280, from a manuscript memorial by Wren.



Fig. 15: Archival armoire with transparent covers; © Schloss Braunfels.

Permeable covers for archival storage furniture had yet another advantage, as archivists realised from early on. Wire mesh or lattice doors allowed the circulation of fresh air, and this greatly helped prevent dampness, moisture and mould.⁶⁰ Yet, again, this was no unambivalent advantage. If permeable doors helped preservation by avoiding mould and moisture, they also contradicted that goal by facilitating access for mice, rats and other vermin. Therefore, the various points to consider were hard to align even in the context of early discussions about the impact of archival furniture design on the material preservation of documents. Creating archival armoires and shelves was a complex process, requiring the careful calibration of numerous, potentially contradictory goals and purposes.

5 Furniture for using archived writings

Spaces of archival storage were not necessarily also preferred locations of archival usage. In fact, a majority even of professional premodern repositories may not have had dedicated reading facilities on site.⁶¹ However, exceptions exist. Sources from Han-era China, for instance, indicate occasional usage of documents in their storage locations:

Il y a les dépôts de documents et d'archives du Tianlu et du Shiqu. Des gens illustres y étudient l'antiquité avec application. Des lettrés célèbres y transmettent leur enseignement et discutent sur les Six Arts, liuyi; ils examinent et recueillent ce qui est semblable et ce qui est différent.⁶²

Yet, even if on-site usage is unlikely or simply undocumented, archives needed additional types of furniture to be functional. From a long list of types of archival furniture not related to storage (which would, for example, also include stoves or trolleys), two cases are selected here for brief discussion: tables and ladders.

One type of rarely mentioned, seemingly mundane, yet, utterly fundamental furniture in the context of successful archival work are tables (see Case Study 4.5). Seemingly ubiquitous, they are not frequently discussed, but their importance is hard to miss. One of the rare, more explicit early descriptions from China comes

⁶⁰ Gatterer 1768, 86.

⁶¹ On the absence of proper reading rooms in Sevilla, see Schulz-Dornburg and Zimmermann 2020, 32.

⁶² Ban Gu, quoted in Drège 1991, 23.

from a ninth-century bibliophile, Zhang Yanyuan, who mentioned in detail what kind of reading equipment was required for perusing valuable scriptures:

À la maison, il faut disposer une table plane avec une couverture et l'essuyer avant de dérouler et déployer (un rouleau) pour le regarder. Pour un rouleau de grandes dimensions, il vaut mieux faire fabriquer une étagère et le suspendre pour le regarder.⁶³

If proper tables were unavailable or unsuitable, alternatives were possible. Various sources from early modern Europe attest, for instance, that archival chests were sometimes mounted on high stiles so that their sides could be used as a support for heavy codices.⁶⁴ Users of archival documents may often have preferred the usage of moveable, inclined bookstands on the top of tables, as are visible on many depictions of readers and writers in premodern Europe.⁶⁵ Tables or desks, in quite a few contexts, also featured lockable compartments or drawers where individuals could store private written artefacts, such as confidential correspondence.⁶⁶

Another type of tool, easily overlooked, yet, equally important in archival contexts, are ladders. As the number of documents grew, archivists and producers of records sought to maximise the space available: they built shelves and armoires that reached the ceiling of sometimes very high rooms – in the case of Simancas quoted above, for instance, including even the spaces above the door-frames.⁶⁷ Top shelves could not be reached easily. Ladders became a necessary piece of inventory for these archives. The illustrations in the Parisian manuscript of al-Hariri's *Maqamat* mentioned above also show the use of a ladder in Muslim libraries.⁶⁸ Additionally, entry into the Damascus Qubbat al-khazna, a major repository of written artefacts (if not, perhaps, an 'archive' properly speaking) in the Umayyad Mosque, would only have been possible with the help of a ladder.⁶⁹ The existence and necessity of a ladder is (disapprovingly) mentioned, for instance, in a 1728 account of University College's archive in Oxford.⁷⁰ Similarly disappointed was one user in 1725 when saying that many of the registers of the Parliament de Paris could only be reached via ladders.⁷¹ Obviously, ladders were considered as a necessary evil resulting from the availability of only limited archival spaces which

⁶³ Drège 1991, 163.

⁶⁴ See the image in Petroski 1999. Further examples in Aston 2004, 239.

⁶⁵ Petroski 1999, 36.

⁶⁶ Examples from early modern England in Daybell 2012, 220.

⁶⁷ Grebe 2012, 500.

⁶⁸ Hirschler 2016, 91 (with plate 3).

⁶⁹ D'Ottone Rambach, Hirschler and Vollandt (eds) 2020.

⁷⁰ Aston 2004, 246.

⁷¹ Friedrich 2018b.

made it necessary to fill rooms to the maximum. Presumably, an ideal archive, by contrast, would have been so spacious as to not require stocking documents up to the ceiling or above tall doors.

Other tools for improving access to written artefacts were more sophisticated. Craftsmen in East Asia and Europe produced rotating pieces of furniture in order to enhance the access to written artefacts. Buddhist monasteries in China, Korea and Japan feature so-called ‘rotating *sūtra* repositories’ (Chin. *lun zang*, Jap. *rinzô*, Kor. *yunjang* 輪藏). Allegedly invented on the Chinese mainland by Fu *dashi* 傅大士 (‘Great scholar Fu’, 497–569), these structures revolve around a central axis and hold bookshelves containing the corpus of canonical scriptures, amounting to several thousand codicological units, typically in a woodblock-printed edition. A *rinzô* is located within a monastic compound or housed in a hall dedicated to that specific purpose. It is built of wood, raised on a dais and sheltered by a roof (even when located inside a hall). It is several metres tall and octagonal in shape. Its original function was to facilitate access to the different parts of the extensive Buddhist canon, but both the form and the rotation itself are also rich in additional symbolic meaning. The eight sides of the octagonal represent the cardinal and diagonal directions, implicating the ubiquity of the Buddha dharma (i.e. the Buddhist teachings). Moreover, the rotational functionality resounds with religious meaning: The proclamation and spread of the Buddhist teachings is known by the metaphor of ‘turning the wheel of the dharma’ and, by extension, the rotation of devotional objects hold the very same significance in a condensed form (Tibetan prayer wheels are probably the most well-known example). The *rinzô* can be employed in an analogous fashion for East Asian Buddhists: the karmic merit gained by one rotation of the *sūtra* repository is tantamount to that of having read the entirety of the Buddhist canon.

Rotating machines, though not turning horizontally but vertically, were also in fashion in premodern Europe, though embedded with much less charisma. Rotating book wheels were available in several Central European reading rooms.

Agostino Ramelli depicted an (idealised?) version in a sixteenth-century book (Fig. 16), and roughly comparable pieces of furniture from the seventeenth or eighteenth century still survive in Wolfenbüttel or Regensburg (Fig. 17).⁷² These machines remained popular beyond the baroque era. An elegant, neoclassical example from 1792 is still to be found, for instance, in the Palazzo Reale of Naples.

⁷² See, e.g., Considine 2016.

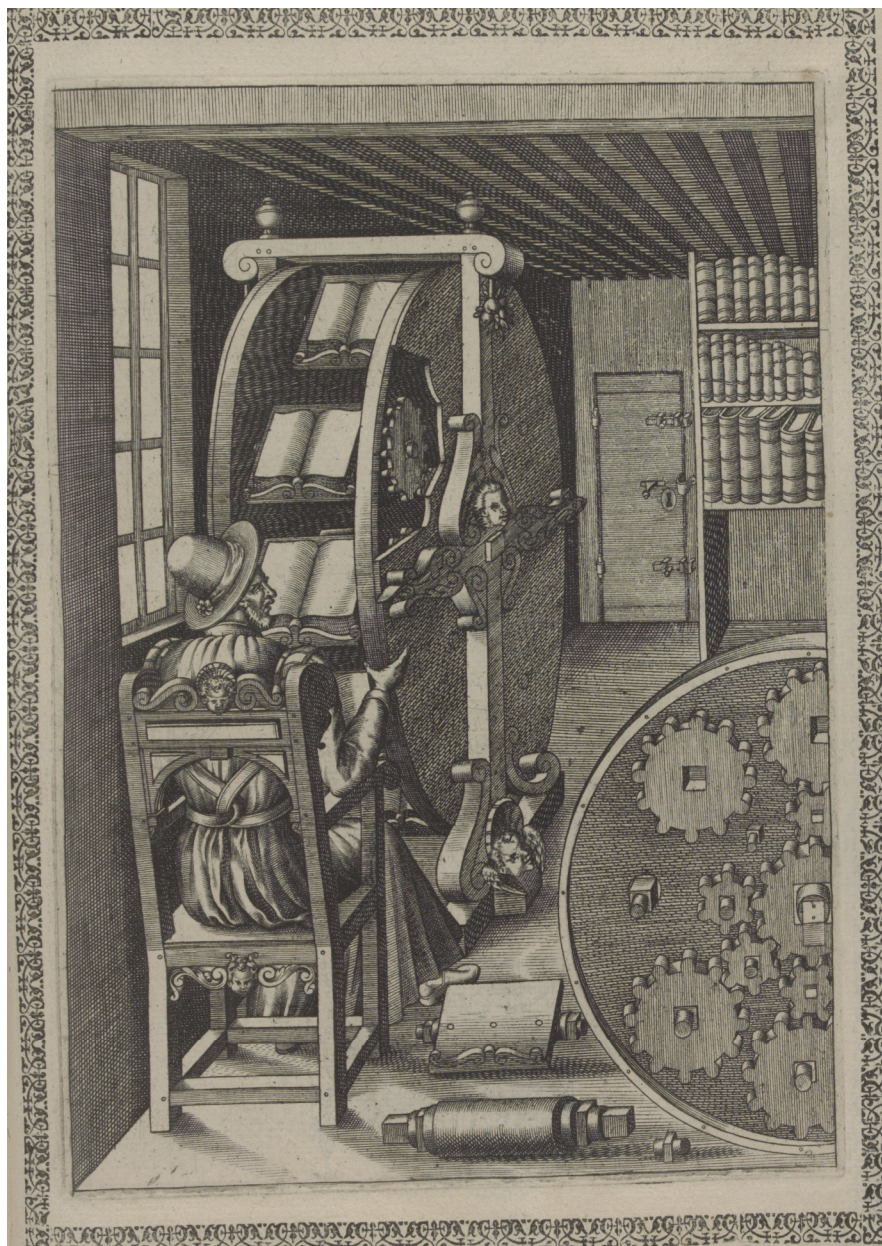


Fig. 16: Agostino Ramelli, *Le diverse et artificiose machine*, Paris, 1588, [16], 338 leaves: ill., port; 38 cm (fol.); © Library of Congress, Rare Book and Special Collections Division, <<https://www.loc.gov/resource/rbc0001.2008rosen1086/?sp=670&r=-0.89,-0.12,2.781,1.495,0>> (accessed on 4 July 2025).



Fig. 17: The book wheel from St Emmeran, Historisches Museum Regensburg; © Museen der Stadt Regensburg; photo: Staatliche Bibliothek Regensburg, T. Holzer.

An even larger archival machine imagined by François-Jacques Guillaute, in 1749, when thinking about how to improve the police services in the city of Paris was of a more utopian nature (Fig. 18). Among many other suggestions, several of which touched upon the police's management of files and archives, he also dreamed up a machine to facilitate and speed up the retrieval of dossiers from the police archives. A drawing of this arrangement was subsequently presented to the French king.⁷³

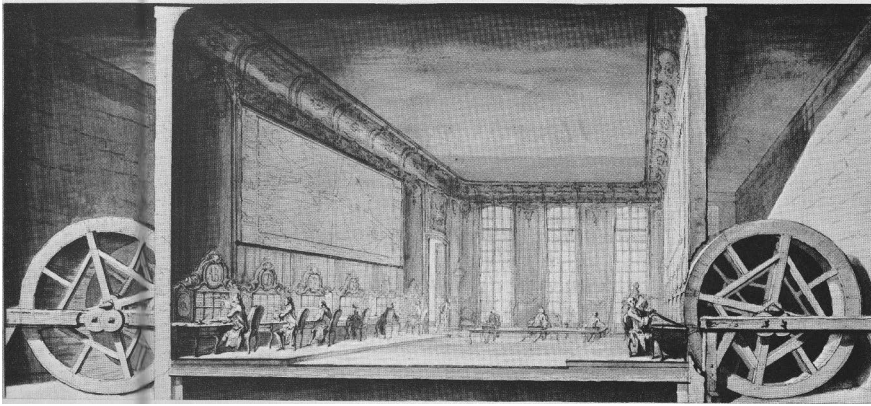


Fig. 18: Drawing by Gabriel de Saint-Aubin in Guillaute 1974, 65.

While purely imaginative, such phantasies of archival machinery, nevertheless, indicate how deeply concerned early modern European writers on archives and paperwork were with the role and development of efficient equipment, furniture and spatial arrangements in the contexts of record-keeping and -using.

6 Creating archival furniture: Production, décor design

There is little explicit information available detailing the production processes of archival furniture in explicit terms for most parts of archival history. We can often only judge the intentions and production practices retrospectively from

⁷³ Guillaute 1974.

extant objects or their literary descriptions. Differing significantly from libraries and natural collections, which were intentionally designed as accessible spaces for a public of (a few select) visitors, archival interiors were, by and large, not intended as representative spaces; hence, their artistic adornment usually remained relatively simple and under-conceptualised. As much of (non-elite) furniture in Europe well into the seventeenth century was probably built by carpenters rather than by more refined craftsmen (such as joiners), household items were generally only of moderate artisanal elaboration – the few written artefacts stored in everyman's houses, for instance, were presumably kept in relatively roughly hewn pieces.⁷⁴

It is, however, obvious that storage furniture for written objects was sometimes designed with great care and at great cost. Sima Qian (c. 145–90 BCE), for instance, reports for Chinese archives of the Warring States era that 'charters and archives (*tuji*) and jade tablets (*yuban*) [were] preserved in golden coffers' in the 'stone hall' of Mingtang.⁷⁵ From a later era, the reign of Yangdi, second emperor of the Sui dynasty (gov. 604–618 CE), a description of the interior of the imperial library survives, which indicates that written artefacts were stored with great splendour:

Les exemplaires principaux étaient magnifiquement montés et rognés, avec des bâtons précieux et des couvertures de brocart. Devant le palais Guanwen se trouvait la salle des écrits aux quatorze travées. Les fenêtres, les coussins des bancs, les tentures des armoires, tout était d'une beauté exquise. Toutes les trous travées s'ouvrait une pièce. Des portes pendaient des tentures de brocart, au-dessus desquelles se trouvaient deux immortels volants.⁷⁶

⁷⁴ Emmison 1976, 16–23.

⁷⁵ *Shiji* ch. 130, 3319, quoted (in French translation) in Drège 1991, 21, n. 27 ('coffres d'or').

⁷⁶ Drège 1991, 46.



Fig. 19: Archival armoire Baseler Domstift, Basel, 1518; © Historisches Museum Basel, Peter Portner.

Archival furniture in Europe was also occasionally adorned by elaborate artistic details, thus, adding decorative elements to the predominantly functional intention (Fig. 19). More than a few medieval and early modern pieces of archival furniture feature elaborate carvings or paintings.⁷⁷ Yet, the application of aesthetic considerations to archival furniture was not a given and, in fact, often entirely rejected. Archives were predominantly functional affairs, some early modern archive owners insisted. One German prince, for instance, when thinking about how to improve his archival facilities in the eighteenth century, took care to make explicit his understanding that archives, including their interiors, did not need to be ‘magnificent and valuable’, but only ‘solid and indestructible’.⁷⁸ While exceptions are more common than may be thought from such statements, ideas of soberness, constraint and economy, nevertheless, dominated a lot of thinking about the external décor of archival infrastructure.

In a few cases, however, uncommonly elaborate pieces of furniture were created for archival purposes. Such exceptional pieces illustrate particularly well how archival furniture may express and be seen (rightly or wrongly) as expressing certain archival attitudes. A prominent example is the famous *Armoire de Fer* of the French king Louis XVI, which was the locus of an important scandal precipitating the events of the French Revolution in late 1792, leading to the king’s decapitation.⁷⁹ Revolutionaries claimed that the king had asked a local locksmith a few months earlier to build an ‘iron chest’ in the Palais des Tuileries – hidden behind a wooden panel and an additional iron plate for protection. The king’s allegedly most secret private archive was violently opened in the hope of finding compromising materials. Even though the *armoire*’s actual contents were of limited importance in the ensuing political affair, this piece of archival furniture acquired overblown symbolic importance as a token of the *Ancien Régime*’s alleged culture of political secrecy and royal seclusion and came to embody the monarchy’s tradition of hiding away problematic evidence.

⁷⁷ Grebe 2012, 668 and *passim*, notes that the Spanish kings showed considerable concern for artistic decoration of their newly renovated central archive.

⁷⁸ Josef W. E. von Fürstenberg: ‘Unser Meinung ist nicht ein prächtig- und kostbares Gebäude zu einem Archiv auszuführen, sondern Wir verlangen lediglich ein solid-dauerhaft- und vom Feuer wohl verwahrtes Gebäude’, quoted in Wilts 2019, 189.

⁷⁹ Freeman 1989.



Fig. 20: Skeleton of Mirabeau coming out of the Armoire de Fer, Bibliothèque nationale de France, Paris; source: Gallica / Bibliothèque nationale de France, <<https://gallica.bnf.fr/ark:/12148/btv1b84116867>> (accessed on 26 September 2025).

A contemporary print depicted this piece of archival furniture as containing the proverbial ‘skeleton in the closet’, here in the shape of Count Mirabeau, accused of conspiring with the king against the revolution (Fig. 20). Later, the discovery

of this archival armoire became the subject of a popular play (George Colman, *The Iron Chest*, 1796), made an appearance in Wordsworth's poetry and is even referred to in George Eliot's *Middlemarch* from 1871.⁸⁰ Exquisitely crafted pieces of specialised archival furniture became symbols of a detested political regime and emptying out such archive closets became an emblematic revolutionary act. As the French minister of the Interior, Jean-Marie Roland de La Platière stated when presenting his findings to the National Convention on 20 November 1792, it was not only the 'nature' of the documents that made them suspect, but also, and particularly, 'the location where they were found'.⁸¹



Fig. 21: Armoire de Fer, Grands Dépôts, Archives nationales, Paris; CC BY-SA 3.0, via Wikimedia Commons: <[https://commons.wikimedia.org/wiki/File:Archives_nationales_\(Paris\)_L%27armoire_de_fer_ouverte_\(Grands_D%C3%A9p%C3%B4ts\).png](https://commons.wikimedia.org/wiki/File:Archives_nationales_(Paris)_L%27armoire_de_fer_ouverte_(Grands_D%C3%A9p%C3%B4ts).png)> (accessed on 26 September 2025).

⁸⁰ Davies 2002.

⁸¹ 'Je viens rapporter à la Convention Nationale plusieurs cartons remplis de papiers qui, par la nature et par le lieu où ils ont été trouvés, m'ont paru de la plus grande importance', see *Réimpression de l'ancien Moniteur* 1840, 530.

7 Industrial furniture for the professionalised archives of the nineteenth, twentieth and twenty-first centuries

The later nineteenth century was also a turning point in archival history concerning archival furniture. Industrialisation changed the ways in which (archival) furniture was produced profoundly, and the gradual professionalisation of archives and archivists not only expanded the demand for new archival furniture, but also stimulated a critical reflection about ideal forms of storage and created new concepts of how to preserve written artefacts. Moreover, advances in science improved understandings of the perils that led to manuscript decay. These developments – first visible in Europe and later in the colonial and postcolonial world – led to the rise of mass-produced furniture specifically designed for (archival) storage purposes. This included, for instance, what may be considered the most iconic piece of archival furniture: the filing cabinet.⁸³ The latter relied on a vertical storage of loose sheets ‘standing’ upright.

This new type of archival equipment, invented in North America in the 1890s after a lengthy period of experimentation with horizontal flat files and filing furniture, was soon being produced on an industrial scale in numerous places, including, for instance, in Strasbourg (Fig. 23).⁸⁴ The new storage technology quickly caught on worldwide. In the United States several government agencies started using filing cabinets in 1906. Eventually, these new and ‘modern’ storage technologies, combined with ideas of bureaucratic procedure and state control, were also exported into the various European colonies and, thereby, acquired global reach.

JoAnn Yates and, more recently, Craig Robertson have demonstrated that the new type of archival storage furniture must be seen as an expression and facilitator of wide-ranging shifts in the conception and usage of information in typically modern, office-based bureaucratic administrations.⁸⁵

⁸³ Robertson 2021.

⁸⁴ For details of the development, including specifics on previous horizontal filing, see Yates 1982, esp. 12–14.

⁸⁵ Yates 1982; Robertson 2021. See also Gardey 2008.



Fig. 23: Strafor commercial, 'Les Forges de Strasbourg', Pub. Ch. Lemonnier, online via <<https://www.industrie.lu/ForgesDeStrasbourg.html>> (accessed on 18 August 2023).

Furthermore, the new type of storage furniture was closely intertwined with aspects of gender relations and capitalist ideas about administrative efficiency, as the adjacent commercial pamphlet from 'Art Metal' demonstrates (Fig. 24). Archival furniture was increasingly considered to be a key element in science-based approaches to enhance organisational efficiency.

New archival furniture, such as the filing cabinet, served many purposes, often working in tandem with other newly invented technologies. The advent of new archival storage facilities and furniture, combined with the nascent technology of photography, for instance, revolutionised the policing of deviant behaviour.⁸⁶

⁸⁶ For the following, see Tagg 2012, 24–37.



Are letters on your desk in stop-watch time?

DON'T blame your file clerk when she's slow in bringing you something you ask for—until you are sure the fault doesn't lie with the file.

What kind of filing equipment has she got to work with? Anything as efficient as the Art Metal 6700 File shown above?

There's a file that's planned for modern business! You get every inch of filing space you pay for... patented ball-bearing roller suspensions make drawers accessible to full capacity. Make them slide smoothly, too... they literally coast in and out.

The 6700 File has a special positive lock compressor that keeps papers smooth and firmly in place—yet a slight pressure of thumb and finger

releases it. That compressor wastes no space, either.

And this Art Metal File will last a lifetime. It's framed of electrically welded steel... with cross bars at each drawer to make the whole cabinet rigid.

There are nine different 6700 styles. And they are only one group of the 81 types of Art Metal vertical files that cover every possible filing need—just as the complete Art Metal line covers every office equipment requirement. Every Art Metal product is

of lasting, warp-proof steel... finished in fine wood graining or rich olive green.

We shall be glad to furnish information on office equipment for your type of business. Or, if you need more equipment for your present office, just check below the kind you want and we will forward a catalogue.

Art Metal Construction Co.,
Jamestown, N. Y.

- | | |
|-------------------------------------|---|
| ☐ Fire Safes | ☐ Horizontal Sectional Files |
| ☐ Desks | ☐ Upright Unit Files |
| ☐ Plan Files | ☐ Counter Height Files |
| ☐ Shelving | ☐ Postindex Visible Files |

Art Metal

Steel Office Equipment, Safes and Files

Fig. 24: Commercial pamphlet from 'Art Metal', in Robertson 2021, 5.



Fig. 25: Bertillon's filing system. A photograph from Alphonse Bertillon's photo album from his exhibition at the 1893 World's Columbian Exposition in Chicago, The National Gallery of Canada, Ottawa; public domain, <https://www.nlm.nih.gov/exhibition/visibleproofs/galleries/exhibition/views_image_5.html> (accessed on 26 September 2026).

Mid- and late-nineteenth-century police organisations around the world relied increasingly on mug shots to identify criminals – and needed specialised furniture to archive tens of thousands of images in usable ways so as to facilitate comparison between images and real people. The system of 'Bertillonage', named after its inventor Alphonse Bertillon, required elaborate storage technologies for vast numbers of photographs (Fig. 25).⁸⁷ Other image producing entities also quickly came to rely on (specialised) filing cabinets and related furniture to protect and store their photographic archives. The English Photographic Survey and Records,

⁸⁷ See also Sekula 1986.

for instance, requested sophisticated storage furniture for thousands of images documenting current everyday life.⁸⁸

Once the new ‘information sciences’ and the science of ‘management’ had started to focus on record-keeping furniture as a key facilitator of administrative efficiency and power, new inventions and competing systems for optimising archival processes proliferated. There was no end to attempts at improving archival record-keeping by devising (and selling) new pieces of equipment and furniture. One of the more durable improvements of the original concept of filing cabinets was the creation of hanging files, which relied on punching and binding loose pages into specialised folders before hanging them upside down in specialised cabinets or shelves.⁸⁹ Another important twentieth-century innovation in archival furniture was the invention of ‘mobile shelving’, i.e. moveable shelves to maximise storage space by eliminating the aisles between shelves. Several types were suggested. The so-called Lapouyade shelving in the 1960s, for example, moved sideways. Elsewhere, forward movement was preferred. Whatever the system of moveable shelves consisted of in detail, the amount of storage space available in such arrangements increased significantly.

Based on such developments and following suit upon broader developments of organisational theory and documentation sciences, professional archivists and architects, in addition to management theorists, began to think in ever more explicit and concrete terms about the material implications of archiving. An international landmark was the publication of *Les bâtiments et équipements d'archives* by French archivist Michel Duchein in 1966. The book was translated into English and appeared in several updated editions.⁹⁰ Concerning archival furniture, he stated simply, ‘Shelves are the main strongroom fittings. [...] The chapter devoted to shelving is thus one of the most important in a book about archive buildings.’⁹¹

⁸⁸ Tagg 2012. See, e.g., <<https://www.surreycc.gov.uk/culture-and-leisure/history-centre/marvels/photographic-survey>> (accessed on 31 May 2024).

⁸⁹ This system was used, for instance, by the secret service (Ministerium für Staatssicherheit) of the former German Democratic Republic in East Berlin. Personal files about hundreds of thousands of citizens of East Germany were organised and made accessible for rapid inspection by the despotic regime through using these advanced twentieth-century filing technologies. See a number of images of original files in Häckel (ed.) 2020.

⁹⁰ Though perhaps not updated enough given the rapid technological change, as one reviewer noted, Roper 1979, 47. All of the following, including the images, comes from Duchein 1988, 48–54, and the numbered plates at the end of the volume.

⁹¹ English version, see Duchein 1988, 48.

Other pieces of furniture, while used in special cases, were not generally considered fit for proper archival storage.⁹² Shelves were now usually made of steel, and, according to Michel Duchein, came in mostly standardised length of roughly 100 to 120 cm. No less than six additional pages were required to explain how shelves were best arranged and used in modern archives.

A tendency to express specific requirements of archival furniture in numerical language using measurements and mathematical formulae is clearly visible (Figs 26 and 27). Nowadays, specialised literature and expert professionals provide guidance for furnishing archival storage facilities and reading rooms. Even the minutest details of the construction of archival furniture are either subjected to regulatory norms or the object of practical counselling.⁹³ A broad tendency towards the usage of steel furniture and horizontal storage of files is in evidence; the use of wooden furniture and the upright or vertical storage of documents, though regionally still common, is strongly discouraged.⁹⁴ A complex industry providing professional archival supplies – from small items, such as paper envelopes, to the largest pieces of furniture – currently exists. As one recent introductory pamphlet notes,

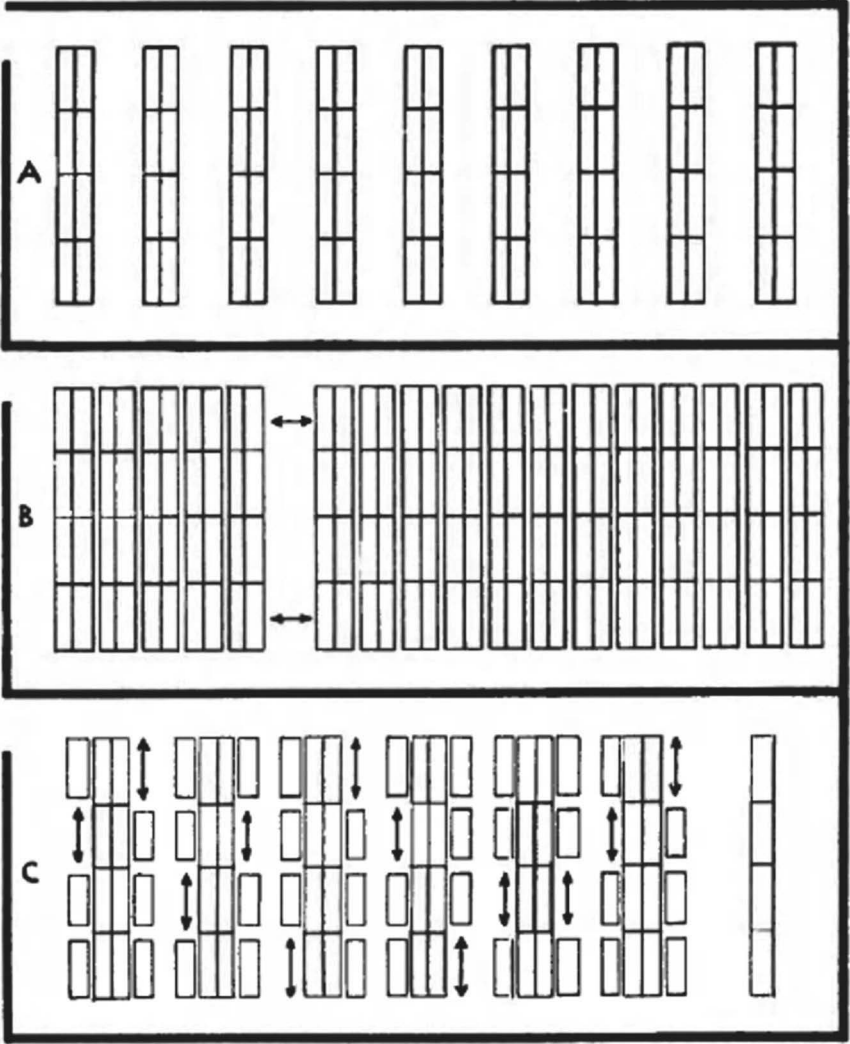
Without the establishment of secure and well-maintained storage accommodation, incorporating appropriate high-quality storage furniture and materials, all other actions to preserve library and archive collections will have limited impact. Most library and archive collections will spend a much greater proportion of time in storage than in any other form or use.⁹⁵

⁹² Duchein 1988, 49, n. 13.

⁹³ For one typical example, see, e.g., Cermenati 1997, 229–246.

⁹⁴ For both points, and generally as a typical example of contemporary specialist treatment of archival furniture, see Kießling 2002.

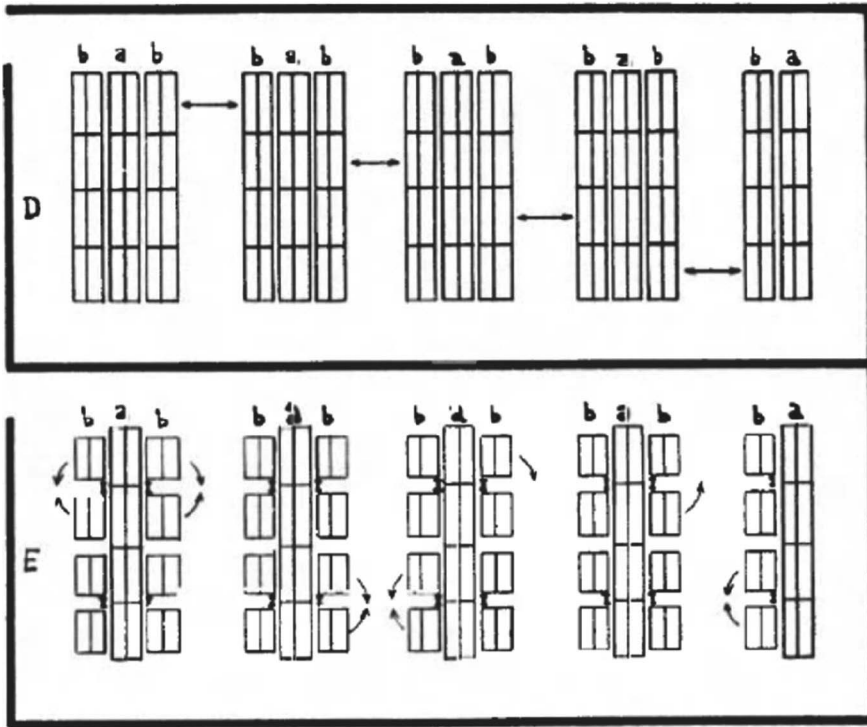
⁹⁵ Rhys-Lewis 2021, unpaginated. This is a brief eight-page pamphlet produced by the British Library.



- A. Room fitted out with traditional shelving
- B. Room fitted out with compact shelving with transversal movement (compactus)
- C. Room fitted out with compact shelving with lateral movement

III 34. The layout of fixed and mobile (or compact) shelving.

Fig. 26: Diagrams of different systems of compact shelving, in Duchein 1988, 179.



D. Room fitted out with compact shelving, having transversal movement, in groups of 3 rows (a fixed rows; b moveable rows)
E. Room fitted out with pivoting compact shelving (a fixed rows; b pivoting bays)

Fig. 27: Diagrams of different systems of compact shelving, in Duchein 1988, 180.

To make that time on the shelf as harmless as possible for stored materials, conservators currently insist that the furniture used should follow detailed specifications, often laid down in officially sanctioned national standards. The British BS 4971:2017, for instance, insists that shelves ideally ‘need to be fully adjustable’ to meet the formats and sizes of the materials stored.⁹⁶ Shelves should preferably not be mounted on an external wall because there is a danger of a ‘cold bridge’, leading to condensation and threatening humidity. While the benefits of wooden shelves continue to be appreciated, nowadays, ‘metal is seen as an archival indus-

⁹⁶ This and the following remarks come from the summary by Rhys-Lewis 2021, unpaginated.

try standard'. Shelves are usually made from coated steel. Detailed specifications in such industry standards explain which kinds of coats may be used and which potential dangers are implied.

As options for archival furniture multiplied and technical considerations proliferated, appropriately selecting and then competently working with it became an increasingly complex task. Expert handling of furniture became a key element in the education of future archivists. A widely used textbook originating in the New York School of Filing, founded in 1914, for instance, tellingly opened with a first chapter dedicated to 'Filing Equipment', which started with a brief discussion of filing cabinets and other types of archival furniture.⁹⁷ Archivists were also required in their increasingly specialised (and state-controlled) education to learn about proper storage facilities, including furniture, and the adequate deployment of all the equipment available for storage and preservation, even though restoration and conservation remained specialised activities in their own rights. Nevertheless, at least a rudimentary familiarity with current trends in archival furniture today counts among the basic knowledge for professional archivists, not least, in order to navigate the ever-expanding market constantly offering new solutions.

From corporations and state bureaucracies, the modernist obsession with perfecting the organisation of paperwork via dedicated furniture eventually conquered private spaces. Post-World War II private life was increasingly seen as requiring bureaucratic organisation, prominently including the organisation of growing amounts of papers. Filing cabinets and their companion technologies and tools were marketed as ideal solutions to optimise the self in this regard. A distinctive advice literature emerged, often targeting private individuals in the form of self-help books (Fig. 28).

97 On the school, see McCord 1920, vii. For filing education in general, see Robertson 2017.

110 • File... Don't Pile!

2. *Keep the duplicate copy away from your home.* If your home is destroyed, you'll be grateful to have copies of irreplaceable papers.
3. *Keep the original in as safe a place as possible.* Items can be stored in a trunk by the door or in the bottom drawer of a metal filing cabinet.

Safeguarding precious papers doesn't mean they have to be buried. If the papers are hidden for fear they might be lost, they will never be in view to be enjoyed as they should. A preconceived plan may save irreplaceable originals in the event of an emergency evacuation. Make a list of items that should be taken and keep several empty peach crates handy to make removal easy.

Papers classified as "replaceable" can be evaluated in terms of contribution. The following questions may be considered.

1. *How frequently is the paper used?*

Some people put an "x" at the top of the paper each time it is removed from the file. Many of my recipes bear telltale signs that indicate their usage.

2. *Is there a copy of the item available elsewhere?*

If an item isn't used too frequently and you don't have room to store it, get rid of it. You can always go to the library if you need the information.

3. *How timely is the information?*

Always date each item filed and this question will be easy to answer. Determine the number of years you feel information will be current and let this be your guideline of how long to retain them. Even new cooking products and equipment may affect the usefulness of recipes that seemingly never would become outdated.

Papers usually fall in three groups in terms of usage — Active Files, Semi-Active Files, and Inactive or Dead Files. Assuming the top and bottom drawers are the most difficult for people to reach, many offices use them to store less active files. The middle two drawers are reserved for the most frequently used or active files. Adapt this procedure to fit your personal needs. In my case, I use the bottom drawers of two cabinets to store the very active **STORY FILE** and **GAME FILE** because my children can reach those drawers. In another cabinet, I store back issues of a magazine to which I absolutely will not put a scissors. The magazines are heavy so the bottom drawer is the best place to store them even though I refer to them frequently.

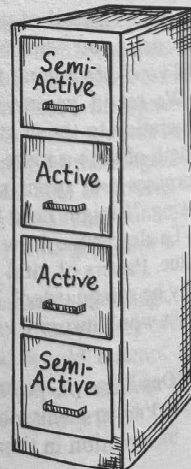


Fig. 28: Comic illustration from a self-help book, in Dorff 1986, 110.

Sporting enthusiastic titles such as *File... Don't Pile!*⁹⁸ or *Taming the Paper Tiger* (followed by *Taming the Office Tiger*)⁹⁹, such works were often funny in tone and presentation. Yet, despite their casual surface, these works were unflinchingly committed to their basic assumption that personal well-being in the twentieth century implied control of paperwork, which (in decidedly modernist understanding) required not only large amounts of self-discipline ('Always file papers correctly right away'), but also complex pieces of material equipment, including filing cabinets. As imagined by these works, all private homes of the modern era needed to be equipped with some sort of semi-professional archival furniture, thereby bringing the most recent and up-to-date developments into the life of countless individuals.

Acknowledgements

The research for this paper 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.

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⁹⁸ Dorff 1986.

⁹⁹ Hemphill 1992; Hemphill 1995.

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